Utah Lake Drainage Basin
Water Delivery System
Bonneville Unit, Central Utah Project

Final
Environmental Impact Statement

Chapter 4
Consultation and Coordination

- The notice of intent to prepare an EIS and initiate scoping was published in the Federal Register on August 23, 2000 (FR 00-21458).

- Newspaper advertisements were placed in local newspapers prior to each public meeting, including meeting dates, times and locations.

- Information packets and meeting invitations were mailed to persons and groups on the District's mailing list.

- The February 2002 scoping meetings were announced on the District's website.

Table 4-1 shows the ULS scoping meeting dates, locations, times and attendance.

Table 4-1
ULS Scoping Meeting Dates, Locations, Times and Attendance

Meeting Date	Meeting Location	Number of Participants
September 28, 2000 (5:00 to 8:00 p.m.)[1]	Utah Valley State College, Orem, Utah	54
October 17, 2001 (4:00 to 9:00 p.m.)[1]	Provo City Library, Provo, Utah	89
February 27, 2002 (6:30 to 8:30 p.m.)	Provo City Library, Provo, Utah	74
February 28, 2002 (6:30 to 8:30 p.m.)	West Jordan City Hall, West Jordan, Utah	48

Notes:
[1] Informal open house-style informational sessions

4.2.2 Results of Scoping Meetings and Use of Comments Received

Public and agency input at the scoping meetings from interested citizens, organizations and government agencies was carefully reviewed and analyzed by the Joint-Lead Agencies to identify and determine and issues and concerns. To understand the issues and concerns of the public and agencies, the EIS team analyzed verbal comments received at the February 2002 scoping meetings and written comments received by the District during the 30-day formal scoping comment period that ended March 30, 2002. Verbal comments from the scoping meetings were recorded according to four water delivery concepts, and issues and concerns from flip charts were categorized by resource discipline and water delivery concept. Written comments from the comment period were carefully reviewed and identified as issues, concerns, or opportunities, then categorized by resource discipline or rejected as inappropriate for the EIS.

Each issue, concern or opportunity was edited into the form of a question that would be answered in the EIS. Issues were repeated when they related to multiple resource disciplines. Comments on features of the water delivery concepts, along with alternatives proposed in comment letters, were recorded for consideration in formulating the ULS alternatives. The identified issues and concerns were divided into 23 resource disciplines representing distinct aspects of the human and natural environment. These issues and concerns were used to

letermine the scope of the impact analysis within each resource discipline.

4.2.3 Agencies and Organizations Consulted

The agencies and organizations consulted during the scoping process are listed in Table 4-2.

Table 4-2
Agencies and Organizations Consulted During the Scoping Process

U.S. Department of the Interior	Lehi City
U.S. Fish and Wildlife Service	City of Highland
U.S. Forest Service, Uinta National Forest	Alpine City
U.S. Environmental Protection Agency	American Fork City
U.S. Army Corps of Engineers	Town of Saratoga Springs
U.S. Bureau of Reclamation	Town of Eagle Mountain
Utah Department of Natural Resources	Jordan Valley Water Conservancy District
Utah Division of Wildlife Resources	Metropolitan Water District of Salt Lake and Sandy
Utah Division of Water Resources	South Utah Valley Municipal Water Association
Utah Division of Water Rights	Strawberry Water Users Association
Utah State Engineer	Provo River Water Users Association
Utah Division of Parks and Recreation	Strawberry Highline Canal Company
Utah Division of Forestry, Fire and State Lands	Mapleton Irrigation District
Utah Department of Environmental Quality	Springville Irrigation District
Utah Division of Water Quality	Salem Irrigation and Canal Company
Utah Department of Transportation	Lake Shore Irrigation Company
Utah County	Spanish Fork-East Bench Irrigation Company
Provo City	Spanish Fork-West Bench Irrigation Company
Orem City	Spanish Fork South Irrigation Company
Springville City	Spanish Fork Southeast Irrigation Company
Mapleton City	Summit Creek Irrigation and Canal Company
Spanish Fork City	Currant Creek Irrigation Company
Salem City	Corporation of Presiding Bishop, CJCLDS
Payson City	East Juab County Water Conservancy District
Santaquin City	Nephi Irrigation Company
Goshen City	North Canyon Irrigation Company
Mona Town	Mona Irrigation Company
Nephi City Corporation	Wasatch County Water Service Area No. 1
Town of Rocky Ridge	

4.3 Consultation

Table 4-3 lists the coordination and consultation meetings that were held in the process of preparing the FEIS. Following the table, related studies required by laws and executive orders are briefly summarized.

Table 4-3
Coordination and Consultation Meetings

Date	Agencies in Attendance	Topics
September 24, 2001	Central Utah Water Conservancy District (District), Department of the Interior (DOI), Utah Division of Water Rights, Utah Division of Water Resources,	Meeting to discuss potential conjunctive use in the ULS. To review the ULS schedule, public meetings and to review supply concepts.
October 15, 2001	District, DOI, Utah Reclamation Mitigation and Conservation Commission (MC), U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (FWS), U.S. Bureau of Reclamation (Reclamation)Utah Division of Water Resources, Utah Division of Water Quality, Utah Division of Wildlife Resources,	Meeting to present a slide presentation for the upcoming Oct 17, 2001 public meeting.
November 14, 2001	District, Utah Division of Water Resources	Meeting on M&I water demand.
December 17,2001	District, DOI, MC, EPA, U.S. Army Corps of Engineers (Corps), U.S. Forest Service (Forest Service), FWS, Reclamation, Utah Department of Natural Resources	Meeting to discuss remaining environmental commitments to be addressed in the ULS planning and NEPA compliance
January 2, 2002	District, American Fork City	Meeting on M&I water demand.
January 3, 2002	District, Lehi City	Meeting on M&I water demand.
January 3, 2002	District, Highland City	Meeting on M&I water demand.
January 17, 2002	District, EPA	Meeting with EPA to hand out the executive summary of the Plan Formulation Report and discussion of document.
January 25, 2002	District, DOI, MC, Reclamation, FWS, Utah Division of State Parks and Recreation, Utah Division of Forestry, Fire and State Lands, Utah Division of Wildlife Resources, Utah Division of Water Resources, Utah Division of Water Quality	Meeting to hand out the executive summary of the Plan Formulation Report and discuss.
February 1, 2002	District, FWS, Utah Division of Wildlife Resources	Meeting to receive written comments on the Plan Formulation Report and Executive Summary.
March 22, 2002	District, DOI, MC, FWS, EPA, Reclamation, Forest Service, Utah Division of Water Resources, Utah Division of Water Rights, Utah Division of Wildlife Resources	Meeting to receive comments on ULS alternatives

Table 4-3
Coordination and Consultation Meetings

Date	Agencies in Attendance	Topics
March 27, 2002	District, DOI, Utah Division Water Rights, Reclamation, Utah State Engineer	Meeting with the Utah State Engineer to discuss the disposition of the District's Utah Lake water rights and to seek expedition of reconsideration of a Memorandum Decision affecting the exchange of the yield of the water rights in Jordanelle Reservoir.
April 18, 2002	District, Mapleton City, Springville City, Mapleton Irrigation District, Springville Irrigation District	Meeting on Mapleton-Springville Lateral pipeline
May 21, 2002	District, Spanish Fork City	Meeting on pipeline alignments
July 9, 2002	District, US Geological Survey	Meeting on Mapleton-Springville Lateral seepage study
July 11, 2002	District, Utah Division of Water Resources, Utah Waters, Stonefly Society	Meeting to discuss the Utah Lake Stabilization and Restoration Concept
July 31, 2002	District, Provo City	Meeting to discuss potential ULS alignment through Provo.
August 7, 2002	District, City of Santaquin, City of Spanish Fork, Utah Division of Water Resources	Meeting to discuss water rights, population projections and estimated water needs for the future. Declaration of boundary acreage and areas of anticipated growth.
August 27, 2002	District, Provo City	Meeting to follow-up with Provo City potential ULS alignments trough Provo.
November 7, 2002	District, Currant Creek Irrigation Company	Meeting on facilities, water needs, and Mona Reservoir
November 8, 2002	District, Summit Creek Irrigation Company	Meeting on facilities and water needs
November 22, 2002	District, Utah Department of Transportation (UDOT),	Meeting to discuss Highway 6 plans and to display maps showing the preliminary alternative alignments to UDOT.
January 6, 2003	District, Wasatch Front Regional Council	Meeting to discuss population projections
January 9, 2003	District, UDOT	Meeting updating UDOT on the potential ULS project pipeline alignments and the UDOT roads and rights-of-way that may be affected by the construction of a future pipeline. A secondary discussion of possible future UDOT projects that may lie in the concept alignments, a discussion concerning construction criteria for affected UDOT roads, (e.g. fill material, evaluation of available UDOT material (e.g., maps and utility locations) which may be utilized for preliminary sizing and layouts, determination of contact personnel at UDOT.

Table 4-3
Coordination and Consultation Meetings

Date	Agencies in Attendance	Topics
January 23, 2003	District, DOI, MC, EPA, Corps, Forest Service, FWS, Reclamation, Utah Department of Natural Resources, Utah Division of Wildlife Resources, Utah Division of Water Resources, Utah Division of Water Rights, Utah Division of Forestry, Fire and State Lands, Utah Division of Parks and Recreation, Utah Department of Environmental Quality, Utah Division of Water Quality, June Sucker Recovery Implementation Program	Meeting to discuss purpose and need, scoping meetings, water needs, demands and supplies analysis, ULS alternatives, and cooperating agencies
February 5, 2003	District, UDOT	Meeting to discuss Highway 6 plans and preliminary alternative alignments.
March 4, 2003	District, DOI, MC, EPA, Forest Service, FWS, Reclamation, Utah Department of Natural Resources, Utah Division of Wildlife Resources, Utah Division of Water Resources, Utah Division of Water Rights, Utah Department of Environmental Quality, Utah Division of Water Quality	Meeting to review resource specialist work plans, discuss ULS alternatives, share data and data sources
March 10, 2003	District, DOI, MC, EPA, Corps, FWS, Reclamation, Natural Resources Conservation Service (NRCS), Utah Division of Wildlife Resources, Utah Division of Water Resources, June Sucker Recovery Implementation Program	Meeting to review written comments received and discuss comments on the Resource Specialist Work Plans and the Description of Alternatives for the Utah Lake System EIS.
April 15, 2003	District, Jordan Valley Water Conservancy District (JVWCD), Metropolitan Water District of Salt Lake and Sandy (MWDSLS)	Meeting to discuss the pattern of the ULS water delivery, the conveyance facilities that would be used north of the Provo River, Water Quality and the distribution of water between JVWCD and MWDSLS.
April 18, 2003	District, DOI, EPA, SUVMWA member cities	Meeting to discuss ULS EIS
May 12, 2003	District, DOI, MC, Forest Service	Meeting to review Uinta National Forest comments on resource specialist work plans and alternatives
May 14, 2003	District, JVWCD	Meeting to discuss water use and water conservation
May 15, 2003	District, Provo City	Meeting to discuss the 900 East alignment through Provo.
May 30, 2003	District, UDOT	Meeting to review interrelated projects
June 4, 2003	District, MWDSLS	ULS water recycling

Table 4-3
Coordination and Consultation Meetings

Date	Agencies in Attendance	Topics
June 5, 2003	District, Mayor of Springville , Springville City Administrator and City Engineer, Mayor of Mapleton,	Meeting to discuss the Alternative 2 alignment.
June 5, 2003	District, Santaquin City	Meeting to discuss how the city would use ULS water.
June 16, 2003	District, Utah State Hospital Staff	Meeting to discuss the alignment of Alternative 2 through the Hospital property.
June 17, 2003	District, Provo City Parks and Recreation	Meeting to discuss ULS project.
June 18, 2003	District, Provo City	Meeting to discuss ULS alignments.
July 28, 2003	District, Western Area Power Administration	Meeting to discuss ULS power features and alternatives
August 7, 2003	District, Orem City	Meeting to give Orem City a revised look at the revised pipeline route in Alternative 2 and to discuss any concerns they may have and to answer questions.
August 19, 2003	District, DOI, UDOT, Utah Division of Water Resources	Meeting on U.S. Highway 6 and Spanish Fork Canyon Pipeline
August 21, 2003	District, DOI, Forest Service	Meeting to discuss the process for withdrawing Forest Service lands for the ULS EIS.
August 26, 2003	District, Utah Division of Water Resources, Spanish Fork River Commissioner, Mapleton Irrigation Co., Springville Irrigation Co.	Meeting on how the Mapleton-Springville Lateral would be addressed in the ULS EIS.
September 18, 2003	District, DOI, MC, EPA, Forest Service, FWS, Reclamation, Utah Department of Natural Resources, Utah Division of Wildlife Resources, Utah Division of Water Resources, Utah Division of Water Rights, Utah Division of Water Quality, Utah Division of Parks and Recreation, UDOT, June Sucker Recovery Implementation Program	Meeting to present PDEIS Chapter 1, review impact analysis results, and discuss PDEIS review schedule
October 3, 2003	District, DOI, MC, EPA, Forest Service, FWS, Reclamation, Utah Department of Natural Resources, Utah Division of Wildlife Resources, Utah Division of Water Resources, Utah Division of Water Rights, UDOT	Meeting to present PDEIS Chapter 3 Sections and Preliminary Draft Technical Reports. Agencies not represented at this meeting were sent CDs of Chapter 3 and the Preliminary Draft Technical Reports.
October 8, 2003	District, Salt Lake County Flood Control District	Meeting on ULS and Jordan River Flows
October 15, 2003	District, EPA	Meeting with the EPA to discuss 404(r) and 404(b)(1) analysis

Table 4-3
Coordination and Consultation Meetings

Date	Agencies in Attendance	Topics
October 17, 2003	District, MC, EPA, FWS, Utah Division of Water Resources, Utah Division of Water Rights	Meeting to review comments on PDEIS Chapter 3 sections and Preliminary Draft Technical Reports
October 23, 2003	District and Salt Lake County Flood Control	Meeting to discuss the Utah Lake/Jordan River adjustment of simulated flows.
November 6, 2003	District, UDOT	Meeting to discuss ULS and Highway 6
November 13, 2003	District, Springville City	Meeting with newly elected city council on ULS
November 14, 2003	District, DOI, MC, FWS, Utah Department of Natural Resources, Utah Division of Wildlife Resources	Meeting to review Draft Biological Assessment, Draft Biological Opinion, and Fish and Wildlife Coordination Act Report schedules
November 21, 2003	District, State Engineer	Meeting on ULS return flows
December 5, 2003	District, DOI, MC, FWS	Meeting with the FWS to discuss the Biological Assessment.
January 9, 2004	District, DOI, MC	Meeting to discuss the Groundwater/Wetlands findings from the Groundwater/Wetlands technical team meeting held on Jan 8, 2004. Water Quality issues resulting from the Water Quality Technical team meeting on Jan 8, 2004. Discussions on which agency would be responsible for the Diversion Dams on Spanish Fork, Hobble Creek and the Lower Provo River. Also discussions on the Environment Commitments-High Flow Hydrologic Study on the Provo River
January 13, 2004	District and State of Utah Department of Water Quality	Meeting to discuss water quality issues associated with the ULS EIS
January 13, 2004	District, Utah Division of Water Quality	Meeting to discuss ULS Alternatives, Preferred Alternative, Strawberry Reservoir Source Water Quality, Supplemental Discharge to the Lower Provo River, and Utah Lake.
January 26, 2004	District, DOI, MC, Utah Division of Wildlife Resources – Joint-Lead Agency Meeting	Meeting to discuss water quality, diversion dams, SUVMWA member cities and groundwater pumping in southern Utah Valley, water conservation, Provo River System Stream Flow Study and to review the write-up on the reason why Strawberry Reservoir-Deer Creek Reservoir Alternative is eliminated from further analysis.

Table 4-3
Coordination and Consultation Meetings

Date	Agencies in Attendance	Topics
January 29, 2004	District and Utah Division of Water Quality	Meeting to discuss water quality analysis for Utah Lake and potentially affected streams
February 5, 2004	District and DOI	Meeting to discuss the Surface Water Hydrology Technical Report comments
February 11, 2004	District and DOI	Meeting to discuss the Jordan River Flows below the Jordan Narrows.
February 12, 2004	District, DOI and FWS	Meeting to discuss Fish and Wildlife Coordination Act and FWS comments on Draft Biological Assessment
February 12, 2004	District and Utah Division of Water Quality	Meeting to discuss preliminary draft Water Quality Technical Report
February 19, 2004	District, MC, Utah Division of Wildlife Resources and FWS	Meeting to discuss FWS comments on Biological Assessment, and to discuss Fish and Wildlife Coordination Act report
February 27, 2004	District, DOI, MC and EPA	Meeting to discuss EPA comments on 404(b)(1) analysis and 404(r)
July 2, 2004	District, DOI, MC – Joint-Lead Agency Meeting	Meeting to discuss DEIS comment letters and assign responses
July 15, 2004	District, DOI, MC, FWS	Meeting to discuss angler-day revisions, FWS concurrence letter on Biological Assessment, FWS Contaminants Letter
July 19, 2004	District, DOI, MC – Joint Lead Agency Meeting	Meeting to discuss EPA comment letter on DEIS
July 26, 2004	District, Utah Division of Water Quality	Meeting to discuss revised water quality analysis for Utah Lake
July 27, 2004	District, Utah Division of Water Quality	Meeting to discuss revised water quality analysis for Utah Lake
July 29, 2004	District, DOI, MC, FWS	Meeting to discuss Planning Aid Memorandum, revised water quality analysis
August 12, 2004	District, Utah Department of Environmental Quality, Utah Division of Water Quality	Meeting to discuss revised water quality analysis and upcoming meeting with EPA
September 2, 2004	District, Utah Division of Water Quality	Meeting to discuss revised water quality analysis and 401 water quality certification
September 3, 2004	District, DOI, MC – Joint-Lead Agency Meeting	Meeting to discuss comment responses prepared for the FEIS
September 14, 2004	District, DOI, Utah Governor, Utah Division of Water Quality, EPA	Meeting to discuss EPA comments on revised water quality analysis, water conservation, and 404(b)(1) analysis for 404 (r) exemption

4.3.1 Fish and Wildlife Coordination Act

The District has coordinated with the FWS on fish and wildlife resources and habitat that would be affected by the Proposed Action and other alternatives. Coordination meetings were held with the FWS (see Table 4-3) to discuss requirements for and the schedule to complete the Fish and Wildlife Coordination Act Report. The FWS has prepared a Planning Aid Memorandum (see Appendix F) to comply with the Fish and Wildlife Coordination Act. The recommendations from the coordination meeting have been incorporated into the appropriate places within Chapters 1 and 3 and into the technical reports.

4.3.2 Endangered Species Act of 1973 As Amended

The District requested a list of threatened and endangered species from the FWS that are located in the impact area of influence (see Appendix F). The Joint-Lead Agencies prepared a draft Biological Assessment and submitted it to the FWS for their review and comment. The Joint-Lead Agencies met several times with the FWS and have incorporated the FWS comments and recommendations in a final Biological Assessment, which was submitted to the FWS. The FWS has prepared a concurrence letter on the Biological Assessment to provide compliance with Section 7 of the Endangered Species Act of 1973 as amended. The concurrence letter is included in Appendix F.

4.3.3 National Historic Preservation Act

The District has consulted with the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Office (SHPO) on cultural resources that could be affected by the ULS. A Memorandum of Agreement (MOA) was provided to the ACHP for their comment. After the ACHP review of the MOA, the ACHP advised the District it did not feel that the cultural resource effects as determined by Class III surveys prepared by the District's archaeological consultants warranted the ACHP involvement. The ACHP advised the District to pursue a MOA with the Utah SHPO. The District consulted with the SHPO on the MOA. The MOA authorizes the plan for survey, collection, and documentation of cultural resources that would be affected by construction of ULS features. The signed MOA is included in Appendix G. A Cultural Resources Technical Report was prepared by the District as a supporting document to this FEIS and is available from the District upon request.

4.3.4 Clean Air Act

An air quality impact analysis has been prepared and integrated into this FEIS (see Section 3.20 in Chapter 3).

4.3.5 Clean Water Act

A water quality analysis has been prepared and integrated into this FEIS (see Section 3.3 in Chapter 3). A Surface Water Quality Technical Report was prepared by the District as a support document to this FEIS and is available from the District upon request.

4.3.6 Executive Order 11988, Floodplain Management

Protection of floodplains and their management has been incorporated into the formulation of alternatives described in Chapter 1 of this FEIS and has been integrated into the resource impact analysis in Chapter 3.

4.3.7 Executive Order 11990, Protection of Wetlands

A detailed wetlands analysis has been performed on wetlands and riparian areas that could be impacted under the ULS and has been integrated into this FEIS (see Section 3.7 in Chapter 3). A 404(b)(1) analysis has been prepared on all of the alternatives analyzed in this FEIS and is included in Appendix C of this FEIS. The 404(b)(1) analysis was prepared as part of the requirements for a 404(r) exemption from the 404 permit application process administered by the U.S. Army Corps of Engineers. The District invited the Corps of Engineers to be a cooperating agency on the ULS EIS and informed them that the District would be pursuing the 404(r) exemption process, which would exempt the Joint Lead Agencies from the requirement to obtain a 404 permit. The Corps of Engineers responded with a letter declining to be a cooperating agency since there is no need for the Corps to issue a 404 permit and recommended that the Joint-Lead Agencies coordinate a 404(b)(1) analysis with the Environmental Protection Agency. The District's letter and the Corps of Engineers letter of response are included at the end of this chapter of the ULS FEIS.

4.3.8 Native American Tribes

4.3.8.1 Indian Trust Assets Consultation

Consultation was initiated by the DOI with participation by the District concerning Indian Trust Assets (ITAs) that may be affected by the proposed ULS. The DOI initiated the consultation with five Native American tribes in compliance with Federal responsibilities to honor its fiduciary relationship concerning trust responsibilities to tribes through Federal statutes, agreements, executive orders, and treaty obligations. The five tribes include the Paiute Indian Tribe of Utah, Uintah and Ouray Ute Indian Tribe, Northwestern Band of the Shoshone Tribe, Shoshone-Bannock Tribes, and Skull Valley Band of Goshute Indians. The DOI sent a formal consultation letter and ULS project information to each tribe and requested a meeting with each tribe to discuss the ULS project and answer concerns and questions in regard to ITAs. Copies of the DOI letters are included in Appendix G of this FEIS. Letters responding to the requests were received from two tribes and are included in Appendix G of this FEIS. All consultation meetings have been held with tribal representatives.

4.3.8.2 Traditional Cultural Properties and Sacred Sites Consultation

Consultation was carried out with five Native American tribes within the region who could have a potential interest in development activity within the project area was undertaken over a period of several months. These tribes included the Northwestern Band of Shoshone Tribe, the Shoshone-Bannock Tribes, the Ute Indian Tribe, the Skull Valley Band of Goshute, and the Southern Paiute Indian Tribe.

As part of this consultation, the District sent letters and ULS project information to four of the tribes requesting their assistance in identifying if proposed ULS features would be on or near important traditional cultural properties or sites ~~or located~~ in areas of tribal sensitivity. Each letter requested a response with any concerns or questions regarding traditional cultural properties or sacred sites that may be affected by the project. Each tribe was invited to request a meeting to discuss any concerns. The Southern Piaute Indian Tribe was contacted by telephone to request the same information that was in the letters. Follow-up telephone calls and, in several cases, additional written correspondence were made with all tribes who did not respond to the original letter. The Skull Valley Goshute Tribe, the Ute Indian Tribe and the Northwestern Band of Shoshone Tribe all responded by telephone that they had no concerns about this project. No specific comments were forthcoming from the Southern Paiute Indian Tribe or the Shoshone-Bannock Tribes. None of the tribes requested a face-to-face meeting to discuss the project or possible tribal concerns or questions. Copies of the District's letters are included in Appendix G of this FEIS. Results of the consultations are documented in Section 3.24 in Chapter 3 of this FEIS and shown in Table 4-4.

Table 4-4
Summary of Correspondence Regarding Native American Consultation for the ULS Project

Date	Contact Person/Agency	Method of Contact	Comments
October 27, 2003	Skull Valley Band of Goshute Leon Bear, Chairman Ute Indian Tribe Maxine Natchees, Chairwoman Betsy Chapoose, Cultural Resource Specialist Northwestern Band of Shoshone Tribe Gwen Davis, Chairwoman Bruce Parry, Executive Director Shoshone-Bannock Tribes Frederick Auk, Chair Cultural Resource Program Specialist	Letter sent by H. Lee Wimmer of CUWCD with project brochure and project description	Skull Valley Band of Goshute Dr. Mel Brewster, of the Tribal Historic Preservation Office (THPO) of the Skull Valley Band of Goshute, called Michael R. Polk of Sagebrush on December 5, 2003. He stated that the Skull Valley Band of Goshute tribe had no concerns over the ULS project.
February 2004	Southern Paiute Indian Tribe Lora Tom, Chairwoman	Letter sent by H. Lee Wimmer of CUWCD with project brochure and project description	A response was not received from the Southern Paiute Indian Tribe to this letter. As a result, follow up telephone calls followed.
Feb 25, 2004	Ute Indian Tribe Maxine Natchees, Chairwoman	Telephone call from Wendy Simmons Johnson of Sagebrush Consultants to Maxine Natchees	She did not answer, so a voice mail message was left asking if the first letter was received and if she or the Tribal Business Committee had any questions or comments regarding the ULS Project.
Feb 25, 2004	Ute Indian Tribe Betsy Chapoose, Cultural Resource Specialist	Telephone call from Wendy Simmons Johnson of Sagebrush Consultants to Betsy Chapoose	Betsy Chapoose said that she had received the letter and had no comments at this time. She also said that she would review the letter once again and get back with us if she has any questions or comments.
Feb 25, 2004	Northwestern Band of Shoshone Tribe Gwen Davis, Chairwoman	Telephone call from Wendy Simmons Johnson of Sagebrush Consultants to Gwen Davis	She did not answer so a voice mail message was left asking if the first letter was received and if she or the tribal council had any questions or comments about the ULS Project.
Feb 25, 2004	Northwestern Band of Shoshone Tribe Bruce Parry, Executive Director	Telephone call from Wendy Simmons Johnson of Sagebrush Consultants to Bruce Parry	Mr. Parry stated that they had received the letter and that the Tribe had no problem with the project. He also asked if Chairwoman Gwen Davis had received a letter, to which Ms. Johnson replied in the affirmative.

Table 4-4
Summary of Correspondence Regarding Native American Consultation for the ULS Project

Date	Contact Person/Agency	Method of Contact	Comments
Feb 25, 2004	Shoshone-Bannock Tribes Frederick Auk, Chairman	Telephone call from Wendy Simmons Johnson of Sagebrush Consultants to Frederick Auk	There was no answer, so a voice mail message was left asking if the first letter was received and if he or the tribal council had any questions or comments concerning the ULS Project.
Feb 25, 2004	Shoshone-Bannock Tribes Cultural Resources Specialist C. Smith	Telephone call from Wendy Simmons Johnson of Sagebrush Consultants to Ms. Smith	Ms. Smith could not be reached by telephone on this day.
Feb 25, 2004	Southern Paiute Indian Tribe Lora Tom, Chairwoman	Telephone call from Wendy Simmons Johnson of Sagebrush Consultants to Lora Tom	There was no answer, so a voice mail message was left once again asking if the first letter was received and if she or the several Southern Paiute Indian bands had any questions or comments about the ULS Project.
Mar 4, 2004	Shoshone-Bannock Tribes Laree Buckskin, Cultural Resources Program Assistant	Telephone call from Wendy Simmons Johnson of Sagebrush Consultants to Laree Buckskin	Laree Buckskin remembered a CUWCD letter coming through her office, but does not remember the exact content. She will look through her files and review the letter. Then she will call if she has any comments
Mar 4, 2004	Southern Paiute Indian Tribe Lora Tom, Chairwoman	Telephone call from Wendy Simmons Johnson of Sagebrush Consultants to Lora Tom	There was no answer, so a voice mail message was left once again asking if the first letter was received and if she or the several Southern Paiute Indian bands had any questions or comments on the ULS Project.

4.4 Coordination

This section describes the coordination that was achieved in reviewing the DEIS. A complete mailing list of all agencies, bureaus, organizations, groups and individuals that received the DEIS is available upon request from:

Laurie Barnett
Central Utah Water Conservancy District
355 West University Parkway
Orem, Utah 84058
Telephone: (801) 226-7133
Fax: (801) 226-7150

4.4.1 Request for Official Comments

The ULS DEIS was filed with the U.S. Environmental Protection Agency on March 25, 2004. A notice announcing the availability of the ULS DEIS was published in the Federal Register on March 30, 2004 (FR 04-7034). The notice invited the public to review and comment on the DEIS during a 78-day comment period from March 25, 2004 until June 11, 2004. The notice also announced that public hearings would be held on April 28 and 29, 2004, for the purpose of receiving comments on the DEIS. The following agencies, bureaus, groups, associations and organizations were sent a copy of the ULS DEIS for review and comment.

Federal and Utah State Government

Utah Congressional Delegation (Utah and Washington, D.C. offices)
- Orrin Hatch
- Chris Cannon
- Jim Matheson
- Rob Bishop
- Robert Bennett

U.S. Advisory Council on Historic Preservation
U. S. Department of Agriculture
- Forest Service

U.S. Department of Commerce-Ecology & Conservation
U.S. Department of Energy
- Western Area Power Administration
- Office of Environmental Compliance

U.S. Department of Health & Human Services
- Office of Management Analysis & Systems

U.S. Department of Housing & Urban Development-Environmental Officer
U.S. Department of the Interior
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Mines-Mineral Land Assessment
- Fish & Wildlife Service
  - Branch of Federal Activities
  - Ecological Services
- Geology Survey-Office of Environmental Affairs
- National Park Service

Federal and Utah State Government (continued)

- Bureau of Reclamation
  - Natural Resources Library
  - Information & Library Services
  - Office of the Solicitor
  - Environmental Policy & Compliance
  - Communications
- U.S. Environmental Protection Agency, Region VIII
- U.S. Department of Transportation-Secretarial Representative
- Library of Congress-Congressional Research Service
- General Services Administration (Salt Lake City)
- Utah Governor's Office of Planning & Budget
  - Resource Development Coordinating Committee
- Utah Department of Natural Resources
  - Water Rights
  - Water Resources
  - Wildlife Resources
- Natural Heritage Program
- Utah Department of Transportation
- Utah Department of Environmental Quality
  - Drinking Water
  - Water Quality
- Utah State Historical Society
- Utah Geological & Mineral Survey
- Office of Legislative Research
- State Legislators

Libraries

- Brigham Young University-Lee Library
- Brigham Young University-Law Library
- Duchesne County Library
- Eagle Mountain Library
- Orem Public Library
- Payson City Library
- Roosevelt Public Library
- Spanish Fork Library
- Springville Public Library
- Uintah County Library
- University of Utah Eccles Library
- University of Utah Law Library
- University of Utah Marriott Library
- Utah State Library Commission
- Utah State Library Merrill Library
- Utah State Supreme Court-Law Library
- Utah Valley State College Library
- Wasatch County Library
- Weber State University Library
- Westminster College Library

News Media
Provo Daily Herald (attn: Donald W. Meyers)
Wasatch Wave (attn: Tom Noffsinger)
Park Record (attn: Nan Chalot)
Deseret News (attn: Sharon Haddock)
Salt Lake Tribune (attn: Tim Fitzpatrick)

Other Interested Parties
Audubon Society
Audubon Council of Utah
City of Woodland
Federations of Fly Fishers
Heber City
High Country Fly Fishers
Jordan Valley Water Conservancy District
Metropolitan Water District of Salt Lake City and Sandy
Mountainland Association of Governments
Northwest Band of Shoshone Tribe
Orem City
Paiute Indian Tribe of Utah
Provo City
Provo River Water Users Association
Salt Lake County Fish & Game Association
Sandy City
Shoshone-Bannock Tribes
SIA Club
Sierra Club Utah Chapter and Sierra Club Colorado River Task Force
Salt Lake County Council
Salt Lake County Water Conservancy District
Salt Lake City Department of Public Utilities
Skull Valley Band of Goshute Indians
Stonefly Society
SUMA Utah Trout Federation
South Utah Valley Municipal Water Association
UAMPS
Uintah and Ouray Ute Indian Tribe
Uinta National Forest
Utah State University Cooperative Extension Service
Utah Association of Conservation Districts
Utah County Commission
Utah Water Resources Council
Utah Wildlife Federation
Wasatch County
Wasatch County Planner
Wilderness Society

4.4.2 Public Hearings

Two public hearings were held on the ULS DEIS, one in Sandy City and one in Spanish Fork City, Utah. See Table 4-5 for additional hearing details.

Table 4-5
ULS DEIS Public Hearings Data

Public Hearing Location	Date	No. of Attendees	No. of Speakers
Sandy City, Utah	April 28, 2004	31	4
Spanish Fork City, Utah	April 29, 2004	38	4

4.5 Results of Public Review of the ULS DEIS

This section describes the results of the public review process. It is divided into three parts: Section 4.5.1 Introduction, 4.5.2 Letter Comments and Responses, and Section 4.5.3 Hearing Comments and Responses.

4.5.1 Introduction

In addition to the comments on the ULS DEIS, some of the letters also contained comments on the technical reports that supported the ULS DEIS. Those comments and responses are located in each technical report along with an errata sheet for the technical report. All of the letters received are located in Appendix X. The public hearing transcripts are available on request from:

Laurie Barnett
Central Utah Water Conservancy District
355 West University Parkway
Orem, Utah 84058
Telephone: (801) 226-7133
Fax: (801) 226-7150

4.5.2 Letter Comments and Responses

A total of 28 comment letters on the DEIS were received. These letters are identified in Table 4-6. The DEIS comments have been extracted from each comment letter and retyped, with each comment followed by a response. The complete comment letters listed in Table 4-6 are reprinted in Appendix I of this FEIS. The comment responses that follow the table explain that the Final EIS was revised to incorporate the suggested change or explains why the change was not incorporated. When text revisions were incorporated into the FEIS, the response provides as much specific information as possible (FEIS chapter number and section number) for the reader to locate the appropriate revised text. Extracted comments are printed in regular type. Responses to comments are printed in bold, italicized type.

Table 4-6
Comment Letters Received on the ULS DEIS

Letter Number	Comment Letter Received From
1	Jordan Valley Water Conservancy District
2	Town of Genola
3	South Utah Valley Municipal Water Association
4	South County Mayor's Group
5	Santaquin City
6	Payson City
7	Springville City
8	Spanish Fork City
9	Salem City Corporation
10	Mapleton City Corporation
11	Elk Ridge
12	City of Woodland Hills
13	Metropolitan Water District of Salt Lake and Sandy
14	Strawberry Water Users Association
15	Provo River Water Users Association
16	U.S. Department of Agriculture, Forest Service - Uinta National Forest
17	U.S. Department of Health and Human Services, Public Health Service
18	Western Area Power Administration
19	U.S. Department of the Interior, Bureau of Reclamation
20	The Church of Jesus Christ of Latter-Day Saints
21	State of Utah, Governor's Office of Planning and Budget
22	June Sucker Recovery Implementation Program
23	Stonefly Society Chapter, Trout Unlimited & Federations of Fly Fishers
24	Utah Chapter of the Sierra Club and Sierra Club Colorado River Task Force
25	State of Utah Department of Environmental Quality, Division of Water Quality
26	U.S. Department of the Interior, Fish and Wildlife Service
27	U.S. Environmental Protection Agency
28	U.S. Department of the Interior, National Park Service

Comment Letter 1: Jordan Valley Water Conservancy District

Comment 1.1

If for any reason, the water allocated under the DEIS to other petitioning agencies becomes available, Jordan Valley would like to enter into discussions and negotiations to receive this water. Any additional water would further accomplish the purposes of CUPCA (Public Law 102-575) to postpone development of the Bear River.

Response 1.1

Thank you for your interest. If additional water becomes available you will be contacted, as described in the Jordan Valley Water Conservancy District petition for water.

Comment 1.2

Jordan Valley acknowledges it will need to enter into agreements for the ULS water. Jordan Valley is willing to enter into contract negotiations immediately.

Response 1.2

Thank you for your comment. Negotiations on the contracts/agreements with Jordan Valley Water Conservancy District have been completed.

Comment 1.3

1.2.1.2.2 (pg. 1-18) Jordan Valley has 20 member and contracting agencies rather than 21.

Response 1.3

Chapter 1, Section 1.2.1.2.2 Jordan Valley Water Conservancy District, has been changed in the FEIS.

Comment 1.4

1.2.1.2.3 (pg. 1-20) Jordan Valley has 500,000 people within its legal boundaries but treats and delivers water for the MWDSLS which benefits approximately 300,000 additional people.

Response 1.4

Chapter 1, Section 1.2.1.2.3 Metropolitan Water District of Salt Lake and Sandy, has been revised in the Final EIS.

Comment Letter 2: Town of Genola

Comment 2.1

The Town of Genola hereby communicates its support of the preferred alternative (Spanish Fork Canyon-Provo Reservoir Canal Alternative), as presented in the EIS documents dated March 2004, for the further development of the Bonneville Unit of the Central Utah Project.

Response 2.1

Thank you for your comment and support.

Comment Letter 3: South Utah Valley Municipal Water Association

Comment 3.1

South Utah Valley Municipal Water Association would like to express the support for further development of the Bonneville Unit of the Central Utah Project, specifically the Utah Lake Drainage Basin Water Delivery System. SUVMWA supports the preferred alternative, Spanish Fork Canyon-Provo Reservoir Canal Alternative; as presented in the EIS documents dated March 2004.

Response 3.1

Thank you for your comment and support.

Comment Letter 4: South County Mayors Group

Comment 4.1

As mayors of the ten cities involved, we support the Preferred Alternative that would provide 30,000 acre-feet of municipal water to the South Utah Valley Municipal Water Association (SUVMWA) for distribution to cities within south Utah County.

Response 4.1

Thank you for your comment and support.

Comment Letter 5: Santaquin City

Comment 5.1

Santaquin City supports the Preferred Alternative that would provide 30,000 acre-feet of municipal water to the South Utah Valley Municipal Water Association (SUVMWA) for distribution to cities within south Utah County.

Response 5.1

Thank you for your comment and support.

Comment Letter 6: Payson City

Comment 6.1
Payson City supports the preferred alternative, (Spanish Fork Canyon-Provo Reservoir Canal Alternative) as presented in the EIS documents dated March 2004 on file.

Response 6.1
Thank you for your comment and support.

Comment Letter 7: Springville City

Comment 7.1
Springville also supports the preferred alternative, (Spanish Fork Canyon-Provo Reservoir Canal Alternative) as presented in the EIS documents dated March 2004.

Response 7.1
Thank you for your comment and support.

Comment Letter 8: Spanish Fork City

Comment 8.1
Spanish Fork City supports the preferred alternative, (Spanish Fork Canyon-Provo Reservoir Canal Alternative) as presented in the EIS documents dated March 2004 on file.

Response 8.1
Thank you for your comment and support.

Comment Letter 9: Salem City Corporation

Comment 9.1
Salem City supports the preferred alternative, (Spanish Fork Canyon-Provo Reservoir Canal Alternative) as presented in the EIS documents dated March 2004 on file.

Response 9.1
Thank you for your comment and support.

Comment Letter 10: Mapleton City Corporation

Comment 10.1

Mapleton supports the preferred alternative, (Spanish Fork Canyon-Provo Reservoir Canal Alternative) as presented in the EIS documents dated March 2004 on file.

Response 10.1

Thank you for your comment and support.

Comment Letter 11: Elk Ridge

Comment 11.1

Elk Ridge City supports the preferred alternative, (Spanish Fork Canyon-Provo Reservoir Canal Alternative) as presented in the EIS documents dated March 2004 on file.

Response 11.1

Thank you for your comment and support.

Comment Letter 12: City of Woodland Hills

Comment 12.1

The City of Woodland Hills supports the preferred alternative, (Spanish Fork Canyon-Provo Reservoir Canal Alternative) as presented in the EIS documents dated March 2004 on file.

Response 12.1

Thank you for your comment and support.

Comment Letter 13: Metropolitan Water District of Salt Lake and Sandy

Comment 13.1

June Sucker RPAs. It is our understanding that any obligations identified in the 1994 Biological Opinion are in no way altered by the ULS DEIS/DPR.

Response 13.1

The Joint-Lead Agencies agree with the comment.

Comment 13.2

Nor is any attempt in the DEIS/DPR to summarize, explain or clarify those obligations to be used as a binding description of any obligations.

Response 13.2

No attempt has been made in the ULS Final EIS to change any of the commitments made regarding the June sucker in the 1994 Biological Opinion on the Provo River Project (PRP).

Comment 13.3

However, we would like clarification that all previous commitments will be executed and interpreted as they would with or without the DEIS/DPR and Record of Decision (ROD).

Response 13.3

To receive clarification of previous commitments made regarding the 1994 Biological Opinion on the PRP, the comment should be addressed directly to the U.S. Fish and Wildlife Service. All other environmental commitments and status are addressed in Appendix A of the Final EIS.

Comment 13.4

In addition, we are uncertain about how any new commitments resulting from this action would indirectly effect the MWDSLS operations.

Response 13.4

The Joint-Lead Agencies are not aware of any new commitments on the ULS that would affect MWDSLS operations on the Provo River.

Comment 13.5

We understand that a new biological opinion will be issued on this project and that any new obligations arising from this document will be upon the CUP.

Response 13.5

The U.S. Fish and Wildlife Service will issue a Section 7 compliance letter to the Joint-Lead Agencies for the ULS project. Any obligations and/or commitments that follow will be the Joint-Lead Agencies' responsibility.

Comment 13.6

Existing Agreements. The documentation is unclear on whether any of the existing agreements, rights, etc. can be substantively altered or effectively constrained by the EIS/DPR ROD. In some places the EIS/DPR seems to be largely informative (without altering) any existing operations. In other places, the language of the document may be interpreted as effective changes in previously negotiated operating agreements. It is our understanding that the previous agreements will still hold precedence over any stated, described, or interpreted conflict represented in the ULS EIS/DPR.

Response 13.6

The purpose of this EIS is to describe the various ULS alternatives, their associated impacts, and the cumulative impacts of the alternatives and other related projects (both existing and anticipated future projects). It is not the intent of the Joint-Lead Agencies that the planning or NEPA process would by itself alter or constrain the provisions of any existing agreement. If any such change or alteration to an existing agreement were to be made, it would be done during the negotiation of the contracts and/or agreements identified in the EIS that are necessary to implement the ULS.

Comment 13.7

MWDSLS Operations. We understand that the operational data and parameters used to define MWDSLS and Provo River Project (PRP) operations are based upon the available historical record.

Response 13.7

The operational data and parameters used to describe MWDSLS and Provo River Project (PRP) operations were based upon the best available historical records and data. The M&I EIS and this EIS also describe and define the delivery of Bonneville Unit M&I water to the MWDSLS.

Comment 13.8

Though this is acceptable for comparison between alternatives, it should be noted that this historical record may not represent the complete operational range available. We have great versatility in managing operational scenarios and that past practices are not an accurate prediction of future operations nor should these documents in anyway restrict MWDSLS or the PRP to maintain historic practices as described in the documents or limit MWDSLS's ability to meet future yearly and seasonal demand patterns.

Response 13.8

The historical record was used to present a baseline on which to compare impacts between alternatives. It was not intended to represent the complete operational range. The use of this data in the EIS was not intended to restrict the PRP to historic practices.

Comment 13.9

In addition, the water supply needs of MWDSLS may vary from those predicted in the DEIS/DPR due to the methodology (per capita demands) used to determine future water demands.

Response 13.9

The water supply needs of MWDSLS may vary from those predicted in the DEIS/DPR. The M&I water demands for the ULS planning/NEPA process was developed based upon information received from the project petitioners and water conservation criteria adopted by the State of Utah. As a result, water conservation is an important purpose of the ULS project and assumptions regarding water conservation are included in the EIS. Therefore, the availability of ULS water to a petitioner will be dependent upon the petitioner agreeing to implement certain water conservation measures.

Comment 13.10

Utah Lake Levels and Conditions. The level of assumption, detail and analysis regarding forecasted lake levels, water quality and operational consequences may be oversimplified, particularly in the context of potential secondary impacts to the PRWUA, MWDSLS's exchange agreement (ULDC), and MWDSLS's member cities' exchange agreements. It is our understanding that the ULS project will not have negative impacts to Utah Lake that would affect MWDSLS or its member cities operational needs and contractual commitments.

Response 13.10

The analysis of impacts of ULS on Utah Lake levels, water quality, and operations was performed with the most sophisticated analytical tools and the most detailed data available. Analysis methods and operational assumptions were thoroughly documented in the Surface Water Hydrology Technical Report. The Provo River Simulation Model (PROSIM2000), which was one of the tools used in the analysis, simulates all significant Provo River and Utah Lake water rights and includes exchanges between the Provo River and Utah Lake irrigation canals. Secondary water supply impacts, if they existed, would show up as reduced diversions to Utah Lake water right holders or as reduced Utah Lake levels. No significant reductions in deliveries or levels were shown. Water supply-related water quality impacts would show up as increases in TDS. No significant increases in TDS were predicted by the LKSIM2000 modeling. The Joint-Lead Agencies agree with your conclusion that the ULS project would not have negative impacts on Utah Lake that would affect MWDSLS or its member cities operational needs and contractual commitments.

Comment 13.11

"Enclosed" Provo Reservoir Canal (PRC). The DEIS/DPR refers to the PRC in many locations as "enclosed." Although the PRC is currently planned to be enclosed in the future, it is our view that the enclosure is not required in order for ULS water to be utilized in the PRC. MWDSLS and others intend for the PRC (whether enclosed or not) to be utilized in conjunction with the Salt Lake Aqueduct and the Jordan Aqueduct to make water deliveries in an efficient and effective manner.

Response 13.11

The enclosure of the PRC is not required in order for ULS M&I water to be conveyed in the PRC. The Provo River Project, which is a Federal Reclamation project, includes the PRC and is under the jurisdiction of Reclamation.

Comment Letter 14: Strawberry Water Users Association

Comment 14.1

SWUA repaid to the United States all of the costs of construction of the SVP in 1974.

Response 14.1

The original repayment contract has been repaid, however, SWUA entered into a Rehabilitation and Betterment loan with the United States that has yet to be fully repaid.

Comment 14.2

From the very beginning it was clear that without the cooperation and support of SWUA and its shareholders there could be no CUP. SWUA gave its support to the CUP, and allowed SVP facilities to be replaced by CUP facilities.

Response 14.2

The cooperation of SWUA and its support of the Bonneville Unit has been appreciated. However, the Joint-Lead Agencies do not agree that SWUA's cooperation, support, or approval was necessary to construct the Bonneville Unit, since SVP facilities are owned by the United States and not SWUA.

Comment 14.3

Prior to the enactment of the 1992 Central Utah Project Completion Act (CUPCA) it was anticipated that SWUA, CUWCD, and the United States would be required to enter into an agreement for the operation and maintenance of CUP facilities for the benefit of both the SVP and the CUP. Such an agreement was signed by the United States, CUWCD and SWUA in 1991, one year before the agreement was mandated by Congress. I refer you to Section 209 of CUPCA.

Response 14.3

The 1991 agreement was negotiated for several years prior to its execution, which was more than one year prior to the enactment of CUPCA. Section 209 states "The District...shall apply its best efforts to achieve operating agreements for ...Strawberry Reservoir within two years of the date of enactment of this Act." The Joint-Lead Agencies do not agree that the existing 1991 Agreement fulfills the requirements of section 209 of CUPCA.

Comment 14.4

SWUA expects that the ULS operation will not interfere with the terms of the 1991 Operation and Maintenance Agreement of the Enlarged Strawberry Reservoir and the Related Facilities Jointly Used. If there are items of concern in the existing 1991 Agreement, we would be happy to address those with the CUWCD.

Response 14.4

The 1991 Agreement relates only to the operation of the enlarged Strawberry Reservoir and the Diamond Fork System. It does not deal with or address the operation of the ULS facilities. As indicated in Chapter 1, Section 1.4.9.1 of the ULS Final EIS, the 61,000 acre-feet of SVP water would continue to be provided each year. Also, Section 1.3.2 of the Surface Water Hydrology Technical Report states: "The 1991 operating agreement provided SWUA with a permanent right to 50,000 acre-feet of holdover storage capacity, with an initial (one-time) allocation of 50,000 acre-feet of stored water...Pursuant to the 1991 operating agreement, conveyance of up to 600 cfs of SVP water through the natural stream channels and the Diamond Fork System to the confluence with the Spanish Fork River will be provided...the Diamond Fork System would continue to operate according to existing operating agreements, procedures, and applicable NEPA compliance documents."

Comment 14.5

The ULS anticipates delivering some SVP water to south Utah County through CUP facilities. Per existing SWUA/United States contracts the SVP water is appurtenant to the land and ownership of those SWUA shares belongs to the landowners. Agreements will be needed to enumerate and clarify the terms and conditions of delivering SVP water through CUP facilities. In order to properly represent the interests of all SWUA shareholders, SWUA expects to be party to those agreements.

Response 14.5

As stated in Chapter 1, Sections 1.4.2 and 1.4.10.2.1, of the Final EIS, SVP water would be conveyed through the ULS facilities on a space-available basis for SUVMWA and its member cities/municipalities. An agreement for conveyance of SVP water through the ULS facilities has been negotiated between the United States, District, and SUVMWA. This conveyance agreement would not relieve or modify any obligation that SUVMWA and/or its member cities/municipalities have as a shareholder of SWUA. Any other entity or individual who desires to have their SVP water conveyed through the ULS facilities on a space available basis would be required to enter into an agreement with SUVMWA and/or its member city/municipality. It would be the responsibility of SUVMWA to determine whether any additional agreements with SWUA are necessary, and if so, to negotiate those agreements with SWUA.

Comment 14.6

SWUA expects that its contractual rights with respect to its power privilege as addressed in the 1940 Repayment Contract and the 1991 Agreement will be honored.

Response 14.6

The question as to what contractual rights the SWUA has under the 1940 Repayment Contract and the 1991 Agreement are presently a matter of litigation. However, as indicated in Chapter 1, Section 1.1.2.2 of the Final EIS, CUPCA was amended by P.L. 107-366 to allow for development of project power. The purpose and need of the project was subsequently modified to include the development of project power as one of the purposes described in section 1.2 of the Final EIS. SWUA rights under the 1940 contract and 1991 agreement depend upon a lease of power privilege. Instead, the ULS would develop project power using the existing Bonneville Unit authority for funding and development rather than using a lease of power privilege. If at some future date a lease of power privilege is considered, the conditions described in Chapter 1, Section 1.1.3.1 of the Final EIS would be the guide for non-federal participation.

Comment 14.7

Page 1-1, Section 1.1.2, Overview of the Bonneville Unit - It is interesting to note that this section makes no mention of the SVP. There is a brief paragraph regarding SVP on page 1-151; however, this paragraph does not describe the interrelationship of the two projects and comes at the end of the chapter. Given the extent to which SVP and Bonneville Unit facilities are shared, we believe it is impossible to have a clear understanding of the Bonneville Unit without an explanation of its interrelationship with SVP. This explanation is needed early in the document so the reader can understand that relationship. Furthermore, the 1991 Contract Among the United States, Central Utah Water Conservancy District and Strawberry Water Users Association Relating to the Operation and Maintenance of the Enlarged Strawberry Reservoir and the Related Facilities Jointly Used (1991 Agreement) should be thoroughly described so the reader can understand the overall project operating requirements.

Response 14.7

Joint operation of the Bonneville Unit and the SVP is covered in previous NEPA documents and agreements, namely the 1999 Diamond Fork System Final Supplement to the Final EIS. Also, Section 1.3.2 of the Surface Water Hydrology Technical Report refers to the 1991 agreement and Diamond Fork System operations. Detailed operations of the Diamond Fork System were covered in the 1999 Diamond

Fork System Final Supplement to the Final EIS. Please see the revised text in Chapter 1, Section 1.10.1, Past Projects and Actions.

Comment 14.8

Page 1-15, Paragraph 1.1.3.1, Development of Project Power Under the Utah Lake System. This paragraph should describe SWUA's power rights as acknowledged by the United States in numerous documents including the 1991 Agreement and as mentioned in the Federal Register Notice No. 94-3 1057, dated December 19, 1994. Although the documents supporting the DEIS describe how power development will benefit the Bonneville Unit, there is no mention of any economic benefit to SWUA which could be used for the rehabilitation and betterment of SVP facilities.

Response 14.8

Please see comment response 14.6.

Comment 14.9

Page 1-30, Paragraph 1.4.2, Spanish Fork Canyon-Provo Reservoir Canal Alternative Features - This paragraph erroneously states that SVP water shares are held by SUVMWA. SVP water shares are attached to the land they serve and as such are owned by individual land or lot owners.

Response 14.9

Chapter 1, Section 1.4.2, Spanish Fork Canyon-Provo Reservoir Canal Alternative Features, has been amended in the Final EIS to reflect that SUVMWA would deliver SVP water shares on a space-available basis to those cities that may have acquired those shares through contractual agreements with landowners.

Comment 14.10

The paragraph also states that SVP water would be delivered through the Spanish Fork- Santaquin Pipeline on a space-available basis. Page 1-41 states that the pipeline capacity ranges from 120 to 50 cfs. However, Table S-13a, found in Attachment A of the Supplement to the Bonneville Unit Definite Plan Report, Draft Water Supply Appendix, Volume 4, shows that flows in the pipeline would generally exceed the stated pipeline capacity during the summer months, with peak flows being as high as 163 cfs. Review of this analysis would lead one to question whether or not there is any space available in the pipeline to deliver SVP water - especially given the fact that the water needs to be delivered during the summer months. Furthermore, how can 163 cfs of water be delivered through a pipeline with a capacity of 120 cfs?

Response 14.10

All of the paragraphs and table referenced are correct. As stated in Chapter 1, Section 1.4.2, the Spanish Fork - Santaquin Pipeline would convey up to 10,200 acre-feet of SVP water on a space-available basis. Although there may be a demand for 163 cfs including the SVP water, the design capacity of the pipeline for ULS deliveries is 120 cfs. When capacity is available, SVP water contractually assigned to SUVMWA and/or its member cities/municipalities may be delivered through the ULS facilities, however, when the capacity is not available SVP water would released into the Spanish Fork River and be delivered as it has been historically. SUVMWA and/or its member cities/municipalities would be responsible for arrangements with the local canal companies and the SWUA to change the point of diversion and delivery of the SVP water from the canals to the ULS pipelines, including addressing any canal operation impacts.

Comment 14.11

Additionally, there needs to be a discussion of how losses are to be assessed to shares delivered through ULS pipelines.

Response 14.11

Losses associated with conveyance of water within the Spanish Fork River drainage are determined and administered by the Spanish Fork River Commissioner under the authority of the Utah Division of Water Rights. Water conveyed through pipelines would be administered by the District O&M Manager under authority of the operating agreement with the DOI. No losses are anticipated for water conveyed through ULS pipelines. In the event that minor losses are determined during operations, the losses would be assigned proportionately to all water conveyed through the pipelines in a consistent manner.

Comment 14.12

Another complication arises from the fact that there is no apparent way to deliver SVP Spanish Fork River water through the pipelines. These river flows are an important element of SVP operation. These river flows need to be fully utilized, particularly in wet years, so that water stored in Strawberry Reservoir can be carried over and preserved for drought years.

Response 14.12

Spanish Fork River natural flow water accruing to the SVP under its water rights cannot be diverted from the river and conveyed through the ULS pipelines because ULS water would be under high pressure. The SVP natural flow water will continue to be conveyed through existing canals and is not part of the "up to 10,200 acre-feet" of SVP water that could be conveyed through the ULS pipelines. There is nothing in the ULS project plan that would limit or restrict the continued diversion and use of Spanish Fork River water through the existing canals, other than the Mapleton-Springville Lateral, which would be converted to a pipeline. The Mapleton and Springville irrigation districts were consulted during public agreement negotiations and agreed that the water savings in eliminating lateral seepage and the benefits of pipeline pressure would provide greater benefit than the natural flow water that is only available in some years for a short duration in the spring when the natural flow of the Spanish Fork River exceeds 390 cfs. The ULS would not impact the management of the SVP carryover storage in Strawberry Reservoir.

Comment 14.13

These issues need to be spelled out in an operating agreement to which SWUA is a party.

Response 14.13

The Joint-Lead Agencies do not agree that our entering into an operating agreement with SWUA is necessary. These issues regarding pipeline capacities to convey SVP water, SVP conveyance losses, and the delivery of SVP Spanish Fork River water are matters to be resolved between SWUA, its shareholders, and the State Engineer. If these entities feel an operating agreement is necessary, they can certainly proceed without the Joint-Lead Agencies' participation. Also, please see comment responses 14.5, 14.10, 14.11, and 14.12.

Comment 14.14

Page 1-34, Paragraph 1.4.2.2, Upper Diamond Fork Power Facility and Transmission Line - This paragraph states that the Upper Diamond Fork Power Facility would have a capacity of 5 MW. However, if the unit were to have the same rated flow as the Sixth Water Power Facility, its capacity would be about 19 MW. A review of the Supplement to the Bonneville Unit Definite Plan Report Draft Power Appendix, page 3-7 indicates that the capacity of the Upper Diamond Fork power plant was limited to 5 MW due to limitations of the power cable installed in the Tanner Ridge Tunnel. Further explanation of the sizing of this power plant is warranted. Within the intermountain area, power producers are currently constructing several gas-fired power plants, which demonstrates a need for additional generating capacity. Responsible planning would dictate that renewable resources such as hydropower should be fully developed rather than increasing our dependence on scarce fossil fuels, particularly when the penstock for the power plant is already in place. It would be a waste of an important resource to burn off this available energy through sleeve valves simply because of a limitation in a power cable. Can the capacity of the cable be increased? If not, could an overhead transmission line with increased capacity be constructed?

Response 14.14

The Upper Diamond Fork Power Facility, as described in the EIS, would have a capacity of about 5 MW because of the limitations of the buried power cable that was installed during construction of the Diamond Fork System. The capacity of the existing cable cannot be increased, and it is doubtful that NEPA compliance and the required permits associated with a new overhead transmission line could be obtained.

Comment 14.15

Page 1-45, Table 1-9 - Turnout capacities for the Spanish Fork-Santaquin Pipeline are confusing. The total sum of the peak dedicated turnout capacities as listed is 170 cfs. However, the pipeline capacity is 120 cfs. How does this work? Additionally, there is no explanation of the off-peak capacity listed in the table.

Response 14.15

Chapter 1, Section 1.4.2.4, Table 1-10 in the Final EIS has been revised to include the correct information. Also, please see comment response 14.10.

Comment 14.16

Page 1-73, Paragraph 1.4.9.1, Transbasin Diversion - Regarding the uses of SVP water - in addition to delivery to farmers for irrigation, the water is also used by cities for lawn and garden watering and for power generation.

Response 14.16

Chapter 1, Section 1.4.9.1 Transbasin Diversion has been revised in the Final EIS.

Comment 14.17

SWUA believes that is a very bad assumption. A better assumption would be that with increased development in Utah County, existing water rights would be more fully and more efficiently utilized which would have the effect of reducing total inflow to Utah Lake. Most of the cities in Utah County have groundwater rights which at present are not fully utilized. The State Engineer's groundwater management plan for north Utah County provides for groundwater withdrawals that will be almost double their present levels. Increased groundwater withdrawals will reduce the subsurface inflow to Utah Lake. More efficient use of water supplies is also being emphasized. Increased efficiency of use will decrease return flows to the lake. Additionally, many communities in Utah County are beginning to study the feasibility of wastewater recycling. If implemented, these projects will also reduce the inflow to Utah Lake.

Response 14.17

The Bonneville Unit does not use SVP water rights for Bonneville Unit operations. Bonneville Unit operations rely upon Bonneville Unit water rights in Utah Lake. Those Bonneville Unit water rights entitle the Bonneville Unit to utilize all inflows to Utah Lake according to the priorities belonging to those Bonneville Unit water rights. There are, of course, certain inflows into Utah Lake that can only be used on an interim basis, until such time as the owners of the water rights that produce those flows can make use of them. Among such inflows are the return flows from the SVP. Because the SVP return flows are derived from import water, no secondary user can develop absolute rights to their use. Instead, such use as can be made of unused SVP import water is only temporary, until the SVP can make use of the return flows within the authorized SVP purposes or according to other federal law. Thus, the Bonneville Unit does not rely upon the SVP water rights to utilize SVP return flows, but, instead, only uses unutilized SVP return flows as a temporary matter under the Bonneville Unit water rights.

Nevertheless, Reclamation filed an appropriation for the SVP return flows under the SVP water rights to ensure that the nature of that water as import water would be preserved until authorized SVP uses could be made of the water under those SVP water rights. However, the Bonneville Unit does not use SVP return flows under the SVP water rights. The Bonneville Unit only uses SVP return flows, as they are temporarily available under Bonneville Unit water rights. The ULS has no plans to "curtail or impede" the use of SVP water. As a result, there is no foreclosure on SWUA's ability to implement conservation measures. Water conservation as a purpose for the ULS continues to be a high priority to the Joint-Lead Agencies as demonstrated in the implementation of the Water Management Improvement Program that assists in water conservation measures.

The planning for the ULS is based on the most recent information available and projections into the reasonable foreseeable future as required by NEPA. Using modified historic inflows and return flows are an accepted hydrologic planning practice especially when no other reliable data are available. The ULS planning studies used the most current data available and made projections regarding inflow changes to Utah Lake into the reasonably foreseeable future. Although SVP water may be used for other purposes beyond the planning timeframe of the ULS, such a change in use and its resulting impacts would be beyond the event horizon of the ULS and outside the scope of the ULS project. It is impossible and unreasonable to expect the Joint-Lead Agencies to project speculative future actions by others regardless of the time, place and relation to the project, not withstanding the fact that CEQ regulations at 40 CFR 1502.22 specifically limit the analysis to "reasonably foreseeable." Without specific projects or actions in Utah County, no impacts can be projected. It is not possible for the United States and District to control either the total inflow, evaporation, or return flows to Utah Lake and as a result no irretrievable and irreversible commitments other than the project water supply have been made. However, the United States and District have an obligation and responsibility, as owners of water rights in Utah Lake, to take whatever actions are necessary to protect and minimize any impact by others on these water rights. The issue of decreases to inflows into Utah Lake and its impact on the yield of the Bonneville Unit water rights has

been taken into account in the Final EIS.

The purpose of the ULS EIS is to address impacts associated with constructing and operating the ULS alternatives. Chapter 3, Section 3.2.8.2 of the EIS discusses potential ULS impacts eliminated from further analysis. Section 3.2.8.2.6 indicates that changes in reservoir storage and water surface elevations resulting from the Proposed Action and other alternatives are negligible and therefore, were eliminated from further analysis. If other third party entities more fully and efficiently utilize their existing water rights, it is not an impact caused by or resulting from the construction and operation of the ULS, and therefore, is beyond the scope of this EIS.

Comment 14.18

As inflow to Utah Lake is reduced, how would this affect the operation of the ULS and other elements of the Bonneville Unit? Is there enough project water supply to make planned ULS deliveries as well as releases to Utah Lake for exchange to Jordanelle Reservoir?

Response 14.18

Please see comment response 14.17.

Comment 14.19

By relying on historic inflow levels and failing to consider present and future conservation and efficiency, the DEIS is possibly deficient because (1) it forecloses future conservation and reuse of return flows and irretrievable and irreversibly commits these return flows to other uses, and (2) it fails to consider ULS cumulative impacts together with current and future water conservation and efficiency efforts.

Response 14.19

Please see comment response 14.17.

Comment 14.20

The DEIS must address "the extent to which the proposed action forecloses future actions" and the extent to which the proposed action involves "irreversible and irretrievable commitments of resources which would be involved in the proposed action." See, 42 U.S.C. § 4332(2)(C)(v); 40 C.F.R. §§ 1508.8(b) and 1508.27(b)(6); *NRDC v. United States Nuclear Regulatory Comm 'n.,* 547 F.2d 633,642 (1976), rev'd on other grounds sub nom. *Vermont Yankee Nuclear Power Corp.* v. *NRDC,* 435 U.S. 519 (1978); *Fritiofson* v. *Alexander,* 772 F.2d 1225 (5th Cir. 1985) (If proceeding with one project will foreclose options or irretrievably commit resources to future projects, environmental consequences of projects should be evaluated together.); *NRDC v. Adrninistrator, Energy Research and Dev. Admin.,* 451 F.Supp. 1245,1264 (D.D.C. 1978) (Federal agency must assess the extent to which the proposed action forecloses future actions and the extent to which the proposed action involves irreversible and irretrievable commitments of resources.)

Response 14.20

The underlying needs of the project as stated in Chapter 1, Section 1.2 of the Final EIS is: "To complete the Bonneville Unit by delivering 101,900 acre-feet on an average annual basis from Strawberry Reservoir to the Wasatch Front Area and project water from other sources to meet some of the M&I demands in the Wasatch Front Area, to implement water conservation measures, to address all remaining environmental commitments associated with the Bonneville Unit, and to maximize current and future M&I water supplies associated with the Bonneville Unit." The extent to which the Proposed Action forecloses future actions and the extent to which the Proposed Action involves irreversible and irretrievable commitments of resources within the reasonable foreseeable future have been considered and disclosed in the Final EIS. Please see comment response 14.17.

Comment 14.21

By relying on the historic level of return flows to Utah Lake, the DEIS effectively requires that these return flows continue at their historic level *ad infinitum.* This amounts to an irretrievable and irreversible commitment of what currently is and will grow to be a significant source of water for both irrigation and M&I needs. In other words, requiring historic return flows to reach Utah Lake effectively forecloses future conservation, efficiency and reuse options solely to maintain historic lake levels. Water conservation is, and will continue to be, a high priority and necessity statewide.

Response 14.21

Please see comment response 14.17. There is nothing about the ULS that can require return flows from other project water to continue to operate in the same manner ad infinitum. Changes in water use that affect the operation of Utah Lake are the responsibility of the State Engineer.

Comment 14.22

Further, by foreclosing the ability to conserve and reuse available water, the effects of the DEIS extend beyond the water supply and into the cultural, economic and social realms. These effects must be examined as well. 40 C.F.R. § 1508.8(b).

Response 14.22

Please see comment response 14.17.

Comment 14.23

The DEIS fails to consider the cumulative impacts of the ULS together with the on-going and reasonably foreseeable water conservation measures throughout the Utah Lake drainage basin. See, 40 C.F.R. § 1508.25(c); *Churchill County v. Norton,* 276 F.3d 1060, 1080-81 (9th Cir. 2001) (An EIS must include a useful analysis of the cumulative impacts of the proposed action together with ongoing and reasonably foreseeable related activity in the area.) A meaningful cumulative impacts analysis must identify: (1) the area in which effects of the proposed project will be felt; (2) the impacts that are expected in that area from the proposed project; (3) other actions - past, proposed, and reasonably foreseeable - that have had or are expected to have impacts in the same area; (4) the impacts or expected impacts from these other actions; and (5) the overall impact that can be expected if the individual impacts are allowed to accumulate. *Fritiofson,* 772 F.2d at 1245 (5th Cir. 1985). A cumulative impact is defined as:

> "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 C.F.R. § 1508.7 emphasis added.)

Thus, it is essential that the DEIS identify and consider not only the ULS alone but the ULS together with the ongoing, proposed, and reasonably foreseeable future conservation and reuse measures by water users in the Utah Lake drainage. See, *Muckleshoot Indian Tribe v. U.S. Forest Service,* 177 F.3d 800, 810 (9th Cir. 1999); *Neighbors of Cuddy Mountain v. U.S. Forest Service,* 137 F.3d 1372, 1379 (9th Cir. 1998); *Resources, Ltd., Inc. v. Robertson,* 35 F.3d 1300, 1306 (9th Cir. 1993). In analyzing these cumulative impacts "quantified or detailed information is required" so that the courts and the public can be assured that the agencies have taken the mandated "hard look" at the environmental consequences of the project. *Neighbors of Cuddy Mountain,* 137 F.3d at 1379. A cumulative impacts analysis that contains only "[v]ery broad and general statements devoid of specific, reasoned conclusions" does not satisfy NEPA. *Muckleshoot,* 177 F.3d at 81 1; *Neighbors of Cuddy Mountain,* 137 F.3d at 1379.

Here, the DEIS makes no attempt to analyze the cumulative effects of the ULS together with the present and future improvements in drainage-wide water conservation and efficiency. The responsible agencies' failure to identify on-going and reasonably foreseeable conservation and reuse measures (including those associated with SVP water) which would affect Utah Lake inflows is a transparent attempt to avoid conducting the meaningful cumulative impacts analysis required by law. See, *Resources Ltd., Inc.*, 35 F.3d at 1306.

Response 14.23

Please see comment response 14.17.

Comment 14.24

Should the responsible agencies acknowledge the right of SWUA to conserve and reuse its SVP water and consequently acknowledge that SVP return flows are not considered part of the relied upon inflow to Utah Lake, the concerns raised above would be most likely ameliorated. In other words, so long as the responsible agencies acknowledge that SWUA's current and future conservation and reuse of SVP water will not be curtailed or impeded by the ULS Utah Lake equation, the concerns of SWUA in this regard may well be unnecessary.

Response 14.24

Please see comment response 14.17.

Comment 14.25

Page 1-75, Figure 1-18 - All SVP water deliveries, including the 10,200 acre-feet delivered to SUVMWA, will need to share in conveyance losses. It is customary and reasonable that when irrigation shares are transferred out of existing canals that a portion of the transferred shares remain in the canal to provide "carriage water" to offset seepage and evaporation losses. SWUA will need to sign off on all water transfers that move SVP water out of existing conveyance facilities.

Response 14.25

Please see comment responses 14.11 and 14.13.

Comment 14.26

Page 1-79, Paragraph 1.4.10.1, Introduction – The DEIS states that up to 10,200 acre- feet of SVP water shares *held by SUVMWA* would be conveyed to member cities in southern Utah County through new ULS pipelines. SUVMWA does not hold SVP water shares. SVP water shares are attached to the land they serve and as such are owned by individual land or lot owners.

Response 14.26

Please see comment response 14.9.

Comment 14.27

Additionally, there needs to be a discussion of how losses are to be assessed to shares delivered through ULS pipelines.

Response 14.27

Please see comment response 14.11.

Comment 14.28

Another complication arises from the fact that there is no apparent way to deliver SVP Spanish Fork River water through the pipelines. These river flows are an important element of SVP operation. These river flows need to be fully utilized, particularly in wet years, so that water stored in Strawberry Reservoir can be carried over and preserved for drought years.

Response 14.28

Please see comment response 14.12.

Comment 14.29

These issues need to be spelled out in an operating agreement to which SWUA is a party.

Response 14.29

Please see comment response 14.13.

Comment 14.30

The paragraph also states that hydroelectric power would be generated by CUP and SVP water passing through turbines at two power facilities in the Diamond Fork System. Reclamation has recognized SWUA's rights to generate power in Diamond Fork. These rights need to be addressed in the project plan.

Response 14.30

Please see comment response 14.6.

Comment 14.31

Page 1-80, Paragraph 1.4.10.2.1, Water Delivery Operations - The first bullet item on this pages states that up to 10,200 acre-feet of SVP water shares *held by SUVMWA* would be conveyed to member cities in southern Utah County through new ULS pipelines on a space- available basis. SUVMWA does not hold SVP water shares. SVP water shares are attached to the land they serve and as such are owned by individual land or lot owners.

Response 14.31

Please see comment response 14.9.

Comment 14.32

Page 1-41 states that the Spanish Fork-Santaquin Pipeline capacity ranges from 120 to 50 cfs. However, Table S-l3a, Found in Attachment A of the Supplement to the Bonneville Unit Definite Plan Report, Draft Water Supply Appendix, Volume 4, shows that flows in the pipeline would generally exceed the stated pipeline capacity during the summer months, with peak flows being as high as 163 cfs. Review of this analysis would lead one to question whether or not there is any space available in the pipeline to deliver SVP water - given the fact that the water needs to be delivered during the summer months.

Response 14.32

Please see comment response 14.10.

Comment 14.33

Page 1-85, Paragraph 1.4.10.2.1, Water Delivery Operations - The last bullet item on this page states that hydroelectric power would be generated from the M&I water conveyance. However, page 1-79 states that hydroelectric power would be generated by CUP *and SVP* water passing through turbines at two power facilities in the Diamond Fork System.

Response 14.33

Chapter 1, Section 1.4.10.2.1 Water Delivery Operations has been revised in the Final EIS to state that "hydropower operations would be generated from the Bonneville Unit and SVP water conveyance..." Also, please see comment response 14.6 regarding development of project power.

Comment 14.34

Page 1-87, Paragraph 1.4.10.2.1, Water Delivery Operations - The first paragraph describes the SCADA system that would be implemented and monitored at District offices in Orem. How will the delivery of SVP water through CUP facilities be monitored? Since the Spanish Fork River Commissioner has responsibility to monitor and account for delivery of SVP and CUP water through Diamond Fork and the Spanish Fork River, it would be appropriate that he also have a computer terminal that can monitor all water deliveries.

Response 14.34

The District's SCADA system accounts for total water deliveries and does not break out water deliveries to individual entities. The Spanish Fork River Commissioner makes a daily call for SVP water based on requests from SWUA's customers. The District delivers the water called for and provides written water delivery data reports to the river commissioner. The reports identify individual water deliveries by entity and are sent to the river commissioner and others requesting the data. The District also posts gross water delivery data to its web-site both on a daily and hourly basis, which the river commissioner may access through any computer connected to the world wide web.

Comment 14.35

Page 1-95, Section 1.5.2, Bonneville Unit Water Alternative Features - The 2nd to last paragraph says that up to 10,200 acre-feet of SVP water shares *held by SUVMWA* would be conveyed to member cities in southern Utah County through the Spanish Fork-Santaquin Pipeline. As mentioned previously, SUVMWA does not hold SVP water shares. SVP water shares are attached to the land they serve and as such are owned by individual land or lot owners.

Response 14.35

Please see comment response 14.9.

Comment 14.36

Page 1-99, Paragraph 1.5.9.1, Transbasin Diversion - Regarding the uses of SVP water - in addition to delivery to farmers for irrigation, the water is also used by cities for lawn and garden watering and for power generation.

Response 14.36

Please see comment response 14.16.

Comment 14.37

Page 1-101, Figure 1-22 - All SVP water deliveries, including the 10,200 acre-feet delivered to SUVMWA, will need to share in conveyance losses.

Response 14.37

Please see comment response 14.11.

Comment 14.38

Page 1-104, Paragraph 1.5.10.2.1, Water Delivery Operations - The second bullet item on this pages states that up to 10,200 acre-feet of SVP water shares *held by SUVMWA* would be conveyed to member cities in southern Utah County through new ULS pipelines. SUVMWA does not hold SVP water shares. SVP water shares are attached to the land they serve and as such are owned by individual land or lot owners.

Response 14.38

Please see comment responses 14.9 and 14.10.

Comment 14.39

Page 1-105, Paragraph 1.5.10.2.1, Water Delivery Operations - The last bullet item on this page states that hydroelectric power would be generated from the M&I water conveyance. However, we assume that as with the preferred alternative, SVP water would also be used to generate power.

Response 14.39

Please see comment response 14.33.

Comment 14.40

Page 1-106, Paragraph 1.5.10.2.4, Automated Control System - This paragraph describes the SCADA system that would be similar to the preferred alternative. How will the delivery of SVP water through CUP facilities be monitored? Since the Spanish Fork River Commissioner has responsibility to monitor and account for delivery of SVP and CUP water through Diamond Fork and the Spanish Fork River, it would be appropriate that he also have a computer terminal that can monitor all water deliveries.

Response 14.40

Please see comment response 14.34.

Comment 14.41

Page 1-145, Table 1-35 - The table lists several contracts and agreements that will be needed under the preferred alternative. SWUA will need to be party to any of the agreements that involve delivery of SVP water to SVP shareholders.

Response 14.41

The Joint-Lead Agencies disagree with the comment. If there are issues between SWUA and its shareholders who will enter into contracts/agreements with any of the Joint-Lead Agencies regarding the conveyance of SVP water through Bonneville Unit facilities, it will be the responsibility of the SWUA shareholder to resolve those issues with SWUA, before SVP water is conveyed through ULS facilities.

Comment 14.42

Furthermore, an agreement is needed to address SWUA's power rights and the power generated by SVP water.

Response 14.42

Please see comment response 14.6.

Comment 14.43

An agreement for use of SVP right-of-way for construction of the Mapleton-Springville Lateral Pipeline will be needed.

Response 14.43

The Joint-Lead Agencies do not agree with the comment. However, an agreement between them, Reclamation, and the Springville and Mapleton irrigation companies would be necessary. If there are issues between SWUA and its shareholders (Springville and Mapleton irrigation companies) who would enter into contracts/agreements with the Joint-Lead Agencies and Reclamation regarding the construction and operation of the Mapleton-Springville Lateral Pipeline, it would be the responsibility of the companies to resolve those issues with SWUA.

Comment 14.44

Also, an operating agreement for the remaining open canal portion of the Mapleton-Springville Lateral will be needed to identify CUWCD responsibilities for operation and maintenance of that facility.

Response 14.44

Please see comment response 14.43.

Comment 14.45

Page 1-148, Table 1-37 - The table lists several contracts and agreements that will be needed under the Bonneville Unit Water Alternative. SWUA will need to be party to any of the agreements that involve delivery of SVP water to SVP shareholders.

Response 14.45

Please see comment response 14.41.

Comment 14.46

Furthermore, an agreement is needed to address SWUA's power rights and the power generated by SVP water.

Response 14.46

Please see comment response 14.6.

Comment 14.47

An agreement for use of SVP right-of-way for construction of the Mapleton-Springville Lateral Pipeline will be needed.

Response 14.47

Please see comment response 14.43.

Comment 14.48

Also, an operating agreement for the remaining open canal portion of the Mapleton-Springville Lateral will be needed to identify CUWCD responsibilities for operation and maintenance of that facility.

Response 14.48

Please see comment response 14.43.

Comment 14.49

Page 1-151, Past Projects and Actions - The second paragraph provides an inadequate description of the SVP. This paragraph does not describe the interrelationship of the SVP and Bonneville Unit. Given the extent to which SVP and Bonneville Unit facilities are shared, we believe it is impossible to have a clear understanding of the Bonneville Unit without an explanation of its interrelationship with SVP.

Response 14.49

Chapter 1, Section 1.10.1 Past Projects and Actions has been revised in the Final EIS.

Comment 14.50

Additionally, there is only a vague indirect reference to the 1991 operating agreement. An understanding of this agreement is critical to understanding the relationship between CUP and SVP and the overall Bonneville Unit operating requirements.

Response 14.50

The ULS DEIS and Final EIS contain significantly more than a vague indirect reference to the 1991 Operating Agreement. The ULS DEIS and Final EIS describe in detail the conveyance of both Bonneville Unit and SVP water through the Bonneville Unit facilities (both Diamond Fork and ULS facilities). See sections 1.4.9.1, 1.4.10.2.1, 1.5.10.2.1, 1.6.3.1, 1.10.1. The Surface Water Hydrology Technical Report includes information regarding operations based on the 1991 agreement.

Comment 14.51

The paragraph also mentions a 50,000 acre-foot carryover volume not available before the Bonneville Unit. This statement is not true because SVP had the entire 273,000 acre- foot Strawberry Reservoir available for carryover storage prior to the Bonneville Unit.

Response 14.51

The text in Chapter 1, Section 1.10.1 Past Projects and Actions has been revised in the Final EIS.

Comment 14.52

Page 1-153, Section 1.10.2, Possible Future Actions Not Included in the Cumulative Impact Analysis - This section should mention the potential for SWUA's reuse of 15,600 acre- feet of SVP return flows under Exchange Application E3760, filed December 12, 1997. However, SWUA believes that its plan for reuse of SVP return flows should have been included in the cumulative impact analysis along with more efficient use of existing water supplies by other entities.

Response 14.52

Exchange Application 3760 was filed by Strawberry on December 12, 1997. The quantity shown on the "Proposed Exchange" portion of the water right is 15,600 acre-feet of water. Water uses are listed as Stockwatering, Domestic, Municipal, and Irrigation purposes within the Strawberry Project boundaries. This application was advertised, and was protested by Reclamation, Central Utah Water Conservancy District, and the Provo River Water Users Association. Chapter 1, Section 1.10.2 has been revised in the Final EIS. Also, please see comment response 14.17.

Comment 14.53

Page 3-8, Section 3.2.3, Scoping Issues Eliminated from Further Analysis - The top paragraph on this page states that ULS alternatives would have no impact on SVP water deliveries through the Diamond Fork System, which would continue to operate according to existing operating agreements and procedures. However, there is no discussion about how ULS alternatives affect SWUA's power rights in Diamond Fork.

Response 14.53

Please see comment response 14.6.

Comment 14.54

As mentioned previously, the baseline should reflect increased development in Utah County, which would cause existing water rights would be more fully and more efficiently utilized. This increased efficiency would have the effect of reducing total inflow to Utah Lake.

Response 14.54

The comment confuses baseline with future conditions. Baseline represents existing conditions before impacts occur, not some condition in the future with some increased level of development. The comment suggests that baseline should be represented by future cumulative impact conditions from which ULS impacts are analyzed. This is not consistent with Council on Environmental Quality (CEQ) regulations at 40 CFR 1502.22. Without the comment identifying specific projects, cumulative impacts can't be analyzed.

Comment 14.55

As inflow to Utah Lake is reduced, how would this affect the operation of the ULS and other elements of the Bonneville Unit? Impacts of the Bonneville Unit on Utah Lake and its environs could be dramatically different if a more appropriate baseline were used.

Response 14.55

Please see comment response 14.54.

Comment 14.56

Page 3-18, Paragraph 3.2.8.2.6, Potential Impacts on Reservoirs and Lakes -What happens when existing water rights upstream from Utah lake are more fully and efficiently utilized? Does the project water supply still work? What would be the effects on Utah Lake?

Response 14.56

Please see comment responses 14.17 and 14.54.

Comment 14.57

Page 3-66, Paragraph 3.4.7.2, Baseline Water Levels - Map 3-4 does not show historical groundwater levels as indicated in the text.

Response 14.57

The correct map 3-4, originally left out of the DEIS, has been included in the Final EIS.

Comment 14.58

Page 3-210, Paragraph 3.12.8.3.2.3, Public and Business Services and fiscal Conditions -How was the decrease of $6,125 per year in power generation revenue calculated? We are unable to verify that number. By way of clarification, the Strawberry Upper Generator is owned and operated by SWUA, not the Strawberry Electric Service District.

Response 14.58

The potential monetary value of the decrease in energy calculated by the method described in Response 14.60 was multiplied by $.08/kwh. Chapter 3, Section 3.21.8.3.1.1 Power Generation Facilities has been revised in the Final EIS.

Comment 14.59

Page 3-313, Paragraph 3.21.8.3.1.1, Power Generation Facilities - How much of the power generated at the Sixth Water and Upper Diamond Fork Power Facilities is attributable to SWUA's power rights? By way of clarification, the Strawberry Upper Generator is owned and operated by SWUA, not the Strawberry Electric Service District.

Response 14.59

None of the power that would be generated would be associated with SWUA's power rights, please see comment response 14.6. Also, please refer to comment response 14.58.

Comment 14.60

How was the decrease of 76,560 kW-hr per year in power generation calculated?

Response 14.60

It is estimated that 1,160 acre-feet of the 10,200 acre-feet of SVP water (approximately 11 percent) would be water that is presently diverted through the Salem and South Fields canals. This water passes through the upper generator owned by SWUA and is diverted into the canals before the lower generator. The reduction in power generation was calculated by determining the length of time (equivalent to approximately one day) that 1,160 acre-feet of water could be conveyed through the 3 MW generator at the maximum flow capacity of 550 cfs. The length of time in hours was multiplied times the kilowatt capacity of the generator to calculate the potential reduction in kilowatt-hours.

Comment Letter 15: Provo River Water Users Association

Comment 15.1

Paragraph S.3.1 states that DO1 would acquire 57,000 acre-feet (AF) of secondary water rights in Utah Lake to be used for exchange to Jordanelle Reservoir. Exchange App. No. 398 appears to be the basis for the assumption made here. It calls for 300,000 AF to be available for exchange, but the hydrologic resource does not appear to allow for this quantity to be exchanged without affecting senior water rights.

Response 15.1

Exchange Application No. 398 is not used to exchange the 57,000 acre-feet of Utah Lake secondary water to Jordanelle Reservoir. This water is exchanged using Exchange Application No. E3100. Exchange Application No. E398 exchanges water to Jordanelle Reservoir from Water Right Application No. A36639. The State Engineer's administration of all water rights prevent senior water rights from being impacted by either water right exchange.

Comment 15.2

Paragraph S.5.1.3, Groundwater Hydrology, refers to an estimate that 9,660 AF of such water would return to Utah Lake as groundwater. The basis for the assumption of 65% consumptive use and 35% return flow is not clear. Are there tabulations of this groundwater return flow? Also, there appears to be no mechanism defined to protect against return flows being diverted out of priority rather than being delivered to water rights users owning the priority rights.

Response 15.2

There are no detailed tabulations associated with these return flow percentages; this is simply an estimate based on assumptions used in the ULS water needs analysis studies (see 2004 Draft Supplement to the 1988 Definite Plan Report, Water Supply Appendix Volume 2, M&I Water Demands, Chapter 3 Return Flows and Water Recycling, Subsection Bonneville Unit Return Flows in Utah County). This is the same return flow percentage assumed for Jordanelle Bonneville Unit water applied in northern Utah County. Most of this return flow would accrue to Utah Lake by subsurface inflow. The State Engineer would be responsible for protecting return flows of Bonneville Unit water from Strawberry Reservoir.

Comment 15.3

Paragraph S.5.1.8 states that changes in predation on June sucker from increased populations of predators were not analyzed. It appears that predators, especially non-native predators, significantly affect June sucker populations. Perhaps this should be addressed.

Response 15.3

The Joint-Lead Agencies recognize that nonnative fish pose a threat to the recovery of June sucker and that providing tributary flows to benefit June sucker recovery efforts could indirectly adversely impact June sucker by providing more suitable conditions for the establishment or enhancement of problem nonnative fish species that prey upon or compete with June sucker. The Joint-Lead Agencies, however, have no authority over the management of Utah's fish species. The Utah Division of Wildlife Resources has the authority to manage the fish resources of the State of Utah. The Utah Division of Wildlife Resources, along with the Joint Lead Agencies, is a partner to the June Sucker Recovery Implementation Program (JSRIP) under its parent agency the Utah Department of Natural Resources. As a partner to the JSRIP, the Utah Division of Wildlife Resources has prepared a management plan for the Provo River Drainage that identifies an objective to "implement or assist in the actions required for the recovery of June sucker." Under this objective the plan does not specifically state that Utah Division of Wildlife Resources will actively pursue nonnative fish control efforts on the Provo River; however, it does state that they will "monitor the effectiveness of any nonnative control methods implemented on the Provo River."

Additionally, the Utah Division of Wildlife Resources has prepared a management plan for the Utah Lake drainage that identifies the objective to "implement or assist in the actions required for recovery of June sucker." Under this objective the plan states that Utah Division of Wildlife Resources will "assess nonnative control strategies for Utah Lake and implement selected strategies." Under an additional management plan for the Spanish Fork River Drainage, that includes Hobble Creek, Utah Division of Wildlife Resources identifies under the objective to "implement or assist in the actions required for recovery of June sucker" an action to "implement, monitor, and assess nonnative control strategies associated with June sucker" and to "implement site-specific control or removal of nonnative fish in this unit." Research has been conducted under the JSRIP to investigate the feasibility of controlling problem nonnative fish species in the Utah Lake system. The Joint-Lead Agencies will continue to work with other JSRIP partners to ensure the pursuit of a balanced approach to recovery that includes actions to manage and control problem nonnative fish species.

Comment 15.4

Paragraph S.5.1.12, Cultural Resources, refers to the Murdock Canal. The canal should be designated as the Provo Reservoir Canal (PRC). The diversion structure on the Provo River is the Murdock Diversion. This occurs throughout the DEIS.

Response 15.4

The Final EIS has been revised where necessary to reflect this correction.

Comment 15.5

Paragraph 1.1.2.1.5, Municipal and Industrial System, discusses Utah Lake water originating from the Provo River being replaced by the Bonneville Unit flows to Utah Lake. The DEIS does not analyze whether the hydrology of the Provo River permits such large amounts of water to be exchanged from Utah Lake to Jordanelle without impacting rights of the Provo River Project (PRP) and other senior water rights.

Response 15.5

The detailed water rights-based hydrologic modeling performed to analyze impacts of the ULS is described in the Draft Surface Water Hydrology Technical Report, Section 2.3 Impact Analysis Methodology. The analysis does include this issue. The analysis shows that the Bonneville Unit flows to Utah Lake can be used to replace surplus Provo River water stored in Jordanelle Reservoir and that the rights of the Provo River Project and other senior water rights holders are not adversely impacted.

Comment 15.6

Further, reference to rediversion from the Provo River into the Olmstead flow line does not address the impact on the environmental commitments listed in Appendix 1. Any such exchanges and the resulting diversions should be subject to environmental commitments.

Response 15.6

The diversion of Provo River water into the Olmsted Flowline was covered in the 1979 M&I System Final EIS. There is no discussion or need to consider environmental impacts or effects on environmental commitments in Appendix A.

Comment 15.7

Paragraph 1.1.2.3, Other CUPCA Program Components, refers to additional studies of Utah Lake salinity and Provo River water supply. Provo River Water Users Association (Association) should be consulted regarding any studies relating to the Utah Lake and/or Provo River. The Association is not listed in Chapter 4 as a party with whom consultation has been or should be held. Any changes in management of the Provo River will have significant impact on the PRP. Also, the draft does not mention the need to consult with the Association on the capacity needed in the PRC.

Response 15.7

Chapter 1, Section 1.1.2.3 refers to additional studies of Utah Lake Salinity and Provo River water supply and Section 1.1.2.3.3 discusses these studies in more detail. These studies were specifically authorized in sections 202(a)(4) and 202(a)(5) of CUPCA. Both studies were completed with public involvement, which included participation by the Association. The ULS EIS addresses the changes in the management of the Provo River and Utah Lake that are associated with the ULS project. Table 1-36 of the EIS identified the Association as a signatory party to an agreement necessary to address the conveyance of Bonneville Unit water through the PRC. The Association participated in these negotiations.

Comment 15.8

Paragraph 1.1.2.5, Bonneville Unit Operations, refers to an average of 84,510 AF of Bonneville Unit water to be exchanged for storage in Jordanelle Reservoir. Again, does the hydrology of the Provo River support such an exchange?

Response 15.8

The hydrologic modeling performed for this and for previous Bonneville Unit environmental documents does show that 84,510 of Bonneville Unit water can be exchanged to Jordanelle Reservoir. Please refer to comment response 15.5.

Comment 15.9

Paragraph 1.1.3.1, does not mention whether other water users importing foreign water used in power generation, such as the Association, will participate in power revenues. Also, is the proposed water supply sufficient to economically support such use?

Response 15.9

As indicated in Chapter 1 Section 1.1.3.1 of the DEIS, any participation by any non-Bonneville Unit entity in power development in the Diamond Fork System would require a determination by the Secretary that a lease of power privilege is authorized and would be available. If such a determination were made, the general concepts and procedures outlined in Federal Register Notice Nos. 94-31057, dated December 19, 1994, and 99-16852, dated July 2, 1999, would be followed. This means that just because an entity imports water, it does not entitle them to participate in power revenues from project facilities. The Joint-Lead Agencies believe that the EIS and accompanying Definite Plan Report document that the proposed water supply and project power facilities are economically viable.

Comment 15.10

Paragraph 1.1.2.2, the meaning of the last sentence is not clear. The DEIS also does not address whether recycled water is intended to be used for the proposed Jordanelle exchange.

Response 15.10

Section 207 of CUPCA authorized a water management improvement program. Public Law 107-366 amended CUPCA and authorized among other things an additional authority under section 207 for water recycling projects and reverse osmosis projects. Chapter 1, Section 1.4.9.3.2 of the DEIS indicated that

under the ULS approximately 18,000 acre-feet of project return flows would be recycled and utilized in Salt Lake County. The recycling authorization is not restricted to Salt Lake County and may also occur in Utah County. Chapter 1, Section 1.4.9.3.1 of the DEIS indicated that approximately 9,660 acre-feet of project return flows to Utah Lake would be used for exchange to Jordanelle Reservoir for delivery to the District's petitioners in Wasatch, Utah, and Salt Lake counties. There are no plans to use recycled water to meet the exchange to Jordanelle Reservoir.

Comment 15.11

Paragraph 1.2.1.1, M&I Water Demands, refers to meeting water demands by conversion of water supplies from agriculture use. Does the DEIS address the hydrologic impacts of such conversion?

Response 15.11

The DEIS does not address the hydrologic impacts of converting water supplies from agricultural use. The reason that no analysis was performed is that it was assumed that the converted agricultural water would be used in secondary irrigation systems and that the consumptive use and resulting return flows would be essentially identical to what would occur from historical agricultural use. The text in Chapter 1, Section 1.2.1.1 M&I Water Demands has been revised in the Final EIS.

Comment 15.12

Paragraph 1.2.1.3.3, in the next to last bullet point on page 1-28 misstates the streamflow commitment. The actual commitment is 100 cfs from the confluence of Provo River and Provo Deer Creek to Olmsted Diversion.

Response 15.12

Chapter 1, Section 1.2.1.3.2 Environmental Commitments to be Completed, has been revised in the Final EIS.

Comment 15.13

Paragraph 1.4.2.7, Spanish Fork-Provo Reservoir Canal Pipeline, describes the plan to connect a pipeline from the Spanish Fork Canyon Pipeline to the Provo Reservoir Canal. First, the point of connection is proposed for a narrow area of the Provo Reservoir Canal right- of-way that may present logistical problems. The ULS Pipeline proposed from 800 N to 1200 N in Orem is the narrowest part of the Provo Reservoir Canal corridor and it may be difficult to put the ULS pipeline and Provo Reservoir Canal Pipeline in the same corridor.

Response 15.13

Construction would occur in a constricted area requiring special coordination with the PRWUA and UDOT to minimize traffic disruptions and impacts to canal operation. An environmental assessment has been prepared by the PRWUA to enclose the Provo Reservoir Canal. It may be possible and advantageous to perform concurrent construction of this reach of the canal enclosure and the construction of the ULS pipeline in the reach from 800 North to 1200 North to minimize difficulties. The District will work with the PRWUA in this regard.

Comment 15.14

Second, this and many other references assume that the Provo Reservoir Canal will be enclosed prior to such connection. Enclosure may not occur unless there is continued support from CUWCD and other entities. Further, consultation with the Association and perhaps with the Bureau of Reclamation will be necessary to complete such a connection.

Response 15.14

The enclosure of the PRC is not required in order for ULS M&I water to be conveyed in the PRC. A permit or license agreement with Reclamation would be necessary prior to completing the connection to the PRC unless the title transfer process for the PRC that is underway is completed prior to making the connection.

Comment 15.15

The size and flows of the pipeline described in the DEIS are not sufficient for the amount of water represented by the petitions. The sizing of the pipelines appears to assume "base demand" sizing rather than "peak demand" sizing.

Response 15.15

The sizing of the pipelines is based on the normal monthly pattern of M&I water usage. Winter monthly usage is typically 3 percent of the total annual water use and summer usage peaks at approximately 17 percent. The dedicated 85 cfs capacity for conveyance of M&I water represents a peak monthly capacity to convey 17.4 percent of the annual volume of 30,000 acre-feet. As is typical for water system planning, conveyance facilities are sized for the peak monthly need with daily peaking occurring from local storage tanks and facilities, or from local wells. It is infeasible and uneconomical to size facilities to convey water for only a few days a month and unmanageable from an operations standpoint.

Comment 15.16

Paragraph 1.4.4.3, drawing on page 1-52, The depicted pipeline would use the entire right-of-way (ROW) for the PRC with no room left for the existing canal.

Response 15.16

The drawing on page 1-52 is a typical cross section where the work area is not confined. Within the PRC ROW, it would be necessary to install the pipeline using special construction procedures for a constricted work area or some additional rights-of-way might be acquired. If additional rights-of-way were not acquired, the pipe trench would be narrower and have vertical walls with shoring. The pipe trench would more closely resemble pipeline installation in city streets.

Comment 15.17

Paragraph 1.4.9.1: We are not able to reconcile the water quantities shown here with other information. For instance, the quantities shown in the summary table and diagram on p. 1- 75 do not seem to match the numbers shown in this section.

Response 15.17

The quantities have been reviewed and they do match with the numbers shown on Figure 1-75, although there is slightly more information provided in the text. In particular, the split of the 101,900 acre-feet of Bonneville Unit water between the Syar Tunnel and the Strawberry Tunnel is not shown on the figure. The three numbers that add up to the total of 40,310 acre-feet of Bonneville Unit surface water are not called out as a sub-total on Figure 1-75.

Comment 15.18

Also, is there a method proposed for protecting the return flow against illegal diversion and other system losses?

Response 15.18

Return flows would occur mainly as subsurface inflows to Utah Lake. As such they would be mingled with the large volume of subsurface inflows to the Lake. The State Engineer would provide guidance in terms of the specific volume of return flow credit in the Lake, which will accrue, to the Bonneville Unit. Protection of return flows would continue to be his responsibility.

Comment 15.19

Paragraph 1.4.9 3, The discussion on return flows does not specify quantities, administration, or protection of return flow waters. Water used to show reuse and conservation in Salt Lake County is treated differently than water used in Utah Valley, which is treated as part of the make to Utah Lake that is needed for the Jordanelle exchange.

Response 15.19

Please see comment response 15.18. Southern Utah County ULS return flow (35 percent of 27,590 acre-feet delivered to secondary systems equals 9,660 acre-feet) to Utah Lake would be exchanged by the District under a water right. Recycling of return flows at wastewater treatment plants in Salt Lake County (18,000 acre-feet) would be a cooperative effort between the District, DOI, the petitioners, and others. The State Engineer has indicated that recapture of ULS return flows by these entities would require a filing with the State Engineer's office, but no new water right filing would be necessary.

Comment 15.20

Also, the DEIS does not address what happens if the BU or ULS petitions from JVWCD and MWDSLS are withdrawn, which would affect the ability to claim return flow.

Response 15.20

The petitions for ULS water from JVWCD and MWDSLS have been successfully negotiated for 30,000 acre-feet, are expected to be executed, and then could not be withdrawn. The carriage agreement to allow ULS water to be transported in the Provo Reservoir Canal (PRC) or enclosed conveyance facility has been successfully negotiated. The title transfer legislation is moving through the United States Congress. Therefore, all the institutional requirements to allow enclosure of the PRC are nearly completed, and the Joint-Lead Agencies anticipate that the enclosure and subsequent water savings of 8,000 acre-feet will be accomplished by canal enclosure or other future section 207 projects.

Comment 15.21

Paragraph 1.4.9.3.2, Bonneville Unit Return Flows, states that a return flow of approximately 7,000 AF to Utah Lake will occur from water delivered to northern Utah County. Have the estimates of this return flow been tabulated?

Response 15.21

As indicated in Chapter 1, Section 1.4.9.3.2 of the DEIS, this 7,000 acre-feet was identified in previous Bonneville Unit documents. However, Chapter 1, Section 1.4.9.3.2 of the DEIS indicates that based upon the State Engineer's November 2002 decision, these return flows are not available to the project. Therefore, a detailed estimate of these return flows has not been tabulated.

Comment 15.22

The third paragraph of Section 1.4.3.9.2 *(actually 1.4.9.3.2)* states that 21,000 AF to be recycled would "not be part of the ULS supply per se but would be included in the overall Bonneville Unit water supply." This statement is not clear and needs further explanation.

Response 15.22

As indicated in Chapter 1, Section 1.4.9.3.2 of the DEIS, only 18,000 acre-feet of the 21,000 acre-feet of Salt Lake County return flows would be recycled. The 18,000 acre-feet of return flows would not be part of or included in the 30,000 acre-foot delivery of ULS water to Salt Lake County, but would be claimed as a Federal water supply. Pursuant to a contract between the United States, the District, and others, the water would be recycled and reused by the petitioners and/or their member users under their own authority under State and Federal laws. The amount is quantified and shown in the DEIS for purposes of demonstrating the Joint-Lead Agencies' commitment to water recycling and conservation to reduce water supply shortages.

Comment 15.23

Paragraph 1.4.9.4, Conserved Water, addresses the water savings to occur from enclosure of the Provo Reservoir Canal. There is no discussion in the DEIS of the need for title transfer as a means of financing the enclosure. Further, Section 1.10.2 under the heading "Title Transfer" states that the action [title transfer] is considered too speculative to assess cumulative impacts to the ULS project. Since the DEIS seems to rely on enclosure as the means of generating the 8,000 AF of the total 12,165 AF needed for the June Sucker RIP, the DEIS should address the need for title transfer more specifically since title transfer, enclosure, and the 8,000 AF of conservation are very closely related. This is especially critical since no specific alternative source for the 8,000 AF is identified if the PRC enclosure does not occur.

Response 15.23

Please see comment response 15.20. The "Title Transfer" is addressed in Chapter 1, Section 1.10.3 and has been removed from Section 1.10.2.

Comment 15.24

Paragraph 1.4.9.4.1: Enclosure of the PRC has not taken place. The 8000 AF conserved water associated with the canal is not available until the enclosure takes place. Without title transfer, the enclosure project is much less likely to happen.

Response 15.24

Please see comment response 15.20.

Comment 15.25

Paragraph 1.4.9.4.3, Other Section 207 Project Water, refers to the 8,000 AF to be conserved by the Provo Reservoir Canal enclosure "or other future 207 project savings to be assigned to DOI." The DEIS does not identify any other alternative 207 projects to generate the necessary water conservation.

Response 15.25

Please see comment responses 15.20.

Comment 15.26

Paragraph 1.4.9.5, Last sentence: Utah Code Annotated §73-3-3 does not allow for Mitigation Commission to hold a water right for instream flows. Also, can the Mitigation Commission acquire mater rights to assure flow to Utah Lake without affecting other water rights? What kind of filing will have to be made with the Utah Division of Water Rights to effect the instream flows?

Response 15.26

The text in Chapter 1, Section 1.4.9.5 has been revised. The Joint-Lead Agencies are aware that Utah law allows only the Utah Division of Wildlife Resources or the Utah Division of Parks and Recreation to hold a water right for in-stream flow purposes. If providing minimum flows in the lower Provo River are to be accomplished in whole or in part by changing acquired water rights to in-stream flow rights, then the Mitigation Commission would enter into a long-term agreement with Utah Division of Wildlife Resources, whereupon Utah Division of Wildlife Resources could file a change application for in-stream flow purposes. Effects on other water rights would be considered by the Utah State Engineer when considering the change application for in-stream flow purposes. An alternate approach would be to convey acquired water rights or interests to the U.S. Bureau of Reclamation for inclusion into the Bonneville Unit water supply. Under that scenario, a change application would be filed by the United States describing the proposed uses, and the Bonneville Unit water could be delivered to Utah Lake or other downstream petitioners, thereby allowing said Bonneville Unit water to bypass direct flow users on the lower Provo River.

Comment 15.27

Paragraph 1.4.10.2.1, Water Delivery Operations, contains a bullet point asserting that the 75 cfs minimum flows can be accomplished by releases from Deer Creek Reservoir for water to be conveyed through the Provo Reservoir Canal. While these commitments can be fulfilled on a cooperative basis, there is no contractual or other obligation for use of Provo River Water Users Association flows to meet this environmental commitment.

Response 15.27

The Joint-Lead Agencies appreciate the Association's cooperation in our attempts to meet the 75 cfs goal in the lower Provo River. The Joint-Lead Agencies did not assert anything in Chapter 1, Section 1.4.10.2.1 of the DEIS regarding the goal of a 75 cfs minimum flow. The Joint-Lead Agencies do not consider this an environmental commitment, but rather a statutorily mandated goal. The statement in the DEIS that "a minimum 75 cfs flow normally occurs in the river between the Olmsted and Murdock diversions during the summer months when releases are made from Deer Creek Reservoir for conveyance through the Provo Reservoir Canal" is correct.

Comment 15.28

As is done in this section, reference is made throughout the document to the enclosed Provo Reservoir Canal. The Canal is not yet enclosed and there is currently no firm timetable as to when it will be enclosed.

Response 15.28

Please see comment response 15.20.

Comment 15.29

Paragraph 1.4.10.2.4, Second to last item on bullet list needs to recognize that coordination, cooperation, and an operating agreement between CUWCD and Association needs to be developed for the discharge structure. The Association needs to be involved in design of the connection structure, license agreements, and input on how the pipeline is operated.

Response 15.29

Please see comment response 15.14.

Comment 15.30

Also, the DEIS does not address need for a tie to the Association's SCADA System.

Response 15.30

The District and PRWUA currently operate reservoirs and diversion structures on the Provo River with each entity installing and maintaining its own SCADA monitoring station to collect the real time information where needed, such as the Murdock and Olmsted diversion structures and Deer Creek Reservoir. The existing District SCADA facilities are adequate for ULS operations. There would not be a need to tie to the Association's SCADA system because the District's water delivery responsibilities would end at the point of delivery to Association facilities, beyond which petitioners would be responsible for arrangements for conveying water. In the event an additional SCADA monitoring point is desired, the District would install its own SCADA station at that point.

Comment 15.31

Table 1-13 also refers to the 8,000 AF saved as, "Section 207 water conservation measures." None are referred to other than the Provo Reservoir Canal enclosure.

Response 15.31

Please see comment response 15.20.

Comment 15.32

Table 1-16 Preferred Alternative, the Jordanelle Reservoir volume and releases should be listed as well. The minimum storage in Deer Creek is 15,000 AF on May 1, but the assumptions underlying this estimate are not stated. The Association does not believe that this number is correct.

Response 15.32

The Joint-Lead Agencies do not agree that Table 1-16 should include the volumes and releases from Jordanelle Reservoir because the ULS project does not alter in any way the storage and release of water from Jordanelle Reservoir as described in the M&I EIS. This is further documented and clarified in the "Surface Water Hydrology Technical Report" which is part of this EIS. Chapter 1, Table 1-16, 1-21, and 1-23 have been revised in the Final EIS.

Comment 15.33

Also, the 3,000 AF listed as storage in September is the amount of the dead pool. Also, Jordanelle Reservoir is not included in the analysis of system storage and should be.

Response 15.33

Please see comment response 15.32.

Comment 15.34
Table 1-21: Same comments as Table 1-16.

Response 15.34
Please see comment response 15.32.

Comment 15.35
Table 1-23: Same comments as Table 1-16.

Response 15.35
Please see comment response 15.32.

Comment 15.36
Table 1-35 Because of the 2002 amendment to CUCPA, is it necessary to acquire Warren Act contracts for delivery of non-PRP water through the PRC? There is no mention of having a license agreement for use of the PRC ROW, for connection of the ULS pipeline to the PRC, and for operations. Also, the majority of Provo River Project water is conveyed through the Salt Lake Aqueduct and/or diverted directly out of the Provo River or exchanged to wells, etc. to shareholders. Approximately 25% of Provo River Project Water is actually diverted at the Murdock Diversion into the Provo Reservoir Canal.

Response 15.36
As indicated in Table 1-36, a Warren Act contract for delivery of ULS M&I water through the PRC is required. The CUPCA amendments enacted in 2002 authorized the Secretary to enter into a Warren Act contract for the conveyance of non-PRP water through PRP facilities; therefore a* Warren Act *contract is still required to convey non-PRP water. However, if the proposed legislation for title transfer of the PRC were to be enacted, this could modify this requirement. In addition, please see comment response 15.14.

Comment 15.37
Section 1.10.2, the paragraph regarding the PRC trail, the first sentence should say: "A recreational trail is proposed for the Provo Reservoir Canal from Orem to Lehi", etc. There has been no agreement on dates of construction. Provo River Water Users Association maintains that the trail can be constructed only when the enclosure project is completed and funding is in place.

Response 15.37
Chapter 1, Section 1.10.2 has been rewritten as the comment suggested.

Comment 15.38
Tables 1-35 and 1-36 do not address financing for enclosure of the Provo Reservoir Canal, which appears to be a necessary element of the preferred alternative.

Response 15.38
Please see comment response 13.11.

Comment 15.39

Paragraph 1.4.10.3, Stream Flows, bases its analysis on a 50-year period from 1950 to 1999. Selection of this period excludes the extremely dry years during the 1930's, but includes the extremely wet years of the 1980's. This may overstate water supply. Has statistical analysis been performed to evaluate whether this 50 year period is representative?

Response 15.39

A statistical analysis was not performed on the differences in water supply during the various historical periods. Complete data on stream flows and diversions are not available from the 1930s period, making it difficult to use. Similarly, at the start of this study, complete data were not available from the most recent three years of drought. The 50-year study period (1950 to 1999) includes prolonged wet and dry periods. In water supply planning, use of a 50-year analysis period is generally considered more than adequate.

Comment 15.40

Paragraph 1.4.10.4, Reservoirs, addresses a -15,400 AF storage in Utah Lake. The Association assumes this water is likely to be stored in higher elevation reservoirs. If so, what accounting has been made for savings in evaporation losses?

Response 15.40

The 15,400 acre-feet is a decrease in the average storage of Utah Lake over the 50-year study period. This water is not stored elsewhere. However, the evaporation savings associated with this water not being in storage in Utah Lake have been included in the analysis.

Comment 15.41

Also, the DEIS does not address whose water rights are affected by the 15,400 AF of reduced water in Utah Lake.

Response 15.41

The analysis of Utah Lake operations shows that the full historical volume of deliveries from Utah Lake (less District water rights converted or exchanged upstream) can be made under Proposed Action conditions. Therefore, no users' water rights are affected by this slight reduction in average Utah Lake storage volume. Under certain conditions the lower level of Utah Lake could affect the District's ability to convert or exchange its water rights from Utah Lake to Jordanelle Reservoir. However, the detailed hydrologic and water rights analysis conducted as part of this study and described in the Draft Surface Water Hydrology Technical Report, Section 2.3 Impact Analysis Methodology, did not show any significant impacts on the Jordanelle water supply.

Comment 15.42

Paragraph 1.5.9.2, Return Flow and Recycled Water, refers to drainage and return flow from sprinkler and flood irrigation practices. Ideally, sprinkler irrigation is considered to be 100% consumptive.

Response 15.42

Sprinkler irrigation is considered to be more consumptive than flood irrigation, however, it is not 100 percent consumptive. General sprinkler irrigation is considered to be 65 percent consumptive.

Comment 15.43

Paragraph 1.5.9.3.2: Title transfer of the PRC is not mentioned and should be.

Response 15.43

The Joint-Lead Agencies assume the comment is referring to Paragraph 1.5.9.3.1. Please see comment response 15.20.

Comment 15.44

Paragraph 1.5.10.2.1, Water Delivery Options, refers to 16,273 AF of Bonneville Unit water from Strawberry Reservoir which would be exchanged from Utah Lake to Jordanelle Reservoir. Again, does the hydrology of the Provo River support such an exchange?

Response 15.44

As documented in the DEIS, the 1988 DPR, and the 2004 supplement to the 1988 DPR, the hydrology of the Provo River is adequate to provide for this exchange.

Comment 15.45

Paragraph 1.5.10.4, Reservoirs, and Table 1-21 also rely on the 50-year period of 1950 to 1999. The same comments apply as stated above.

Response 15.45

Please see comment response 15.39.

Comment 15.46

Paragraph 1.9.3: Can Mitigation Commission file change application under current Utah State water law?

Response 15.46

Under Utah Code Ann. § 73-3-3, only those entitled to the use of water may file change applications. Therefore, the irrigation companies or other entities that own the water rights must file the change applications. Please see comment response 15.26.

Comment 15.47

Paragraph 1.10.1: Again, reference to "enclosed PRC." Also, the majority of PRP water is not delivered through the PRC, but is delivered through the Salt Lake Aqueduct (SLA) or other canals, or is exchanged to wells.

Response 15.47

The text in Chapter 1, Section 1.10.3 has been revised. Thank you for your comment.

Comment 15.48

Paragraph 1.10.2, Reference to title transfer of SLA and PRC says title transfer is too speculative. The Association believes that title transfer is near to essential for the PRCEP to occur, and without the PRCEP, there is no 8,000 AF of saved water and no recreational trail.

Response 15.48

Please see comment responses 15.20 and 15.23.

Comment 15.49

Paragraph 1.10.3.1.3, last bullet point on page 1-156, "Acquire and protect flows in Provo River" assumes enclosure of PRC.

Response 15.49

Please see comment response 15.20.

Comment 15.50

Paragraph 1.10.3.1.4: Strawberry Reservoir. -Deer Creek Pipeline alternative is no longer under consideration.

Response 15.50

Chapter 1, Section 1.11.8 documents why this alternative was eliminated from further consideration.

Comment 15.51

Paragraph 1.10.3.2, The enclosure may not occur if there is no title transfer. It seems obvious from this statement that enclosure is expected prior to ULS construction, yet no time table has been set for the enclosure project.

Response 15.51

Please see comment responses 15.20 and 15.23.

Comment 15.52

Is it appropriate to state that there is no cumulative impact because Provo Reservoir Canal Enclosure Project would be completed prior to ULS construction. Even if we don't know for certain that is true?

Response 15.52

Chapter 1, Section 1.10.3.2 has been revised in the Final EIS.

Comment 15.53

Paragraph 3-15: Is the 50-year period really representative where it excludes the 1930s and 2001, 2002, 2003? Are there sufficient baseline years to be statistically significant? Should it be the basis for the model that is used for all of the hydrology used to support the Utah Lake - Jordanelle exchange?

Response 15.53

Please see comment response 15.39.

Comment 15.54

Paragraph 3.2.8.2.6, "The pattern of storage tends to be very similar to baseline." What is defined as "baseline" and what is the justification for this statement?

Response 15.54

The baseline is the ULS baseline, as described in Section 3.2.7 Affected Environment (Baseline Conditions), and in Chapter 3 Affected Environment (Baseline Conditions) of the Draft Surface Water Hydrology Technical Report. The baseline and Proposed Action conditions of Deer Creek Reservoir storage are presented in Table 4-18 and Figure 4-18 of the Surface Water Hydrology Technical Report. These show that the average Proposed Action storage is within five percent of the average baseline storage for every month of the year.

Comment 15.55

Paragraph 3.2.8.2.8: The correct name is the "Deer Creek Reservoir-Jordanelle Reservoir Operating Agreement" It should be stated that in the event of a conflict with the Operating Agreement, the Operating Agreement will be the governing document, not the DEIS.

Response 15.55

Chapter 3, Section 3.2.8.2.8 in the Final EIS has been revised. The Operating Agreement and the Final EIS are separate documents with different purposes and each speaks for itself.

Comment 15.56

Paragraph 3.9.7.3 states that there is a failure to observe individual members of the species in certain waters, yet the tables show sightings. Have the scientific methodologies used for these studies been subjected to peer review?

Response 15.56

Prior to 2002, biological surveys for the June sucker were conducted by the State of Utah, U.S. Fish and Wildlife Service and other parties. This information represents the best scientific data available, but the Joint-Lead Agencies are unaware whether all the survey methodologies prior to 2002 underwent peer review. In 2002, the Joint-Lead Agencies along with other partners formed the June Sucker Recovery Implementation Program (JSRIP). Since the formation of the JSRIP, the JSRIP's Technical Committee has functioned as peer review for biological studies associated with June sucker recovery. The Technical Committee is currently reviewing a draft June sucker standardized monitoring program document, which describes in detail standard protocols for sampling various life stages of June sucker.

Comment 15.57

Paragraph 3.9.7.3.1 The numbers appear to conflict. The text states June sucker were last observed in 2002, yet counts from 2003 studies were the most observed in 10 years.

Response 15.57

Chapter 3, Section 3.9.7.3.1 June Sucker, has been revised in the Final EIS.

Comment 15.58

Paragraph 3.9.8.3.2 PRWUA expresses support for the increased flows that result from the ULS preferred alternative, which will benefit the June sucker and increase habitat as well as help the June Sucker Recovery Implementation Project accomplish its goals.

Response 15.58

Thank you for your comment.

Comment 15.59

Paragraph 3.13.8.3.1.6 Construction of the interconnect with the PRC and the pipeline needs to be done so as to cause no disruption to the operation and maintenance of the PRC.

Response 15.59

Chapter 1, Section 1.4.2.7 Spanish Fork-Provo Reservoir Canal Pipeline has been revised in the Final EIS to reflect your concern.

Comment 15.60

Also, historic survey work regarding the Provo Reservoir Canal has been done under the Provo Reservoir Canal Enclosure Project EA and may not be necessary for the ULS project.

Response 15.60

Thank you for your comment.

Comment 15.61

References to "Murdock Canal" should be changed to "Provo Reservoir Canal."

Response 15.61

Please see comment response 15.4.

Comment 15.62

Paragraph 3.27.5.1 Would the 8000 AF for June sucker recovery only happen under the ULS preferred alternative?

Response 15.62

The 8,000 acre-feet for June sucker recovery would occur under all alternatives including the No Action Alternative as the funding for the PRC enclosure is from CUPCA section 207.

Comment 15.63

Table F-5 Appendix to ULS F-28: The table contradicts text re: June sucker being collected during 2003, but text says none observed since 2002. Appendix F-28, Table F-5 contradicts the statement that there are no wild sightings of June sucker.

Response 15.63

Please refer to comment response 15.57.

Comment 15.64

F.5.6: The 8,000 AF seepage loss savings to be assigned to DOI can't be counted on until enclosure of the PRC.

Response 15.64

Appendix F, Section F.5.6 in the Final EIS has been revised.

Comment 15.65

Map - Insert 6: Provo River Water Users Association needs to be consulted re: connection of the ULS pipeline to the PRC.

Response 15.65

Please see comment response 15.14.

Comment 15.66

Appendix A, Environmental Commitments No. 41 should address that Diamond Fork systems environmental commitments should not be addressed through water supplied from the Provo River.

Response 15.66

The comment indicates a misunderstanding of the meaning of the term "Diamond Fork System" as used in Appendix A, Environmental Commitment No. 41. This reference is to the 1999 Diamond Fork System Final Supplement to the Final EIS, which is the NEPA document that the environmental commitment was generated from.

Comment 15.67

Appendix A, Environmental Commitments No. 52: The PRRP affects PRP operations. PRP should be consulted re: Provo River Restoration Project activities and operations and maintenance.

Response 15.67

Since beginning construction of the Provo River Restoration Project (PRRP) in 1998, the Mitigation Commission has held periodic coordination meetings among the agencies and entities involved in and interested in the PRRP. Meetings have been held as needed to address concerns and share information, at times holding monthly, and quarterly meetings. The Provo River Water Users Association has been and continues to be invited to attend those meetings. Additionally, you are encouraged to contact the Mitigation Commission at any time to discuss matters of common concern regarding the PRRP.

Comment Letter 16: U.S. Department of Agriculture, Forest Service – Uinta National Forest

Comment 16.1

Possible Future Actions Not Included in the Cumulative Impact Analysis – The discussion of Diamond Fork Creek Restoration (Pages 1 - 154 to 1-155) appropriately acknowledges the Mitigation Commission's involvement, commitment and responsibility for restoration of Diamond Fork Creek. However, the discussion inappropriately fails to mention the Forest's shared involvement, commitment, and responsibility in this matter.

Response 16.1

The U.S. Forest Service, and many other Federal, State and local entities, will be involved in planning for restoration of habitats in Sixth Water and Diamond Fork Creeks. Environmental Commitment 30 in Appendix A of the Final EIS describes in more detail the interagency approach to be brought to this project. Chapter 1, Section 1.10.2 Diamond Fork Creek Restoration has been revised in the Final EIS.

Comment 16.2

Pages S-7 and 3-332: The DEIS incorrectly describes the visual quality objective for the Sixth Water Transmission Line, substation, and Upper Diamond Fork power facility as 'retention'. In 2001, no man-made features dominated the landscape but some evidence of human modification in the form of fences, corrals/shelters and roads existed. Based on that, and uses of the area, the Forest determined that the area containing the project facilities met (i.e., was inventoried as having) the 'retention' Visual Quality Objective (VQO). However, after considering management goals (including CUP and other resource uses), objectives, and desired future conditions, the 2003 Forest adopted a VQO of partial retention for the area encompassing these ULS project facilities. In areas with a partial retention VQO, management activities remain visually subordinate to the characteristic landscape. Management activities should repeat form, line color, or texture common to the characteristics landscape; however, structures can introduce, form line, color or texture that are not found infrequently or not at all in the characteristic landscape. Reduction in form, line, color, and texture to meet a partial retention VQO should be accomplished as soon after project completion as possible or at a minimum, within the first year after completion. Construction of the power plant facilities due to the proposed slope cuts, grading and type of buildings being proposed, would result in dominant elements in the foreground view from the Diamond Fork Road, a major Forest access route with a large number of users having substantial concern about scenic quality. This would be inconsistent with Forest Plan VQO of partial retention. Facility buildings and surrounding fences could possibly meet partial retention VQO's, if they better borrow colors, textures, and scale from the existing landscape character. A more natural shaping of the topography and use of native rock could help the facilities blend more with the natural landforms of the canyon. We recommend adopting concepts from the *Built Environmental Image Guide* (2001) in facility design and in the selection of construction materials and color.

Response 16.2

The Summary, Section S.5.1.13 Visual Resources and Chapter 3, Sections 3.26.6.1 Spanish Fork-Provo Reservoir Canal Alternative (Proposed Action) and 3.26.6.2 Bonneville Unit Water Alternative have been revised in the Final EIS to reflect the change in VQO.

The design of the Upper Diamond Fork Power Facility would incorporate to the extent possible concepts from the Built Environmental Image Guide (2001). Please see the revisions in the Final EIS Chapter 1, Figure 1-3 and Chapter 3, Section 3.14.8.3.2.

Comment 16.3

DEIS, Page 1 - 131 to 1 - 132: The transmission line and substation also lie in an area with an adopted VQO of partial retention. Many reaches of this power line would be evident from the Sheep Creek-Rays Valley Road (FR #051), another major Forest access route with large numbers of scenic quality sensitive users. The intrusion of the transmission line would be particularly evident due to the absence of screening vegetation in this non-forest ecosystem, and due to the close proximity to FR #051. These impacts will be exaggerated by proposed clearing of 37.5 acres vegetation within the existing corridor and the additional clearing of 56.2 acres proposed for the transmission line. These impacts could be greatly mitigated by substantially reducing the proposed vegetation clearing/conversions, and locating of the substation in an area where it is screened from FR #051 users. The Forest Service suggests either incorporating mitigation to reduce the amount of transmission corridor clearing to a level similar to that found along transmission lines within the Highway 6 corridor, or exploring other alternatives or measures to mitigate, minimize or eliminate the impact on scenic resources. This is particularly important, considering that much of the project area occurs on Green River formation derived soils which are difficult and slow to visually recover from disturbances.

Response 16.3

The new transmission line would be constructed in the same location as the existing power line rather than developing and disturbing additional land for a new alignment. The vegetation within the construction access corridor would not be grubbed leaving bare ground but would be trimmed close to the ground allowing truck and tractor passage. Please see the Final EIS, Chapter 1, Section 1.4.6.2.2. A helicopter would be used to transport and erect the steel transmission poles. The disturbed areas around the transmission poles would be restored as described in Chapter 1, Section 1.4.6.2.7.

Comment 16.4

The DEIS also notes there will be visual quality impacts at the staging areas. However, the DEIS does not describe the effects of using these areas and does not describe the proposed rehabilitation of some of these disturbed areas; referring to a previous DEIS (which did not anticipate their use for power line, substation, or power production facility construction use). The DEIS should provide that use of these previously-approved staging areas will be extended and describe the eventual restoration and visual mitigation that would occur.

Response 16.4

The DEIS does not state that there would be any additional visual effects from use of these staging areas during construction of the transmission line and substation. These staging areas were previously addressed in the 1999 Diamond Fork System Final Supplement to the Final EIS. The use of the staging areas would be prolonged and these areas would be restored as described in the Final EIS Chapter 1, Section 1.8.8.1.

Comment 16.5

Other: Any old power transmission lines or power poles, waste, or leftover construction materials should be promptly cleaned up and removed to an appropriate disposal site off of NFS lands.

Response 16.5

The text has been revised in the Final EIS, Chapter 1, Section 1.8.8.16 Standard Operating Procedures (SOPs) During Construction.

Comment 16.6

Section 3.13.1 (Page 2 15): Although the introduction includes traditional cultural properties and sacred sites as topics, it does not actually discuss them in the cultural resources section (see also the comments below on Section 3.24). The document would be strengthened by a statement that specifically addresses the apparent absence of these kinds of sites from the project area.

Response 16.6

The text has been revised in the Final EIS, Chapter 3, Section 3.13.8.2.1 Potential Impacts Eliminated From Further Analysis.

Comment 16.7

It also does not explicitly address the National Historic Preservation Act side of Tribal Consultation.

Response 16.7

The text has been revised in the Final EIS, Chapter 3, Section 3.13.8.2.1, Potential Impacts and 4.3.8.2 Native American Tribes, Traditional Cultural Properties and Sacred Sites Consultation.

Comment 16.8

Section 3.1.13.7.2.1 (Page 3-217): This section identifies 42Ut649 as a Forest Service Ranger Station; again, all current information suggests that this is a Spanish Fork Livestock Association Cabin.

Response 16.8

The text has been revised in the Final EIS, Chapter 3, Section 3.13.7.2.1 Sixth Water Power Facility and Transmission Line.

Comment 16.9

Section 3.13.8.3.1.1.A (Page 3-221): Again, 42Ut649 needs to be correctly identified. This section does not address potential effects to 42Utl400; that information needs to be added.

Response 16.9

The text has been revised in the Final EIS, Chapter 3, Section 3.13.8.3.1.1 Sixth Water Power Facility and Transmission Line.

Comment 16.10

Section 3.24 (Pages 3-319 to 3-323): This section does a good job of addressing the potential effect of the project on Indian Trust Assets, and describes a series of meetings with Tribal groups. However, nowhere in either this section or the cultural resources section (3.13, pages 3-2 15 to 3-223) does the DEIS address potential effects to sacred sites or traditional cultural properties (although Section 3.24.1 [page 319] does acknowledge that some reserved rights may include traditional cultural properties). The document needs to explicitly address the potential effect of the project on sacred sites and traditional cultural properties, and whether or not Tribes were specifically asked to consult on the effects to those kinds of sites and location (as required by NHPA).

Response 16.10

Please see comment response 16.6.

Comment 16.11

Bio-Physical Resources - The DEIS does a thorough job describing the proposal's effects on water resources in Hobble Creek, Provo River, Spanish Fork River and Utah Lake. However, the DEIS does not describe the effects of power facility, substation, and transmission line construction activities (including continued disturbance of existing staging areas, see page 1-72) on water quality and aquatic resources (specifically including fisheries and macroinvertebrates) in Diamond Fork Creek and Sixth Water Creek. Though we expect, with the application of BMPs, that these impacts will be minimal, major construction activities will occur in close proximity to the streams and these will very likely result in some, albeit minor impacts. These effects should be evaluated and disclosed.

Response 16.11

The Joint-Lead Agencies agree with the conclusion that construction activities incorporating best management practices (BMPs) and standard operating procedures (SOPs) during transmission line and hydroelectric power plant construction would only have minor impacts on stream water quality and aquatic resources. The purpose of the EIS is to evaluate and disclose only significant environmental impacts.

Comment 16.12

As noted in the DEIS (Page 3-169), Bonneville cutthroat trout are a Forest Service sensitive species and this species inhabits Diamond Fork Creek, Sixth Water Creek, and other Diamond Fork Creek tributaries crossed by the transmission line. The DEIS (Page 3-174 to 3- 175) eliminated analysis of impacts on this species because it is *"not known to occur in the impact area of influence or their habitat would not be affected by construction or operation of any of the ULS project features or alternatives."* However, as the species occurs in streams directly adjacent to or crossed by project facilities, and activities are planned that have potential to impact water quality or habitat in these streams; we suggest the EIS disclose the effects and the basis for reaching that determination.

Response 16.12

The upgraded Sixth Water Transmission Line would be suspended over the upper watersheds and narrow, steep channels of Fifth Water Creek, Fourth Water Creek, and Third Water Creek, in the same alignment as the existing transmission line. The standard operating procedures described in Chapter 1, Section 1.8.8 and best management practices would limit impacts on water quality or habitat in these streams to incidental contact from stringing transmission lines. Please see comment response 16.11.

Comment 16.13

The Uinta Forest Plan contains direction to ensure protection of water and aquatic resources. Some of these, and other suggested mitigation measures are summarized below:

- Minimize construction activities and equipment crossing of Riparian Habitat Conservation Areas (RHCAs). Avoid removal of mature cottonwood and other established large woody riparian vegetation in the Diamond Fork Drainage.

- Obliterate, successfully revegetate, and shore access to all temporary roads and staging areas associated with construction activities.

- Clearing, grading, and other disturbances to soil and vegetation should be limited to the minimum area required for construction activities. Clearing practices should minimize removal of root systems in brush and shrub lands and areas where remaining roots may temporarily provide stability. Any long-term maintenance or access roads should be adequately engineered to disperse overland flows and minimize erosion.

- Install temporary erosion controls immediately after initial disturbance of the soil. The DEIS implies (Page 1 - 135 to 1 - 136), but does not explicitly require, maintenance of erosion control measures. Temporary erosion controls must be properly maintained throughout construction and reinstalled/maintained as necessary until replaced by permanent erosion controls or restoration is complete.

- The DEIS provides for use of hydro-mulching. In our experience, hydromulching is less effective, and shorter-lasting than dry seeding and mulching. On NFS lands, hydro-mulching should be limited to sites approved by the Forest Service. Similarly, the DEIS refers to using up to 3 tons/acre of mulch (It is unclear if this statement applies to dry or hydro- mulching) on steep slopes within 100 feet of water bodies. Our experience and recent research on burned areas indicates lower dry mulching rates (1.5 to 2 tons/acre) are essentially as effective in curtailing erosion, and more conducive to revegetation efforts.

- The DEIS appropriately states that only certified noxious weed free straw or hay may be used. On NFS lands, this should be expanded to include other undesirable species not currently included on the State of Utah's noxious weed list (e.g., cheatgrass).

- Forest Service policy requires use of native species on NFS lands. The DEIS states that where possible. Seed mixes to be used and/or species to be planted on NFS lands should be approved prior to their purchase and use by the Forest Service.

- The DEIS notes that seeding will be done in "consultation with Utah Division of Wildlife Resources or other government entity." (Page 1 - 136) On NFS lands, seeding should be done in consultation with the Uinta National Forest.

- The DEIS requires noxious weed surveys for the fall and spring following initial seeding. (Page 1 - 143) In our experience, resident weeds continue to show up several years following initiation of revegetation, and weed treatment. Weed monitoring (e.g., surveys) should be continued for at least 3-5 years following seeding.

- The DEIS does not identify any predicted impacts to fences or other infrastructure (e.g., gates or cattleguards). Gates, cattleguards, or fences could be impacted by construction and/or operational activities (e.g., vehicles accessing the transmission line), and any of these impacted should be promptly repaired or replaced.

Response 16.13

Thank you for providing a list of Uinta National Forest 2003 Forest Plan suggested mitigation measures. They will be considered during preparation of specifications for future construction activity on the Uinta National Forest.

Comment 16.14

Wild and Scenic Rivers: The transmission line crosses Fifth Water Creek, a stream identified in the 2003 Forest Plan as eligible for consideration as a Wild and Scenic River (Page 5-48 and 5-59). The Forest Plan allows uses which are compatible with retaining the free-flowing character and outstandingly remarkable scenic character and recreational values of this reach. This includes guideline MP-2.2-6 (Forest Plan, Page 3-40) which states "Vegetation management activities are allowed only if they maintain or enhance the scenic setting." Considering the special status of this area (extends 1/4 mile either side of 5th Water Creek), additional vegetation clearing in this reach should be restricted to the bare minimum needed to allow safe

installation and operation of the new transmission line. The effects of the project on the potential eligibility of this river segment should also be discussed and disclosed in the EIS. (Also, you may wish to refer to Appendix D in the *Final Environmental Impact Statement for the 2003 Land and Resource Management Plan for the Uinta National Forest).*

Response 16.14

The FEIS provides a more detailed analysis in Chapter 3, Section 3.14.8.3.1 Sixth Water Power Facility and Transmission Line, with the MP-2.2-6 Guideline from the Forest Plan. It appears that the transmission line replacement would not require additional vegetation clearing other than that to allow safe installation and operation, and vegetation trimming would be restricted to the bare minimum.

Comment 16.15

Roadless Areas: The transmission line being considered for replacement lies within an inventoried roadless area (#418016, see Page C - 1 15, Appendix C, *Final Environmental Impact Statement for the 2003 Land and Resource Management Plan for the Uinta National Forest*). The proposed transmission line construction activities (particularly the clearing) could impact the roadless and potential wilderness character of this area. These impacts could be reduced by reducing the proposed clearing as described previously. Irregardless, the effects of the alternatives should be evaluated and disclosed in the FEIS.

Response 16.15

The Joint-Lead Agencies would consult with the Uinta National Forest regarding the roadless and potential wilderness character when preparing specifications for the Sixth Water Transmission Line to replace the existing transmission line. Also, please see comment response 16.14.

Comment 16.16

Recreation - The DEIS is not clear as to how winter operations for the power generation facilities would occur. In the past, snowmobiles have used the upper reaches of the Diamond Fork drainage. With construction of the power facilities, year-round vehicular access may be needed. The DEIS should describe what winter access would be needed, and the impact of this on snowmobile access and use in Diamond Fork drainage?

Response 16.16

Chapter 1, Sections 1.4.10.2.4 Automated Control System and 1.5.10.2.4 Automated Control System identify that the proposed power facilities along upper Diamond Fork Creek and Sixth Water Creek would be controlled and monitored (operated) remotely from the District's operations center in Orem, Utah. The text in these sections in the Final EIS has been revised to state that routine winter operations visits to the power facilities would be via snowmobile only as needed. Construction of the Sixth Water Power Facility would require the Rays Valley Road to be kept open in the winter for 2 years, which would not affect snowmobile access. The Diamond Fork Power Facility would require the Diamond Fork Road to be kept open for construction traffic in the winter and would be closed to snowmobiling during construction. The text in Chapter 1, Section 1.4.5 and Chapter 3, Section 3.15.8.3.1.1 Sixth Water Power Facility and Transmission Line, Upper Diamond Fork Power Facility has been revised to document impacts on snowmobile access during power facility construction. Extraordinary maintenance would require plowing the road to provide vehicle access during winter months.

Comment Letter 17: U.S. Department of Health & Human Services, Public Health Service

Comment 17.1

It was unclear what environmental compliance inspection procedures would be followed during construction. In similar projects, experienced Environmental Inspectors are assigned to monitor construction activities and ensure that appropriate all construction activities are in compliance with applicable federal, regional, state, and local environmental permits and approvals. Please clarify how environmental inspections and construction monitoring will be accomplished.

Response 17.1

The District would have an environmental compliance officer assigned to the ULS construction activity. The District also has construction inspectors that would be assigned to the monitor the construction. District construction contracts require that contractors must obtain permits and comply with all local, state, and federal environmental and pollution control regulations.

Comment 17.2

We also believe that the FEIS should also address spill potential during construction. A Spill Prevention and Control Plan should be considered. The plan should include, but not be limited to: precautionary measures to prevent spills; sources of spills, such as equipment failure or malfunction; standard operating procedures in case of a spill; and appropriate training for all construction personnel.

Response 17.2

Please refer to Chapter 1, Section 1.8.8.7, Water Quality in the DEIS. The second requirement in this section requires the preparation of a spill prevention and control plan.

Comment 17.3

We also have a concern for safety during construction. The FEIS should contain a statement of compliance with appropriate criteria and guidelines to ensure safety and health for both workers and the general public.

Response 17.3

Please refer to Chapter 1, Section 1.8.8.Standard Operating Procedures, Section 1.8.8.11 Health and Safety, in the DEIS where the concern for safety and health for both workers and public during the period of project construction is addressed.

Comment Letter 18: Western Area Power Administration

Comment 18.1

Our review and comments have concentrated on the Draft power Appendix to the DPR since the Appendix directly addresses the hydropower aspects of the ULS proposal. To the extent that Western's comments affect other sections of the DPR and the ULS DEIS, we request that you revise those documents accordingly.

Response 18.1

Thank you for your comments. They did not affect any sections of the DEIS and FEIS.

Comment Letter 19: U.S. Department of the Interior, Bureau of Reclamation

Comment 19.1

General: The characterization of the No Action Alternative and its impacts is confusing. Rather than comparing the Action Alternatives to the No Action Alternative, to enable the decisionmaker to assess the consequences of implementing a particular alternative, all of the alternatives are compared to a baseline that is defined as the existing environment today. Considerable clarification is needed to demonstrate that the No Action effects are indeed those effects that will occur if neither Action Alternative is implemented. To inform the decisionmaker and the public, the effects of the Action Alternatives need to be compared to No Action in order to ascertain the differences to the future environment.

Response 19.1

Please see Chapter 3, Section 3.1 for the definition of the ULS baseline, which explains that baseline is not always considered as the "environment today." Baseline for the Spanish Fork River is the No Action Alternative for the 1999 Diamond Fork System Final Supplement to the Final EIS. Baseline for the Provo River is the condition and impact analysis presented in the 1979 M&I System Final EIS. The baseline for analysis of impacts on Hobble Creek is in fact existing conditions.

Comment 19.2

General: Do 'find and replace' for right-of-ways with rights-of-way. ('Rights-of-way'is the more common expression of the plural).

Response 19.2

Revisions have been made where appropriate in the Final EIS.

Comment 19.3

Cover Sheet: In the fourth line, change the word, "purchase" to "acquire."

Response 19.3

The Cover Sheet has been revised in the Final EIS.

Comment 19.4

S.2: What authority exists to protect water quality of surface and underground water resources?

Response 19.4

One of the objectives of the ULS is to implement the project while avoiding impacts on resources such as the quality of surface and underground water resources. No additional authority is required to avoid impacts and protect resources. One of the purposes of the project as stated in Chapter 1, Section 1.2 of the EIS is "To protect water quality of surface and underground water resources that may be affected by Bonneville Unit completion."

Comment 19.5

S.3.1: Second paragraph talks about associated transmission facilities of the Diamond Fork System. What transmission facilities currently exist? (same comment in the first paragraph of Section S.3.2)

Response 19.5

A 46kV transmission line was constructed in Rays Valley by Reclamation in conjunction with construction of the Syar Tunnel and Sixth Water Aqueduct. This project proposes to upgrade the existing transmission line to a 138kV line. Please see the revised text in Chapter 1, Sections 1.4.2.1 and 1.4.6 of the EIS.

Comment 19.6

S.5.1.8.1: Change the word "weighted" to "wetted" in the first sentence.

Response 19.6

Please see DEIS Appendix E, Impact Analysis Methodologies, Section E.2.2.1.1, Instream Flow Incremental Methodology/Physical Habitat Simulation Data and Modeling, where the Weighted Usable Area (WUA) methodology is defined.

Comment 19.7

S.5.1.11.2: Are the $72 million in direct impacts considered to be a beneficial impact?

Response 19.7

Determining if an impact is beneficial or not is inappropriate for the EIS. CEQ regulations require the identification of significant or insignificant impacts. Determining if the impact is beneficial or not is up to the reader as a beneficial impact for one group of people may be an adverse impact for a different group of people. The increase of $72 million would not exceed the significance criterion of greater than 5 percent in annual personal income to the construction labor sector within the local county. Please see Chapter 3, Section, 3.12.8.1.1, Table 3-77, Significance Criteria for Economic Impacts Caused by the ULS Project and Section 3.12.8.3 Spanish Fork Canyon – Provo Reservoir Canal Alternative, Section 3.12.8.3.1.2, Income.

Comment 19.8

S.5.1.12: This sections reference adverse effects; recommend that these sections include any proposed mitigation as this would be useful information for an executive summary.

Response 19.8

One of the purposes of the Summary is to summarize significant impacts after application of mitigation measures. Please see Chapter 3, Section 3.25 Mitigation and Monitoring, which discusses mitigation and monitoring measures for those resources requiring it. The Summary section in the ULS EIS follows the CEQ Guidelines for a summary and is not intended to serve as an executive summary.

Comment 19.9

S.5.1.12: In the third line, change to read as follows, ". . and the Provo Reservoir Canal commonly known as the Murdock Canal in Orem."

Response 19.9

The text in the Summary, Section S.5.1.12 Cultural Resources, has been revised in the Final EIS.

Comment 19.10

S.5.1.13: This section references adverse effects; it is recommend that these sections include any proposed mitigation as this would be useful information for an executive summary.

Response 19.10

Please see comment response 19.8.

Comment 19.11

S.5.1.15: This section contains nothing that serves to characterize or summarize impacts.

Response 19.11

Table S-2, Section S.5.2.15 in the Final EIS shows the location of potential high-risk areas for PM_{10}, Traffic and Noise impacts. Please see the impact analysis in Chapter 3, Section 3.17.8 Environmental Consequences (Impacts).

Comment 19.12
S.5.2.1: Does reference to Olmsted mean diversion, flowline, tunnel, or all of these?

Response 19.12
The text in the Summary Section S.5.2.1 has been revised in the Final EIS.

Comment 19.13
S.5.2.3: First sentence, are these figures (kaf) on an annual basis?

Response 19.13
The text in the Summary Section S.5.2.3 has been revised in the Final EIS.

Comment 19.14
S.5.2.19: This section does not list all of the impacts to power that is later described in the document.

Response 19.14
The text in the Summary Section S.5.2.19 has been modified in the Final EIS to show energy resource impacts from ULS power generation.

Comment 19.15
S.5.2.11.2: First sentence--are these beneficial impacts? Salaries?

Response 19.15
Please see comment response 19.7. Also, please see Chapter 3, Section 3.12.8.4.1.2 Income in the Final EIS for the full discussion of this impact.

Comment 19.16
S.5.2.11.3: It would be helpful to name relevant towns where these impacts would occur.

Response 19.16
Some construction and operation impacts would occur on local businesses and landowners throughout the impact area of influence, but the magnitude of such impacts would be minimized by the SOPs (see DEIS Chapter 1, Section 1.8.8.11). However, some disruptions of public and business services would occur, and would be of short duration. Please see Map A-1 and Map A-2 (in the map pocket) for specific towns that could be affected.

Comment 19.17
S.5.2.11.4: It is unclear how this paragraph/section differs from S.5.2.10, Agriculture and Soils.

Response 19.17
The Summary, Section S.5.2.10, Agriculture and Soils, summarizes the acreage of rotational crop and orchard land reductions; Section S.5.2.11.4, Agriculture, summarizes the dollar value of crop revenue reductions.

Comment 19.18
S.5.2.11.5: Should these impacts be characterized as beneficial?

Response 19.18
Please see comment response 19.7.

Comment 19.19

S.5.2.15: This section contains nothing that serves to characterize or summarize impacts.

Response 19.19

Please see comment response 19.11.

Comment 19.20

S.5.2.17: First sentence, it would probably be more accurate to characterize the daily traffic as a significant *short term* impact.

Response 19.20

The text in the Summary, Section S.5.2.17 Transportation Networks and Utilities has been revised in the Final EIS.

Comment 19.21

S.5.3: Since the No Action Alternative describes what will occur if the government 'does nothing' on the proposed action, this alternative should be more clearly described as the future reality against which action alternative impacts are to be compared.

Response 19.21

The Joint-Lead Agencies disagree with the comment. The No Action Alternative is adequately described.

Comment 19.22

S.5.2.19: This section does not list all of the impacts to power that is later described in the document.

Response 19.22

Please see comment response 19.14.

Comment 19.23

S.5.3.2: Overall, impacts should be characterized as to whether they are good, bad, or indifferent. There is inconsistency among resources as to impact characterization.

Response 19.23

Please see comment response 19.7.

Comment 19.24

S.5.3.6: The No Action Alternative is described as 'causing' significant impacts. The emphasis should be that if the proposed action is not implemented through one of the action alternatives, these are the impacts that will occur. As written, it appears that the correct characterization is that under No Action, there will be degradation of wetland wildlife habitat, and thus there will be beneficial impacts for this resource under one or more action alternatives.

Response 19.24

The comment correctly identifies the results of the impact analysis of the future without the Proposed Action.

Comment 19.25

Table S-3: How are these numbers derived? For example, why does it cost so much for a new water resource if you converting an existing irrigation surface water to M&I? It would be helpful to the reader to list a citation of where these numbers came from.

Response 19.25

The values in the Summary, Table S-3 and Section S.5.3.10.1 have been revised in the Final EIS.

Comment 19.26

Map 1-2: This map gives the erroneous impression that Deer Creek Reservoir is part of the Bonneville Unit.

Response 19.26

Thank you for your comment.

Comment 19.27

1.1.2.1.3: Line 10 should be modified to read "...Northern Ute Tribe of the Uintah and Ouray Reservation..."

Response 19.27

The text in Chapter 1, Section 1.1.2.1.3 Ute Indian Tribal Development Project, has been revised in the Final EIS.

Comment 19.28

1.1.2.5: You may want to provide an update in the FEIS on the status of Diamond Fork System operations.

Response 19.28

The text in Chapter 1, Section 1.1.2.5 Bonneville Unit Operations, has been revised in the Final EIS.

Comment 19.29

1.1.2.6: The text should be, "NEPA Documents" rather than "NEPA Compliance Documents."

Response 19.29

All NEPA documents are NEPA compliance documents. It is the Joint-Lead Agencies' preference to include the term "compliance."

Comment 19.30

1.2: One project purpose is, "participate in the implementation of the June Sucker Recovery Implementation Program"--but what about the broader public and ESA purpose of removal of jeopardy from the June Sucker?

Response 19.30

One of the purposes of the June Sucker Recovery Implementation Program is to improve the status of the June sucker. That program was established to accomplish that particular goal.

Comment 19.30

1.2: Purpose and Need, in the body of this section, would suggest listing the purposes first to be consistent with the heading.

Response 19.31

The Purpose and Need for Action are usually identified in Chapter 1 in that order as the need(s) typically drive and underlie the purposes.

Comment 19.32

1.2.1: This section is meant to explain the project needs but does not tie that information back to the specific needs.

Response 19.32

The need statement in Chapter 1, Section 1.2.1 Purpose and Need, includes the specific needs for the proposed project.

Comment 19.33

1.2.1.3.2: Revise the second sentence of lst bullet to read, "That ROD specified that this EIS would address the impacts associated with any additional Utah Lake System Facilities and will incorporate and address all remaining and incomplete commitments contained in the various CUP NEPA documents including previous ROD's."

Response 19.33

The text in Chapter 1, Section 1.2.1.3.2 Environmental Commitments to be Completed, has been revised in the Final EIS.

Comment 19.34

Same section, next to last bullet which is on p. 1-29 does not match the other bullets in that it refers to FWS action in preparing an amendment to a BO, which is not an environmental commitment.

Response 19.34

The revised BO may have an effect on how the District operates the 44,400 acre-feet and/or whether they have access to any of it for consumptive use.

Comment 19.35

1.4.2.1: Please clarify who would be buying, selling, and using the power generated as part of the action alternatives.

Response 19.35

The power facilities constructed as part of the ULS project would be constructed as federal project facilities generating federal project power. Project power generated under ULS would be marketed and sold by the Western Area Power Administration (Western) to specific Colorado River Storage Project customers. Please see the revised text in Chapter 1, Section 1.4.2.1 of the Final EIS.

Comment 19.36

1.4.2.2: Shouldn't the last sentence say the existing 25 kv cable would be connected through a step up transformer to the upgraded transmission line at the 6th" Water Power Facility Substation?

Response 19.36

Chapter 1, Section 1.4.2.2 Upper Diamond Fork Power Facility and Transmission Line has been revised in the Final EIS.

Comment 19.37

Figure 1-2: Replace this figure with one that is closer to scale representation.

Response 19.37

In certain instances, the Joint-Lead Agencies felt it was necessary to distort scale on schematic diagrams in order to provide sufficient detail for public understanding.

Comment 19.38

1.4.2.7: The EIS correctly states, as was previously suggested, that the EA and FONSI for the PRC Enclosure project have been completed by Reclamation. However, the EIS appears to assume that the canal will be enclosed- this is PRWUA's intent but it is *(? not)* guaranteed. Section 1.4.2.7 states that the Spanish Fork-Provo Reservoir Canal Pipeline will be hooked up to the 'enclosed' PRC. Can and will that connection occur if the PRC is not enclosed?

Response 19.38

All of the information available at the time of filing the ULS DEIS indicated the Provo Reservoir Canal would be enclosed. However, the enclosure of the Provo Reservoir is not required in order for ULS M&I water to be conveyed in the Provo Reservoir Canal. Please see comment responses 13.11 and 15.20.

Comment 19.39

1.4.2.7: Related to *#5,* the EIS needs to note that even though Reclamation authorized the enclosure, another related action, title transfer, would render Reclamation's authorization moot-the new owners would be able to enclose the canal at their option.

Response 19.39

Please see comment response 19.38.

Comment 19.40

1.4.2.7: Will the new pipeline and remaining open canal be a Central Utah Project feature?

Response 19.40

The new pipeline would be a ULS feature. The Provo Reservoir Canal would not be a Bonneville Unit feature.

Comment 19.41

1.4.3: Include federal land in the list of land required to construct and operate the features of the Preferred Alternative.

Response 19.41

Chapter 1, Section 1.4.3 Land Management Status and Right-of-Way Acquisition, does include mention of National Forest System land. Please see the revised text in Chapter 1, Section 1.4.3, which added Reclamation land as federal land that would be involved in the construction and operation.

Comment 19.42

1.4.4: This section should reference the SOPS in Section 1.8.

Response 19.42

The text in Chapter 1, Section 1.4.4 has been revised in the Final EIS.

Comment 19.43

Figure 1-9: Rename this figure to "Typical Pipeline Trench for Construction in U.S. Highway 6 Shoulder."

Response 19.43

It is felt that the current title of Figure 1-9 is appropriate.

Comment 19.44

1.4.5. 1.5.5: Although construction of 50 MW of new hydroelectric power capacity is part of both action alternatives, the EIS is silent on the impacts of power generation. If the new capacity is not built, is the difference to be made up by power from other hydro units or fossil fuel fired plants? Either way impacts would be expected. The alternatives descriptions do state that the new units would be dependent on whatever flows they get, more information is needed on whether there are impacts for each of the action alternatives.

Response 19.44

Please see Chapter 3, Section 3.21 Mineral and Energy Resources, where impacts of power generation are discussed. The generation of hydropower energy is an opportunity not driven by a specific demand, therefore, there is no need to analyze whether the generated power is causing an alternate power source to be built to replace non-generation.

Comment 19.45

Table 2- 1 states that for both action alternatives, Strawberry Electric power generation revenues would decrease by 1.2%, but there is no explanation as to the reasons for that impact, nor is there any presentation of overall differences/effects for power generation.

Response 19.45

The impact analysis is not presented in Chapter 2, Table 2-1, which is a comparison of impacts of the alternatives. Please see Chapter 3, Section 3.21.8.3.2.1 Energy Resources, for a discussion of the impacts that the comment is seeking.

Comment 19.46

Power should be addressed as a separate resource in Chapter 3.

Response 19.46

Please see Chapter 3, Section 3.21, Mineral and Energy Resources, where you will find a detailed discussion of the proposed power generation and potential impacts from construction and operation of the action alternatives. The discussion includes consumption and production of energy products and sources.

Comment 19.47

1.4.5.6: It shouldn't be an isolated phase-bus, but a medium voltage isolated phase-bus or medium voltage cable. In this paragraph it is not a low voltage cable but an existing 25 kv cable.

Response 19.47

The text in Chapter 1, Section 1.4.5.6 has been modified to address your comments.

Comment 19.48

1.4.9.1: The last sentence of the first paragraph should be modified as follows, "...delivered to farmers, cities, and used for power generation in southern Utah County..."

Response 19.48

The text in Chapter 1, Section 1.4.9.1 Transbasin Diversion, has been revised in the Final EIS.

Comment 19.49

1.4.9.4: Section 1.4.9.4 on page 1-77 states that "If the enclosure project does proceed with Section 207 funding, this EIS provides the necessary NEPA compliance and would require 8,000 acre-feet of water to be returned to DOI." If the ULS EIS is intended to provide compliance for the District's proposed action under Section 207, then that proposed action- issuance of 207 funding- needs to be included in the statement of the proposed action and the statement of purpose and need. Further, the effects to June sucker of the saved water would need to be discussed in the T&E impacts section. The EIS would also need to discuss the no action effects. For example, what happens if PRWUA decides not to seek the 207 funding, or the District decides not to provide it, and the 8000 a.f. is not available? Will there be separate NEPA for Section 207 funding for Springville Mapleton Lateral?

Response 19.49

Please see comment responses 15.20 and 15.23.

Comment 19.50

1.4.10.3: It is unclear whether this discussion includes flows that come from the saved water discussed elsewhere (same comment for 1.5.10.3).

Response 19.50

The first sentence of Chapter 1, Section 1.4.10.3 referenced in the comment states "This section presents the streamflows and water volumes that would occur under the Preferred Alternative in the Provo River, Hobble Creek, Spanish Fork River, and Jordan River." The "saved" or conserved water discussed in Chapter 1, Section 1.4.9.4 and the other water sources described in Chapter 1, Section 1.4.9 Water Sources are what constitute the hydrologic difference between the Proposed Action and the future without the project. The resulting streamflows and water volumes would occur under the Proposed Action in the streams shown in Table 1-16. If these water sources described in Chapter 1, Section 1.4.9 were not available, then there would be no Proposed Action and no ULS project.

The same explanation applies to Chapter 1, Section 1.5.10.3, except that the water sources described in Chapter 1, Section 1.5.9 Water Sources are what constitute the difference between the Bonneville Unit Water Alternative and the future without the project. The resulting streamflows and water volumes would occur under the Bonneville Unit Water Alternative in the streams shown in Table 1-21. If these water sources described in Chapter 1, Section 1.5.9 were not available, then there would be no Bonneville Unit Water Alternative and no ULS project.

Comment 19.51

1.5.8: Is there a construction staging area that would be used in the preferred alternative that applies to this discussion?

Response 19.51

As stated in the text of the DEIS, the staging areas for the Bonneville Unit Water Alternative are the same as described in Chapter 1, Section 1.4.8.

Comment 19.52

1.5.9.3.1: Similar comment as 1.4.9.4.

Response 19.52

Please see comment responses 15.20 and 15.23.

Comment 19.53

1.5.10.3: This section infers that someone other that the River Commissioner would be responsible for monitoring the flows in the river. This section should add a statement that says that the River Commissioner is responsible for monitoring the flows.

Response 19.53

The text in Chapter 1, Section 1.5.10.3 Streamflows, has been revised in the Final EIS.

Comment 19.54

1.8.3.1: Second line--these dates do not match the construction schedule provided in Table 1-24 on p. 1-124.

Response 19.54

Table 1-25 of Chapter 1, Section 1.8.1.1 Spanish Fork Canyon–Provo Reservoir Canal Alternative (Proposed Action) is intended to represent a construction summary from the potential onset of project construction through project completion. The dates provided in Section 1.8.3.1 have been revised to show late 2007 to late 2008, and they are only intended to represent the period of maximum anticipated number of construction trips for the Proposed Action.

Comment 19.55

1.8.8.8: SOPs for construction should include an inadvertent discovery clause, Reclamation can provide text if desired.

Response 19.55

The text in Chapter 1, Section 1.8.8.8 Cultural Resources, has been revised in the Final EIS.

Comment 19.56

1.8.8.9: Section 1.8.8.9 states that a paleontologist will be hired to handle possible discovery of paleontological resources. Are there any other technical specialists that will be hired (i.e. archaeologist)? There are no SOPs specific to construction of power generation facilities, should there be?

Response 19.56

The District has a contract with a consultant who handles paleontological and archaeological resources for discovery during construction. Please see Chapter 1, Section 1.8.8 Standard Operating Procedures (SOPs) During Construction, as the Joint-Lead Agencies believe that the comment is incorrect - there are SOPs to cover construction of all ULS facilities.

Comment 19.57

1.8.8.13: SOPs for air quality should include a clause to the effect that there would be no unnecessary idling of vehicles or construction equipment; see language in Sec. 1.9.8.14 regarding energy conservation.

Response 19.57

The text in Chapter 1, Section 1.8.8.13, Air Quality has been revised in the Final EIS.

Comment 19.58

1.9: Table 1-36 (p. 1-146) and Table 1-38 (p. 1-149) reference the requirement for an ESA Section 7 consultation. This should be explained in the text as well. Is formal consultation required? Does this EIS also serve as the BA? Do the T & E analyses for each alternative conclude with a determination of "no effect" or "may affect, not likely to adversely effect"?

Response 19.58

Please see Volume 2 of the ULS EIS, Appendix F regarding compliance with the Endangered Species Act.

Comment 19.59

1.10.2: Section 1.10.2, Possible Future Actions Not Considered in Cumulative Impact Analysis, states that the Highway 6 upgrade is not included because funding is not secure and potential construction is considered too speculative to be analyzed. However, Section 1.7 states that the Highway 6 work will happen after completion of the EIS and that if the UDOT schedule can be accelerated; the Spanish Fork Pipeline would be constructed concurrent with the highway work, thus minimizing environmental impacts. The statements in 1.7 imply that enough is known about the project that it could, and should, be included in cumulative effects, especially since the claim is made that it would serve to minimize impacts.

Response 19.59

The Joint-Lead Agencies disagree with the comment. The description is adequate.

Comment 19.60

1.10.2: Section 1.10.2, the paragraph on title transfer should be updated to note that a draft EA has been issued for public review and comment in May 2004.

Response 19.60

The text in Chapter 1, Section 1.10.2 Possible Future Actions Not Included in the Cumulative Impact Analysis, has been revised and moved to Section 1.10.3 in the FEIS.

Comment 19.61

1.10.2: Section 1.10.2 discusses a "Provo Reservoir Canal Trail" proposed as a 12-mile-long trail between Orem and Lehi along the PRC, to be constructed between 2011 and 2020. Reclamation has not authorized such a trail, nor has Reclamation received any formal request to consider such a trail. We therefore question its inclusion as a formally proposed project.

Response 19.61

Inclusion of the proposed recreation trail in the Draft EIS was based on discussions with Reclamation and language in Reclamation's agreement for Title Transfer of the Provo Reservoir Canal, which includes a provision for a proposed recreation trail along the Provo Reservoir Canal and a required agreement with Utah County.

Comment 19.62

1.10.3.2: Section 1.10.3.2 states that the PRC will be enclosed prior to ULS construction. This is questionable-completion of the enclosure of the canal is unknown.

Response 19.62

Please see comment responses 13.11 and 15.20.

Comment 19.63

3.2.6.1: The assumption stated on page 3-1 3, "Historical releases associated with the 7,900 acre-feet of Indian Ford water acquired as part of the M&I System water supply would remain in the lake and be exchanged to Jordanelle Reservoir", is accurate. It can be exchanged to Jordanelle. However, this purchase and exchange would take the place of other water exchanged (Strawberry releases, other water rights in Utah Lake, return flows, etc.) and would not increase the amount of water in Jordanelle and therefore not replace the water supply lost from not implementing the Indian Ford Exchange, as identified in the original plan.

Response 19.63

The Department of the Interior's acquisition of 7,900 acre-feet of the District's Utah Lake primary water rights facilitated the issuance of Jordanelle Reservoir Block Notice 5c to the District in the amount of 7,900 acre-feet. Project water under this block notice was utilized by the District in meeting its contractual obligations to its petitioners, which it otherwise could not have met. This action also initiated a District repayment obligation to the United States that otherwise would have been delayed three years. The acquisition of the 7,900 acre-feet, in fact, allowed for additional wet water to be delivered from Jordanelle Reservoir in advance of when it otherwise would have been available. DOI and the District would not have been able to satisfactorily implement the Indian Ford Exchange or its equivalent as originally conceived. Furthermore, under full project operations, modeling studies show that Bonneville Unit operations are unaffected by not directly implementing the Indian Ford Exchange or its equivalent. One reason why Bonneville Unit operations are unaffected is that the District has used the Utah Valley Water Treatment plant transfer pumps to increase the water available for minimum flows in the Provo River below Deer Creek Dam as provided for under terms of the Deer Creek/Jordanelle Operating Agreement. This makes project storage water available for M&I deliveries.

Comment 19.64

3.3: Please explain how the period of record was selected for the water quality data and hydrology. Explain the significance of the elevated phosphorus in Utah Lake and lower Provo from the action alternatives. The hydrological analysis should be extended to the present.

Response 19.64

The water quality data period of record from 1990 through 1999 was selected based on the 10-year study period recommended by the Utah Division of Water Quality to the Joint-Lead Agencies. Please see comment response 15.39 regarding the hydrology period of record and hydrological analysis.

The surface water quality analysis and text in Chapter 3, Section 3.3 Surface Water Quality have been revised based on re-analysis of the water quality data and additional data made available since the DEIS. The revised surface water quality analysis shows that there would be no net change in total phosphorus load to Utah Lake and that total phosphorus concentrations in Utah Lake would decrease because of dilution under the Proposed Action. Flow-weighted average total phosphorus concentrations in the lower Provo River would remain unchanged from baseline conditions under the Proposed Action. Total phosphorus concentrations could increase to a level above the pollution indicator in the lower Provo River during October in some years because the Strawberry Reservoir water discharged to the lower Provo River would comprise up to 96 percent of the flow in the stream. This coincides with the period when total phosphorus concentrations in Strawberry Reservoir water conveyed through the Syar Tunnel are elevated.

Comment 19.65

3.3.7.1 1.1: The total annual inflows of water to Utah Lake that are discussed are not consistent. In Tables 3-5 and 3-6 on page 3-33, the estimated historic baseline inflow is 558,248 acre-feet, and estimated simulated baseline inflow is 588,175 acre-feet per year. Page 3-38 states that the average flow to Utah Lake is approximately 700,000 acre-feet per year. Page 3-42 indicates the average inflow is 579,620 acre-feet per year in Table 3-15, and shows the same total average inflow in Table 3-16; however, the actual total of the inflow sources in Table 3-16 adds up to 847,000 acre-feet. Please check the figures and make adjustments as appropriate.

Response 19.65

The total inflows are consistent with the condition being referenced. There are three distinct hydrologic periods or alternatives being referred to in the numbers cited. The average historic inflow (for the period 1990 through 1999) of 558,248 acre-feet is different from the average baseline inflow (for the period 1990 through 1999) of 588,175 acre-feet because of different Provo River and Spanish Fork River inflows. The differences are associated with operation of the Bonneville Unit. Neither of these two numbers includes precipitation averaging approximately 140,000 acre-feet per year during this period. The average inflow of 700,000 acre-feet referenced on page 3-38 is an approximation. The actual baseline number is 727,332 acre-feet per year. This includes precipitation and is for the entire 50-year study period. The text in this section (3.3.8.2 Potential Impacts Eliminated from Further Analysis) and Table 3-16 have been revised in the Final EIS.

Comment 19.66

3.3.8.2: In Table 3-13 on page 3-40, the State of Utah water quality standard for selenium for Class 1 C – Domestic, and for Class 4 - Agriculture are incorrect. The standard for both is 0.05 parts per million (ppm), not 0.05 ppb (parts per billion) as shown. Please correct.

Response 19.66

The values shown in Chapter 3, Section 3.3.8.1 Significance Criteria, Table 3-13 have been revised in the Final EIS.

Comment 19.67

3.9: The Section 7 consultation process as it applies to this proposed action needs to be explained in the EIS.

Response 19.67

Please see comment response 19.58.

Comment 19.68

3.9.5: Map 3-2 does not show the overall impact area of influence, it just shows surface water.

Response 19.68

Chapter 3, Section 3.9.5 Description of Impact Area of Influence, Map 3-2, has been revised in the Final EIS.

Comment 19.69

3.9.6.1: Check this reference - Appendix E only gives T&E assumptions.

Response 19.69

There were no assumptions for the T&E species analysis. The text in Chapter 3, Section 3.9.6.1 in the Final EIS has been revised.

Comment 19.70

3.9.6.2: Check this reference-Appendix E simply refers the reader back to information in the body of the EIS. It may be easier to cite the information in this section rather than referencing it.

Response 19.70

Appendix E, Section E.2, Threatened and Endangered Species, Section E.2.1, Wildlife Species, refers the reader to sections of the DEIS from which data relevant to the impact analysis methodology was derived, rather than repeating that data. The impact analysis methodologies for Wildlife Species (E.2.1), Aquatic Species (E.2.2) and Plant Species (E.2.3) are fully described in Appendix E and are not referenced back to the body of the DEIS.

Comment 19.71

3.9.8.3.2.1: This section needs to speak to the benefits of saved water for the June sucker. This section should state that because of the saved water, the proposed action would be expected to benefit the June sucker.

Response 19.71

The text in Chapter 3, Section 3.9.8.3.2.1 Aquatic Species, June Sucker, has been revised in the Final EIS.

Comment 19.72

3.9.8.5.2.1: Same as previous comment.

Response 19.72

Please see comment response 19.71.

Comment 19.73

3.12.3: Second response up on 3-195 should be "Definite", not "Definitive".

Response 19.73

The text in Chapter 3, Section 3.12.3 Scoping Issues Eliminated From Further Analysis, has been **revised** ***in the Final EIS.***

Comment 19.74

3.12.7.1: What relevance does Wasatch County growth has to this EIS? Why is it included? This comment also applies to 3.12.7.4 about housing and property values.

Response 19.74

During the scoping process and field investigations, it was determined that some project development could affect sites and community resources within Wasatch County. Consequently, it has been included for some impact analyses.

Comment 19.75

3.12.7.5: Second paragraph - this sentence needs punctuation or a modifier somewhere; it doesn't make sense as written. What's it trying to say? Last paragraph - The end-user water rates are a pretty important figure to have in the Socioeconomic impacts section, but the ones given here aren't particularly helpful. The $1.05 - $1.75 / kgal figure includes *some* secondary, but not all? Is there a better figure that separates these, given that their costs are usually quite disparate? Also, the rate given for the separate secondary systems should be given in $ per kgal as well, for ease of comparison.

Response 19.75

The end-user water rates provided here reflect the broad range of rates that are charged by most municipal

water purveyors in the impact area. The rates vary greatly depending on several different factors.

As noted, some water purveyors provide service, where no distinction is made between service for domestic use versus residential irrigation—these are "single line" configurations with no separate secondary irrigation systems. In these cases, there is no separate rate schedule distinguishing water use purposes. One rate schedule exists, although it may reflect an increasing block rate (higher costs for more water use). Nevertheless, the water use and billing is measured in terms of dollars per 1,000 gallons.

In contrast, there are water purveyors who do have separate secondary irrigation systems, and they do measure and bill water use based on dollars per acre-ft. of water use—an exclusive irrigation water rate schedule. For these systems, irrigation water costs are usually significantly less than for "single line" systems, as the water quality is not conditioned for culinary or domestic needs.

Comment 19.76

3.12.7.7: Second paragraph – Citation should be 3.15.7.3.4. Also, this figure means there are on average 360 anglers per day every day of the year on this stretch of the Provo. Given the magnitude of this number, it would be helpful to explain in greater detail how this estimate was arrived at, or refer the reader to where this detail can be obtained.

Response 19.76

The text in Chapter 3, Section 3.12.7.7 has been revised in the Final EIS. Please refer to Chapter 3, Section 3.15.6.2.1 in the Final EIS for detail on calculation of angler days.

Comment 19.77

Last paragraph, last sentence. Delete the word "economy."

Response 19.77

The text in Chapter 3, Section 3.12.7.7 Recreational Fishing, has been revised in the Final EIS.

Comment 19.78

3.12.8.2.1: The following potential impact was eliminated from analysis without any justification. Include a justification for eliminating: "Impacts of each of the ULS concepts on the economic value of environmental benefits, including increased natural resources such as increased outdoor recreation, renewable consumptive wildlife resources, and secondary economic benefits of these."

Response 19.78

The text in Chapter 3, Section 3.12.8.2.1 Economics, has been revised in the Final EIS.

Comment 19.79

3.12.8.3.1.1: Third sentence – change from "1200 to 1800" to "1200 *and* 1800," or alternatively, take out the word between. Either way, the modifier should match the pronoun.

Response 19.79

The text in Chapter 3, Section 3.12.8.3.1.1 Employment, has been revised in the Final EIS.

Comment 19.80

3.12.8.3.2.2: For consistency, add "the" prior to "significance criteria."

Response 19.80

The text in Chapter 3, Section 3.12.8.3.2.1 Employment, has been revised in the Final EIS.

Comment 19.81

3.12.8.3.2.3: Last paragraph, last sentence change to "would likely exceed the significance criteria" to avoid redundancy.

Response 19.81

The text in Chapter 3, Section 3.12.8.3.2.3 Public and Business Services and Fiscal Conditions, has been revised in the Final EIS.

Comment 19.82

3.12.8.3.2.4: Last paragraph, first sentence - move "about" to directly before the "$" symbol.

Response 19.82

The text in Chapter 3, Section 3.12.8.3.2.4 Recreational Fishing, has been revised in the Final EIS.

Comment 19.83

3.12.8.5.2: How can we state that both the Bonneville Unit Water Alternative and the No Action Alternative have the effect of increasing recreational fishing/angler days? If the increase happens under the No Action Alternative as well as the Bonneville Unit Water Alternative, then how can we hold that the Bonneville Unit Water Alternative is what would cause the impact? Same comment applies to 3.27.8.3.

Response 19.83

The No Action Alternative includes water added to the Provo River from Section 207 acquisitions to be used for June sucker attraction flows, which incidentally improve the sport fishery.

Comment 19.84

3.13 : Bonneville Unit cultural resources predictive model prepared by Reclamation in 1986 was not cited in the cultural resources appendix and so was not included in the basis for the stipulations prepared with the SHPO. There must be a commitment to monitoring during construction of the Mona pipeline and other areas where the Bonneville predictive model indicated a high probability for subsurface sites.

Response 19.84

Please see Appendix G, Cultural Resources Programmatic Memorandum of Agreement, Stipulations Attachment 2 Monitoring, Mitigation, and Discovery for Utah Lake System Project and Attachment 3, Standard Operating Procedures for Cultural Resources During Construction in the Final EIS. A program of construction monitoring would be implemented for identified "areas of cultural sensitivity."

Comment 19.85

3.23.3: Shouldn't this be Utah and Salt Lake counties? Same comment for 3.23.4.

Response 19.85

The text in Chapter 3, Section 3.23.3 Description of Impact Area of Influence, and 3.23.4 Affected Environment have been revised in the Final EIS.

Comment 19.86

3.28.2.1: Sixth bullet - should be "loss" not "lost." Same for 3.28.3.1

Response 19.86

The text in Chapter 3, Section 3.28.2.1 Trade-Offs, has been revised in the Final EIS.

Comment 19.87

3.28.2.2: Seventh bullet - take out the second "of."

Response 19.87

The text in Chapter 3, Sections 3.28.2.2 Benefits and 3.28.3.2, Benefits, have been revised in the Final EIS.

Comment 19.88

3.28.4.1: Second bullet - should be "provide'' not "provides."

Response 19.88

The text in Chapter 3, Section3.28.4.1 Trade-Offs, has been revised in the Final EIS.

Comment 19.89

3.29: Things like "temporary" losses of wetlands during construction are--temporary--and so they are neither irreversible nor irretrievable. Likewise, loss of orchard land, wildlife habitat, etc. is not irreversible or irretrievable under the CEQ definition. For example, paved roads eliminate habitat, but those paved roads can be torn up and habitat restored--thus not a 'permanence' threshold which is required for this section. The only things that are truly irretrievable are the materials, fuels, and funds. Loss of life is not appropriately discussed in this section; it belongs in the safety and health section.

Response 19.89

CEQ does not provide a specific definition of what is to be discussed in the irreversible and irretrievable commitment of resources section. There are certain resources that are lost during the construction period and for the life of the project. Resources lost during this time period may be reversible at the end of the lifetime of the project, but they are irretrievable as they are lost for a long period of time. In the interest of full disclosure of the effects of a project on the human environment, these losses are disclosed in this section. The text in the section identifies that these losses are only during the construction period or the life of the project. Therefore, the text in the Final EIS has not been revised.

Comment 19.90

3.29.2: Costs are only mentioned under irreversible and irretrievable commitments. The differences in cost associated with the $454 million preferred alternative versus the $184 million for Bonneville Unit Alternative is not clearly explained. It may be helpful to reference the costs that have been developed in the DPR.

Response 19.90

Please see comment response 19.89. Please see the revised text in Chapter 1, Section 1.8.5 Projected Project Life and Cost, Sections 1.8.5.1 and 1.8.5.2 in the Final EIS.

Comment 19.91

4.3.2: Section 4.3.2 should reference the Endangered Species Act of 1973 'as amended.'

Response 19.91

The text in Chapter 4, Section 4.3.2 Endangered Species Act of 1973, has been revised in the Final EIS.

Comment 19.92

3.13: This section would be greatly improved by the addition of a table listing the known arch sites and historic properties by Smithsonian number/address found in each alternative and cross-referenced on map 3-2. Information on this table could include site number/address; site type; DOE; expected -effect (direct, indirect, cumulative, or none); what type of mitigation (data recovery, monitoring during construction, avoidance) is proposed for each. This information in a consolidated form, would be very useful to the reader i.e. tribes, SHPO, the general public.

Response 19.92

This information, for the most part, is located within the Cultural Resources Technical Report. This information is considered as sensitive information and not appropriate for inclusion within the EIS.

Comment 19.93

If there are larger overall cultural resource mitigation plans for the entire project, it would be good to state those. Even though they will be spelled out in the MOA with SHPO, it would be good information for public knowledge.

Response 19.93

There are no larger overall cultural resource mitigation plans for the project.

Comment 19.94

Please define the difference between A. Archaeological sites, and B. Historic Sites/Properties.

Response 19.94

Please see Appendix G, Cultural Resources Programmatic Memorandum of Agreement, Stipulations, I. A and I. B in the Final EIS.

Comment 19.95

For the West Union Canal vegetation removal - does that constitute an adverse effect? Is it a permanent effect?

Response 19.95

Please refer to Section 3.13.8.3.1.6 B, Paragraph 2 in the Draft EIS. This would be a temporary impact.

Comment 19.96

For the Murdock Canal - does placement of a pipe "adjacent to" the canal constitute an adverse effect? How much of the total length be affected? Will it disturb the canal? Will these historic canals remain in place and left open, and be used for water catchments, wildlife and vegetation habitat, or winter livestock watering?

Response 19.96

Please refer to Section 3.13.8.3.1.6 B, Paragraph 4 in the Draft EIS. A total of 0.5 miles out of a total of 21.5 miles of canal would be affected and all disturbance would occur within the project area of potential effect. Please refer to Reclamation 2003a in the References Cited for information regarding the future uses of this canal.

Comment 19.97

3.25.4.1: Was a "programmatic agreement" or an MOA (as stated in the draft cultural resources report) developed with the SHPO?

Response 19.97

The text in Chapter 3, Section 3.25.4.1 and 3.25.4.1.2 has been revised in the Final EIS.

Comment 19.98

3.25.4.1.1: This section does not mention monitoring during construction by qualified archaeologists; however, it is mentioned in section 3.25.4.1.2. Please clarify.

Response 19.98

Chapter 3, Section 3.25.4.1.1 is the mitigation section, while Section 3.25.4.1.2 is the monitoring section. They both apply.

Comment 19.99

3.26: There appear to be no Unavoidable Adverse Impacts to cultural resources. What about Warm Springs Spa site? The tech report states that it is eligible, and that the project pipeline will go through it? Please clarify.

Response 19.99

The pipeline proposed to be built through Castilla Warm Springs Spa (site 42Ut362) would be an adverse effect. However, this effect is not an unavoidable adverse impact as it would be mitigated through a plan of data recovery.

Comment 19.100

3.27: If there will be no cumulative effects to Cultural Resources from this project, please state that in this section.

Response 19.100

Please refer to the last sentence of Section 3.27.1 in the Draft EIS.

Comment 19.101

4.3.8: Has consultation with the tribes for cultural resources been conducted on a government-to-government basis? Possible issues concerning ITA'S vs. cultural resources are very different, and should be separate consultations. A letter inquiring about TCP's does not constitute cultural resource management consultation with the tribes.

Response 19.101

Thank you for your comment. Please read pages 4-24 through 4-31 of the DEIS.

Comment 19.102

I.A.2.: What are historic archaeological sites and pre-contact sites? Please use language consistent with what was used in the EIS.

Response 19.102

Historic archaeological sites and pre-contact sites are comparable to historic period archaeological sites and prehistoric archaeological sites.

Comment 19.103

I.A.3.: Where are the summary of the views of the consulted tribes regarding "pre-contact" sites? I did not see this information included in the Draft Cultural Resources Technical Report as stated here.

Response 19.103

Since review began of the Memorandum of Agreement, the alternative that included the three pre-contact sites was eliminated from further consideration, thus removing those sites from this project.

Comment 19.104

I.C.: Will additional stipulations be added before or after signing of the MOA? At what point in this process will the consultations concerning TCP and/or sacred sites be conducted?

Response 19.104

The Memorandum of Agreement has been signed, see Appendix G in the Final EIS. Additional stipulations will not be added. Also please see the revised text in Chapter 4, Section 4.3.8 in the Final EIS.

Comment 19.105

II.A.2.: Clarify this stipulation. Please include a stipulation to address possible impacts to cultural resources in case of a design change that has not been incorporated into this EIS/or under the present alternatives as designed.

Response 19.105

Since the Proposed Action now involves construction of the Spanish Fork Canyon pipeline, which would adversely affect site 42Ut362, appropriate data recovery measures would be developed to mitigate effects on the site.

Comment 19.106

III.A. 1.: All "pre-contact" sites *can* be avoided? Or *will* be avoided. Please be clear on whether or not they will be avoided and if not - please reference the "treatment plan" or what ever measure will be used to mitigate the impact.

Response 19.106

Since there are no longer any known pre-contact sites to be affected by this project, no treatment plan is required. Also refer to comment response 19.101.

Comment 19.107

III.A.2.: When will the 'treatment plan" be developed? Prior to construction, in conjunction with the MOA or after the start of construction? Will there be a Plan of Action (POA) signed with the tribes regarding the handling of human remains should they be inadvertently discovered during construction? (See the NAGPRA regulations 36 CFR 10(c)(1)). Since this is such a long-term, geographically diverse project involving possible aboriginal lands with 5 different tribes, it would probably be a good idea to have that sort of document in place prior to construction.

Response 19.107

A treatment plan for mitigation measures would be developed prior to construction. Also, see the Memorandum of Agreement, Part III. A. Concerning discovery of human remains, see the Memorandum of Agreement, Part V. and Attachment 3, Discovery of Human Remains in Appendix G of the Final EIS.

Comment 19.108

III.A.5.: Thirty days will probably not be sufficient time to let the tribes sign off on the document, unless you arrange to go before the council and present it in the form of a tribal resolution. I do not know if they will want to do that, or if perhaps a face-to-face, government-to-government meeting with the proper tribal officials to discuss the document, and answer any questions they may have, would help to facilitate the process.

Response 19.108

Thank you for your comment.

Comment 19.109

III.A.14.: Do you have curation agreements in place for these facilities? Be cautious about guaranteeing curation at any Utah facility now. They all claim to be full, with no possibility for taking in any further collections in the near future. Just make certain you can deliver on the statements you make in this MOA.

Response 19.109

Thank you for your comment.

Comment 19.110

V.: No mention of NAGPRA here?

Response 19.110

Please see comment response 19.107.

Comment 19.111

Signatories: The Ute tribal designation would be--Northern Ute Tribe of the Uinta and Ouray Reservation

Response 19.111

Thank you for your comment.

Comment Letter 20: The Church of Jesus Christ of Latter-Day Saints

Comment 20.1

As a major stockholder in the Current Creek Irrigation Company, a privately owned company, it would be our desire to be involved in any future discussions that deal with the issues stated above as quoted directly from the Environmental Impact Statement.

Response 20.1

Thank you for your comment. Your interest has been noted and passed on to the June Sucker Recovery Implementation Program.

Comment Letter 21: State of Utah, Governor's Office of Planning and Budget

Comment 21.1
Division of Wildlife Resources

Page 1-29. 1st paragraph: The 44,400 ac-ft of water discussed in this paragraph is dedicated to mitigate for impacts of the Strawberry Aqueduct and Collection System (SACS) on stream reaches above the confluence of the Strawberry and Duchesne rivers. It is the fate of this water volume downstream of the confluence that is uncertain. All parties involved in the current discussions should be aware of the prior SACS commitment. We suggest adding wording, such as "...SACS in-stream flow water *below the confluence of the Strawberry and Duchesne rivers".* to further clarify the status of this water block.

Response 21.1

The text in Chapter 1, Section 1.2.1.3.2 Environmental Commitments to be Completed has been revised in the Final EIS.

Comment 21.2

Page 3-88: Sections 3.6.7.3.2 thru 3.6.7.3.5 all refer to fish communities similar to that described in 3.6.7.3.2. These sections should refer back to section 3.6.7.3.1.

Response 21.2

The text in Chapter 3, Section 3.6.7.3.2 Provo River From North Fork of Provo River to Olmsted Diversion Dam through 3.6.7.3.5 Provo River From Interstate 15 to Utah Lake, has been revised in the Final EIS.

Comment 21.3

Page 3-89: Section 3.6.7.3.11 states that recent data were not available. Although such data may not add anything of significance to the analysis of the alternatives, annual netting information from Utah Lake is available if deemed necessary.

Response 21.3

At this stage between the draft and final EIS, the Joint-Lead Agencies will not pursue additional data that will not add to the analysis.

Comment 21.4

Page 3-103: Section 3.6.8.4.3.3 states that a moderate-to-high benefit is expected for macroinvertebrates in Hobble Creek. The summary section 3.6.8.4.4.3, however, states that the effect will be low-to-moderate.

Response 21.4

The text in Chapter 3, Section 3.6.8.4.4.3 Macroinvertebrates, has been revised in the Final EIS.

Comment 21.5

Page 3-131, Section 3.8.7.2.1: The species name for mink is *vison.*

Response 21.5

The text in Chapter 3, Section 3.8 Wildlife Resources and Habitats, Section 3.8.7.2.1 Game Species has been revised in the Final EIS.

Comment 21.6

Page 3-146, Section 3.9.1.3.1, 2nd paragraph: The 3rd sentence seems to suggest that June sucker have not been seen in the lower Provo since 2002. This is most likely a reflection of the date this section was originally drafted. June sucker have been observed in the lower Provo River in 2003 and 2004. The source of the info, UDNR 2003b, does not mention anything about when June sucker were last seen

.

Response 21.6

The text in Chapter 3, Section 3.9.7.3.1 June Sucker, has been revised in the Final EIS.

Comment 21.7

Page 3-172, Section 3.10.7.2.9,4th paragraph: There is a sub-population of Columbia spotted frog in Diamond Fork that is not included in this paragraph.

Response 21.7

The text in Chapter 3, Section 3.10.7.2.9 Columbia Spotted Frog has been revised in the Final EIS.

Comment 21.8

Page 3-172, Section 3.10.7.2.10: The last sentence mentions that boreal toads have been found recently at Provo River near the Mapleton lateral (UDNR 2003a). We are not aware of toads at this location and suspect the citation may be erroneous. Please contact our Springville office for clarification if necessary.

Response 21.8

The text in Chapter 3, Section 3.10 Sensitive Species, Section 3.10.7.2.10 Boreal (Western) Toad, has been revised in the Final EIS.

Comment 21.9

Page 3-174, "Potential for impact" criteria: There are spring discharge criteria for moderate and high potential, but none presented for low potential. Additionally, the criteria for moderate and high potential appear identical.

Response 21.9

The text in Chapter 3, Section 3.10.8.1.2 Aquatic Species, has been revised in the Final EIS.

Comment 21.10

Page 3-206, Section 3.12.7.7: The 2nd paragraph indicates that the only river segment that has public access and would be affected by the project is Provo River from the outlet of Deer Creek Reservoir to Utah Lake. Not all of the Provo River in this reach has public access; in fact, much of the reach from the Murdock Diversion to Utah Lake (through the Provo residential areas) has no public access.

Response 21.10

The text in Chapter 3, Section 3.12.7.7 Recreational Fishing, has been revised in the Final EIS.

Comment 21.11

Also, some reaches of the Spanish Fork River have public access.

Response 21.11

Public access to the lower Spanish Fork River below the confluence of Diamond Fork Creek is limited to two areas of land owned by the United States. The footnotes to Tables 3-92 and 3-93 in FEIS Chapter 3, Section 3.15, Recreation Resources, have been revised.

Comment 21.12

Page 3-243, Table 3-84: The Spanish Fork-Provo Reservoir Discharge to Riverside Country Club, and Riverside Country Club to Tanner Race Diversion Dam segments of the Provo River have limited public access. Due to this lack of access, a five-fold increase in predicted angler days per year may be excessive. Perhaps these reaches should also be included in the asterisked notation along with the Spanish Fork River and Hobble Creek.

Response 21.12

The text in Chapter 3, Section 3.15 Recreation Resources, and Tables 3-92 and 3-93, have been revised in the Final EIS.

Comment 21.13

There is a need to make reasonable and timely estimates of return flows associated with imported waters. The State Engineer believes the return flow factors (percent that returns to the system downstream) should be flexible so that changes in water delivery and application efficiencies, types of use, places of use, etc. can be factored into the return flow calculations in the future as the project is implemented. The State Engineer welcomes the studies that will help him quantify the return flows.

Response 21.13

The return flow factors utilized were estimated for analyzing environmental impacts and estimating available water supplies. The Joint-Lead Agencies recognize that the actual return flow credits will be established at the discretion of the State Engineer and may change as the project is implemented.

Comment 21.14

It is anticipated that not unlike other projects there will be a need for future project facilities such as control structures and measuring devices that will be critical to the operation of the project. The Division of Water Rights anticipates working with the commissioners and the water users to address future concerns during the implementation of the project as needed. The cooperation and assistance of the CUWCD and other entities involved are also essential and appreciated.

Response 21.14

The Joint-Lead Agencies appreciate the close working relationship with the Division of Water Rights, without which the Joint-Lead Agencies could not have planned the ULS project. The Joint-Lead Agencies will continue to work closely with the Division of Water Rights as the ULS project is implemented.

Comment 21.15

1.4.9.3.2 Bonneville Unit Return Flows. Under the present approved water right applications, only the import water is allowed to receive return flow credit in Utah Lake. The decision was first documented in the first condition of approval as indicated in the Memorandum of Decision for 55-1875 (A37093) dated September 29, 1999. Changing this condition is not recommended. Future changes will require approval of additional water right applications.

Response 21.15

Chapter 1, Section 1.4.9.3.2 does not change the conditions set forth in the Memorandum Decision for 55-1875 (A37093). The first paragraph of the section clarifies that the delivery of 20,000 acre-feet to northern Utah County produces return flows; however, the return flows are not available to the project for credit and subsequent exchange to Jordanelle Reservoir. The remainder of the section addresses future recycling of Bonneville Unit water delivered to Salt Lake County. Recycling of water after it has been treated in a Publicly Owned Treatment Works (POTW) is provided for under the current State of Utah recycling statute. The statute does require the filing of a notice of re-use with the State Engineer. It does not require the filing of additional water rights. The District, its petitioners of Bonneville Unit water in Salt Lake County, and owners/operators of POTWs intend to work closely with the State Engineer's Office to plan

and implement recycling projects consistent with this document and its ULS repayment contract with the United States. The District has met and discussed these issues with the State Engineer, and it believes that the document is consistent with those discussions. Specific to recycling, the last sentence of the first paragraph of Chapter 1, Section 1.5.9.2 states, "The treatment and recycling of return flows from municipal wastewater, as quantified by the State Engineer in his administration of the water rights, is an important part of ULS..."

Comment 21.16

1.4.9.3 Return Flows and Recycled Water; Also 1.5.9.2 & 1.6.3.2 The return flow estimate of 21,000 ac-ft (70%) of the 30,000 ac-ft M&I delivered to Salt Lake County is somewhat higher than expected in an area with significant outdoor water use. It is recommended that the lead agencies address this issue by providing reasonable return flow factors to be used at the time the project import water is delivered. Control of return flow is necessary in order to use it under project water rights. Project water flowing into Utah Lake is stored only on a space available basis and is subject to spills whenever the lake exceeds compromise elevation.

Response 21.16

The 21,000 acre-feet of recycled water is calculated as 15 percent of 70,000 acre-feet from Jordanelle Reservoir plus 35 percent of 30,000 acre-feet from Strawberry Reservoir. These factors are appropriate and reasonable. Re-capture and recycle of return flow water that would otherwise reach Utah Lake is not addressed in ULS; therefore spills from Utah Lake are not a ULS issue with recycling. In addition, please see comment response 15.22.

Comment 21.17

Table 1-13, Sources of Water for June sucker Spawning and Rearing in the Lower Provo River: Page 1-85. Change applications resulting in instream flow would be subject to review and approval on a case-by-case basis. In the interim and as is the current practice, the water that supplies the June sucker fish flows will continue to be Bonneville Unit storage water released to Utah Lake from upstream CUWCD project storage. Conserved or other project storage water might be the only conserved water available for instream flows, depending on how the applications are approved. System Storage releases may also at times be available for instream flows. These issues are complex, and not fully addressed in the EIS. The water right applications have not been submitted to the Division of Water Rights.

Response 21.17

It is agreed that the issues are complex; however, it should be noted that change applications have been filed with the State Engineer to help with the June sucker flows. Please refer to water right applications a29065 (55-11019) and a26334 (55-9658). There are more applications to follow that have not yet been submitted since the District is attempting at this time to gain canal company approval in the filing of the applications. To date, these applications have not been filed as "in-stream flow applications." The applications are filed in a manner that they can be used to meet the needs of the District's petitioners thereby freeing up Bonneville Unit storage water that is then used for the in-stream flows. The District appreciates the cooperation it has had to date from the State Engineer and his staff in working through these complex water right issues.

Comment 21.18

Project planning should include measuring water use efficiencies, losses, and return flow factors that represent actual return flows from import sources.

Response 21.18

Return flows are diffused over a wide geographic area and cannot be measured at a point location. Some

return flows are through the groundwater basin and seep below the surface into lakes and drainages. Return flow factors are administratively determined by the Utah Division of Water Rights based on best scientific and professional judgment. The State Engineer's Office has indicated to the District that a 35 percent return flow factor from imported water would be appropriate for ULS operations.

Comment 21.19

1.5.1 Introduction; 1.5.9.1 Transbasin Diversion While it is recognized that Utah Lake secondary rights can reduce the required releases of secondary water from Provo River storage to Utah Lake, the firmness of the yield of M&I water resulting from the purchased rights is based hydrologic conditions and water distribution according to the priority dates of various water rights. Project operation is subject to the operating agreements and conditions of approval of water rights, and if such conditions are not included in the model, the actual operation could be different than projected.

Response 21.19

Chapter 1, Section 1.5.1 of the EIS indicates that under the Bonneville Unit Water Alternative, an average of 15,800 acre-feet of project M&I water would be delivered from Strawberry Reservoir for use in south Utah County and that DOI would acquire up to 15,000 acre-feet of the District's secondary water rights in Utah Lake to provide a firm annual yield of 15,800 acre-feet of M&I water. Detailed hydrologic studies included in this EIS in the Surface Water Hydrology Technical Report indicate that a firm yield of 15,800 acre-feet of project M&I water can be achieved by combining the direct deliveries and the purchase of Utah Lake water rights. These studies were based upon modified historical hydrologic conditions, the priority dates of the various water rights, existing operating agreements, and actual operations would not vary significantly.

Comment 21.20

1.6.3.1 Transbasin Diversion (No Action Alternative) Import waters under this alternative would also be assessed a transmission loss by the Spanish Fork River Commissioner. Storage on the Provo River would be subject to prior rights and conditions of the 1994 Operating Agreement. Releases from Jordanelle Reservoir on the Provo River would be subject to the normal 4% transmission loss.

Response 21.20

Thank you for your comment.

Comment 21.21

S.5.1.10 Where is the permanent loss of the 15.4 acres of orchard land located, what general area?

Response 21.21

The text in the Summary, Section S.5.1.10 Agriculture and Soils has been revised and clarified.

Comment 21.22

This references Sect. 3.11.8.3.4, Table 3-69 and 3-70. Table 3-69 shows temporary loss of crop acreages 7.7 and 9.0 for apples and tart cherry, with total loss of production approximately 996,000 lbs. and 669,000 lbs., respectively. Table 3-70 shows 7.1 and 8.3 for apple and cherry acres, with losses of only 142,000 lbs. and 83,000 lbs., respectively. One table looks a magnitude out of order. Depending on which of the amounts are correct, this would be significantly different and have great impacts on the local farmers.

Response 21.22

The differences between the tables referenced in the comment are caused by the fact that temporary losses occur over an 11-year period and it takes that long to establish an orchard back to full production, compared to a permanent loss. Please see Chapter 3, Section 3.11.8.3.1 and Table 3-61 in the Final EIS for an explanation of how temporary orchard losses were determined.

Comment 21.23

1.2.1.2.1 The governor's goals are based on the 1995 per capita use, not 2000. The 1995 per capita water use was 321 gallons per capita per day.

Response 21.23

It was the Joint-Lead Agencies' understanding that the State of Utah used gross municipal and industrial water use for river basins divided by gross population to arrive at a gallon per capita per day use amount of 321 gallons per capita per day for 1995. The Joint-Lead Agencies' analysis required that we have data disaggregated to individual communities in Salt Lake and Utah Counties. Reports containing this information were not available until year 2000. Therefore, year 2000 would be utilized by the Joint-Lead Agencies as a starting point. Please see the revised text in Chapter 1, Section 1.2.1.2.1.

Comment 21.24

1.2.1.2.2.1, 1.2.1.2.3.1, 1.2.1.2.4.1 A bullet should be added to each one of these sections, addressing each agency's involvement in the Governor's Water Conservation Team. The CUWCD District, JVWCD, MWDSLS are members of this team.

Response 21.24

Please see the revised text in the Chapter 1, Section 1.2.1.2 Water Conservation in the Final EIS.

Comment 21.25

1.2.1.2.5 The state of Utah uses the year 1995 as the basis for the state water conservation goal.

Response 21.25

Please see comment response 21.23.

Comment 21.26

1.2.1.4 The approximately 21,000 acre-feet of Bonneville Unit M&I water return flow would need to have the approval of the state engineer.

Response 21.26

The text in Chapter 1, Section 1.2.1.4 Full Utilization of Water Supplies, has been revised in the FEIS. Also, please see comment response 15.22.

Comment 21.27

1.4.2.7 This section needs to discuss potential problems that may occur with right-of ways and public perception through residential areas.

Response 21.27

Chapter 1, Section 1.4.27 describes the physical features of the ULS and is not the appropriate location to discuss construction and right-of-way issues. Section 1.8.8, Standard Operating Procedures During Construction, discusses procedures to avoid or minimize problems through residential areas, particularly in Section 1.8.8.12. The majority of the work area would occur in city, county and State roadways with some additional temporary work needed in some areas where the additional work area would assist in minimizing disruption to residents and transportation corridors. The District would work closely with property owners to minimize disruptions and employ construction procedures, such as micro tunneling where warranted, in some heavily used intersections.

Comment 21.28

Figure 1-8, pg 1-52: Calls for the placement of uncompacted backfill - Native Earth Fill to be placed adjacent to the restored pavement. These materials should be compacted to minimize settlement and road hazards to the traveling public. The compaction should meet a minimum 90% AASHTO T 99 specification.

Response 21.28

The native earth fill callout on Figure 1-8 in Chapter 1 has been revised in the Final EIS.

Comment 21.29

Section 1.4.4.8, pg 1-63 - Quality Control Procedures: describes quality control requirements for the pipeline. Quality Control of pipeline backfill is also needed.

Response 21.29

Thank you for your comment.

Comment 21.30

Section 3.3: The portion of the tables that list "Maximum Monthly Levels" has "(minimum)" listed above the dissolved oxygen (DO) column. The word "minimum" indicates minimum DO values are listed, but the usage seems awkward and confusing.

Response 21.30

The tables in Chapter 3, Section 3.3 Surface Water Quality have been revised in the Final EIS using a footnote to denote minimum values for dissolved oxygen concentrations.

Comment 21.31

Map 3-1: The Syar Tunnel inlet is discussed but is not specifically shown on Map 3-1.

Response 21.31

Map 3-1 is intended to show the surface water hydrology impact area of influence and those features that are particularly relevant to surface water flows, such as diversions and control structures. Therefore, the Syar Tunnel inlet is not shown.

Comment 21.32

Section 3.5.5.2: Mentions Map 3-3 and probably means to refer to Map 3-4.

Response 21.32

The text reference to Map 3-4, Chapter 3, Section 3.5.5.2 Operations Phase, is correct in the Final EIS. The map in the Final EIS has been corrected. A new Map 3-3 has been added to Section 3.3 of the Final EIS.

Comment 21.33

S.5.1.19: Is there a net loss of power from the Strawberry Electric power station and the new power stations? (new stations at 50 MW, power loss from Upper Generator at Strawberry Electric is 76,560 kwh).

Response 21.33

The text in the Summary, Section S.5.1.19 is correct in stating "There would be a loss of 76,560 kwh per year in power produced by the Upper Generator at the Strawberry Water Users Association power plant." The impact analysis presented in Chapter 3, Section 3.21.8.3.2.1 Energy Resources discloses the net increase of 165,066,440 kwhr power generated annually considering the Upper Diamond Fork and Sixth Water power facilities.

Comment Letter 22: June Sucker Recovery Implementation Program

Comment 22.1

No construction or operations cost information for individual project elements is included in the DEIS. Therefore, we are unable to comment on the costs of project elements that benefit the June sucker relative to their respective merits.

Response 22.1

Thank you for your comment.

Comment 22.2

The DEIS makes clear that additional funding has been made available for water conservation projects under recent CUPCA amendments (1.1.2.2). We believe it is the intent of the JLA to reserve a sufficient amount of this funding for future projects in the Provo River basin to achieve this commitment.

Response 22.2

The success of the Water Conservation Credit Program authorized under Section 207 of CUPCA is summarized in Chapter 1, Sections 1.2.1.2 and 1.1.2.3.4 of the EIS. The program offers financial incentives for entities to implement water conservation measures. Moreover, the recently updated Water Conservation Credit Program plan continues to grant additional consideration to conservation projects/measures that provide a portion of the saved water to DOI for in-stream flows. The Joint-Lead Agencies are committed to implement enough water conservation projects in the Provo River basin to fulfill this in-stream flow commitment of 12,165 acre-feet annually. The Joint-Lead Agencies believe that the 2002 amendments to CUPCA (P.L. 107-366) provide adequate funding to ensure that this in-stream flow commitment will be achieved.

Comment 22.3

It is important to note that, despite the hydrological conditions assumed for the models displayed in the DEIS, the June sucker Flow Workgroup, an interagency workgroup that operates under our JSRIP, will likely continue to recommend flow regimes in the lower Provo River that are closely allied to the flow procedure described in Appendix F of the DEIS for the April 1 - July 30 period. See Figures F-1, F-2, and F-3 of section F.5.2.1. Briefly, these flow regimes typically call for higher peak flows in May and lower base flows during June through July than assumed and modeled in the DEIS.

Response 22.3

The flow procedure described in Volume 2, Appendix F was the basis of the modeling performed and documented in the Final EIS. The hydrologic analysis shows that the target flows cannot always be met, but the streamflow goals are the same as shown in Figures F-1, F-2, and F-3 of Appendix F, Section F.5.2.1.

Comment 22.4

At the present time, these requirements do not appear practical for our Program. The water supply, in particular, seems problematic. The DEIS offers no alternative suggestions for a water supply. In our view, water would likely have to be acquired from supplies in Strawberry Reservoir, or from the Diamond Fork/Spanish Fork drainages in such a manner that water could be exchanged into the ULS pipeline system for delivery to Mona Reservoir. The availability of water is doubtful and its cost could be prohibitive. Other means of securing a conservation pool in Mona Reservoir, such as dealing directly with the Mona water users, appear to be more feasible and economical at this time.

It is unclear what economic justification would need to be prepared for this feature. Presumably the pipeline is already justified as a part of the entire ULS. We are unaware of any other individual ULS project feature that is required to demonstrate an independent economic justification.

Response 22.4

It is helpful to have the documented views of the Recovery Implementation Program (RIP) on these matters to assist with future planning. Since neither the RIP nor the Joint-Lead Agencies could identify a water supply for this measure at this time, we will continue to work with the RIP to identify feasible sources. The cost of the Santaquin-Mona Reservoir Pipeline must be equal to or less than the economic benefits in order to be constructed. The RIP, the U.S. Fish and Wildlife Service, the Utah Division of Wildlife Resources, and the Joint-Lead Agencies will work together to evaluate the economic benefits.

Comment 22.5

The DEIS includes no water quality impact analysis for June sucker. However, after reviewing the pertinent DEIS sections, we think it unlikely that the comparatively small changes in TDS and P resulting from the ULS, to the extent they aggravate already impaired conditions, will adversely affect June sucker in Utah Lake or its spawning tributaries. For example, in Hobble Creek, where modeled P levels show the largest increases (Preferred and Bonneville Unit Water Alternatives), levels appear to elevate in July when June sucker spawning adults and most larvae may be out of that tributary. Modeled values are, at most, 0.02 mg/l above current state water quality standards, which we hope will be insignificant. See Water Quality Technical Report, Tables 4-17 and 4-65. Other water quality parameters in Hobble Creek would be improved with both alternatives.

Response 22.5

Thank you for your comment.

Comment 22.6

With respect to water quality and June sucker recovery, it is more important, in our view, that the State of Utah has initiated a Total Maximum Daily Load (TMDL) Study for Utah Lake to identify the significant sources of P and TDS and to develop a plan of action to reduce those source inputs. We recommend that the JLA make efforts to monitor and support the TMDL study with a view to ULS project operations that could assist the state in reducing TDS and P parameters in Utah Lake.

Response 22.6

The District is committed to participating in the TMDL study and has joined the Stakeholder Advisory Committee established by the State of Utah to help guide the study. The Joint-Lead Agencies will continue to work with the State of Utah, Department of Environmental Quality, Division of Water Quality to explore potential scenarios that can improve Utah Lake water quality.

Comment Letter 23: Stonefly Society Chapter, Trout Unlimited & Federations of Fly Fishers

Comment 23.1

1) Water Conservation - Absence of an Aggressive Landscaping Conservation Program
There is a need to evaluate the potential of an aggressive program such as being implemented in Las Vegas. A reasonable level of reduction would be 50% from current use. This evaluation should consider the potential of such a program and whether this would produce an alteration in timing or design of ULS.

Response 23.1

Water conservation elements incorporated within the ULS project that would be implemented by the District and/or its petitioners/customers are described Chapter 1, Section 1.2.1.2 of the EIS. The Joint-Lead Agencies believe these elements represent an aggressive water conservation program as envisioned by the comment. These plans are consistent with State of Utah water conservation goals and include substantial per capita water use reductions, landscape ordinances that include low water use vegetation, and many other actions. The ULS water conservation commitment is clearly stated in Chapter 1, Section 1.2.1.2.5. The Joint-Lead Agencies believe that local governments are the appropriate entities to develop and enact water conservation measures.

Comment 23.2

Along the Wasatch Front, we have not been successful in transferring water from declining agriculture to M&I uses. Utah law of forfeiture, Utah Code 73-1-4 demonstrates the public policy implications of such an examination, but it is not clear that it has ever been enforced.

Response 23.2

The enforcement of state water law by the Utah Division of Water Rights is beyond the scope of the ULS EIS.

Comment 23.3

The CUWCD's 207 program might be a method to help promote such an effort. Is there a need for an amendment to CUPCA to make such a program more attractive? For instance, one possibility would be to allow the CUWCD to purchase unused water rights as part of the water conservation program with no matching funds requirement if the purchase produces significant environmental benefits. An example would be water purchases on a stream such as American Fork Creek. This would produce instream flows, positive effects on Utah Lake quality and would then give CUWCD additional water rights on Utah Lake. Creating incentives to enable such a program is important. An exploratory plan funded by the 207 program might be a reasonable first step.

Response 23.3

The utilization of the water conservation program authorized in section 207 of CUPCA to facilitate the transfer of agricultural water rights to M&I use is beyond the scope of the ULS EIS.

Comment 23.4

Two years ago, we proposed that the management of Utah Lake should be a focus of planning for the ULS system. We proposed that an effort be made to restore Utah Lake to its historic pattern of hydrologic fluctuation. There is every reason to believe that restoration of its natural pattern of fluctuation would a gradual recovery on the lake. We proposed that some Strawberry water be directed to Salt Lake County directly through Utah Lake and that the water then be blended with higher quality water to expand the water supply of Salt Lake County and help mimic its natural pattern of fluctuation.

A hydrologic review of this idea was conducted by the CUWCD. Based on strictly hydrologic analysis, this concept was rejected by the CUWCD on the basis that the reduction in TDS that we hoped would occur was too optimistic. The review concluded that TDS could not be reduced to a level at which direct use could be made of Utah Lake water. However, the concept of blending was not addressed by this study.

In the past Jordan Valley made an attempt to blend Utah Lake water with higher quality water to expand available water supplies. Consumers detected that something was wrong with their water. However, this rejection was based on factors other than TDS since reasonable TDS levels were achieved by blending. Algae composition, dissolved minerals, or colloidal solids represent variables that might have affected consumer acceptance.

While changes in hydrologic variables might be debated, if successful there would be massive changes in wetlands, aquatic plant masses, and riparian vegetation at Utah Lake. These factors would produce major changes in colloidal particles, algae species, plankton, and zooplankton. Consequently, Utah Lake water would be very different and might well alter consumer acceptance of blended Utah Lake water. These factors were not addressed in the modeling done by the CUWCD.

Response 23.4

The comment appears to assume that Utah Lake water rights would not be used by water right holders and blending should be looked at to make use of an otherwise unused source. The contrary is true. JVWCD has plans to construct reverse osmosis plants in three phases to use Utah Lake rights. The first phase may occur before the ULS water becomes available and the second and third phase would occur after the ULS water becomes available. The cost of the reverse osmosis plants is higher than the ULS water. JVWCD has studied blending and reverse osmosis and currently has plans to eventually treat 50,000 acre-feet annually by reverse osmosis. Information on the JVWCD plans is included in Chapter 7 of the Draft Water Supply Appendix, Volume 2 – M&I Water Demands of the Draft Supplement to the 1988 Definite Plan Report. The District study concluded that additional inflow or changes in use of water rights in Utah Lake would diminish the water supply and create shortages and demands for other water sources, while not measurably affecting the salinity in Utah Lake. The lake salinity is more a function of natural geologic processes such as the large surface area and evaporation rate, as well as natural saline inflows.

Comment 23.5

Table # 1 need table of water use in SLC	
CUP Jordanelle water	70,000
ULS System water	30,000
Deer Creek Reservoir	61,700
Welby-Jacob Exchange	29,400
Wasatch Front Streams	49,750
Groundwater	**114,400**
Total 355,250 acre-feet	

Response 23.5

No response necessary.

Comment 23.6

It is now important to seriously examine how much water is needed for the instream flow requirements of the south slope coldwater streams and the endangered species on the Lower Duchesne River. Fortunately, the CUWCD has been able to acquire the water needed for this twenty-year-old agreement to finally be implemented. In addition, as will be noted later the water conservation program is making water available that could be traded back into the Uintah Basin.

Response 23.6

The Joint-Lead Agencies disagree that defining flow requirements on the lower Duchesne River is required in this EIS because it is beyond the scope of the ULS EIS. Moreover, the Lower Duchesne River is outside the impact area of influence of the ULS and therefore not germane to the EIS. The U.S. Fish and Wildlife Service and the Colorado River Endangered Fishes Recovery Program are responsible for defining a Duchesne River flow regime for endangered fish.

In addition, please see the Biological Assessment in Appendix F of this Final EIS.

In terms of cold water fisheries on the south slope of the Uinta Mountains, the Amendment of September 13, 1990 to the Agreement of February 27, 1980, Establishing Minimum Streamflows in the Uinta Basin Streams, Bonneville Unit, Central Utah Project, established 44,400 acre-feet of water to meet in-stream flow needs with the goal "to secure enough water for stream flow maintenance to retain 50 percent of the historic adult trout habitat in Strawberry River, Rock Creek, West Fork Duchesne River and Currant Creek" based on information provided in the May 1979 governor's report entitled "Summary of Analyses of Alternate Stream Flows for Fishery Purposes (UDWR 1979)." The Interagency Aquatic Biological Assessment Team (IBAT) was formed to coordinate flow recommendations for individual streams and to assess the effect of the operation of the Strawberry Aqueduct and Collection System (SACS). Information collected by IBAT indicates that the biomass of trout has not been negatively affected by the operations of SACS. In fact, the goal of retaining 50 percent of adult trout habitat has actually been exceeded under the operation of SACS based on the abundance and biomass of trout in streams. As an example, electrofishing surveys of Rock Creek conducted in 2000 revealed that the average trout abundance across all survey sites in that stream increased from 196 trout per kilometer during pre-project samples to 318.6 trout per kilometer of stream during post-project samples. Average trout biomass across all sites increased from 22.1 kilograms per hectare in pre-project surveys to 39.6 kilograms per hectare in post-project surveys (Executive Summary of 2000 Rock Creek Electrofishing Surveys provided by FWS to IBAT at April 1, 2003 meeting). In a report prepared by Utah Division of Wildlife Resources (UDWR et al. 2000, Fish Populations in West Fork and Duchesne River During 1999) on the West Fork and Duchesne River, it states that "based on the information collected, it appears that factor(s) other than construction and operation of SACS influences the abundance of game fish in the West Fork and Duchesne River upstream from the Knight Diversion . . . construction and operation of the SACS has not adversely affected the overall game fish population in the West Fork and Duchesne River". Information gathered on the Strawberry River and Currant Creek similarly show no adverse affects from the operation of SACS. Based on the information available, it appears that the 44,400 acre-feet of water established to meet in-stream flow needs on the four SACS streams has been adequate to meet the goal of retaining 50 percent of the historic adult trout habitat.

The Joint-Lead Agencies disagree that any ULS water made available through the District's water conservation program can be "traded back" into the Uintah basin. ULS water in the amount of 101,900 acre-feet (annual average) is contractually committed to transbasin diversion to the Bonneville Basin under plans evaluated and approved in many prior environmental impact statements as described in Chapter 1, Section 1.1.2.6 of the EIS. Water conserved under the District's water conservation program (such as described in Chapter 1, Sections 1.4.9.4 and 1.5.9.3) would be used for project purposes within the ULS service area.

Comment 23.7

Shortly after Utah was settled by Brigham Young, the Ute Indians were driven from their ancestral home on the shores of Utah Lake. They were placed on a reservation in the Uintah Basin. Later, it was alleged that they were not using the waters of the Upper Strawberry River appropriately and these waters were diverted into the Heber Valley with no compensation. Around the turn of the century, there was a Uintah Basin land rush much like the Oklahoma land rush. Again, this occurred with no compensation for the lands taken from the Ute Tribe. Shortly thereafter, the legislation was passed producing the US Bureau of Reclamation. The Strawberry Project along with the infamous Newlands Project in Nevada was among the initial projects built by the Bureau. Again, water was withdrawn from the Ute Reservation with no compensation. In the 1930's the US Bureau of Reclamation proposed diverting the waters of the upper Duchesne River into the Provo River for storage in Deer Creek. Again, there was no compensation provided or even any contract with the Ute Indians for taking the waters of the Ute's Duchesne River.

Response 23.7

The Federal reserved water rights held in trust for the Ute Indian Tribe of the Uintah and Ouray Agency are addressed in Title V of CUPCA, the 1965 Deferral Agreement, and other applicable Federal law. These matters are described sufficiently in Chapter 1, Section 1.1.2.3.7 of the EIS.

Comment 23.8

In the future, the Diamond Fork River and Canyon will be one of the most important natural areas in Utah. No other Wasatch Mountain canyon is so free of human occupation. The operation of the ULS will make demands on the capacity of the Diamond Fork to carry transbasin water. The protective Diamond Fork Pipeline greatly enhances this capacity. There needs to be a post project assessment of whether the new flows are safe for the river system or whether adjustments are needed. We are optimistic that there will not be a problem. However, given the public investment in this canyon, there is a need to implement the proposed flows as quickly as possible and assess their impact.

Response 23.8

Please see comment response 16.1.

Comment 23.9

In addition, we are concerned regarding the point selected for release of the Strawberry Project water back into the Spanish Fork. From the point of view of the river system, where should the water be released?

Response 23.9

The Record of Decision for the Diamond Fork System established the mouth of Diamond Fork Creek as the point for release of the water into the Spanish Fork River. The Spanish Fork Flow Control Structure was constructed at this location and is in operation.

Comment 23.10

There are four issues that need to be resolved regarding the transbasin water. There are the two issues mentioned previously (the instream flow water and obligations to the Ute Indians). This document does not discuss the status of the Colorado River Upper Basin Recovery plans for flows on the Duchesne River, nor does it discuss the implementation of the Lower Duchesne River Wetlands Mitigation Project or some other project in its place.

Response 23.10

See comment responses 23.6 and 23.7 regarding in-stream flows, and obligations to the Ute Indians, respectively. Chapter 1, Section 1.10.2 of the EIS does discuss the Colorado River Endangered Fishes Recovery Program, and indicates that until decisions regarding this matter are finalized, the EIS cannot

reasonably evaluate the issue or its potential for cumulative effects with the ULS.

The Lower Duchesne River Wetlands Mitigation Project is a mitigation commitment of the Bonneville Unit necessary to offset the impacts of the Strawberry Aqueduct and Collection System. Implementation of the project is the responsibility of the Mitigation Commission. A specific project plan is being developed by the Mitigation Commission and Ute Indian Tribe and was evaluated in a separate EIS dated November, 2003. The Proposed Action for the Lower Duchesne project does not utilize ULS water or facilities and is outside the impact area of influence of the ULS. Therefore, even though Chapter 1, Section 1.1.2.1.3 of the EIS discusses the overall implementation of the Lower Duchesne River Wetlands Mitigation Project, the Joint-Lead Agencies have not included an evaluation of this project in the EIS.

Comment 23.11

This document essentially terminates the major construction phase of the Central Utah Water Project as implemented by the original 1965 act and as modified by CUPCA. There is a need for a final accounting of mitigation obligations as part of the Final EIS. For instance, have all wetland mitigation obligation been met? It would appear that wetland efforts in both Diamond Fork and Jordanelle are not functioning adequately.

Response 23.11

Mitigation obligations/commitments to be completed as part of the ULS are listed in Chapter 1, Section 1.2.1.3.2 of the EIS. An accounting of the status of all Bonneville Unit mitigation obligations/commitments is included in the EIS in Volume 2, Appendix A with brief notes regarding the status of each commitment. Progress on all mitigation obligations is monitored by the Joint-Lead Agencies with the assistance of the U.S. Fish and Wildlife Service. The Mitigation Commission was established and authorized as an independent commission by CUPCA to plan, implement and complete all Bonneville Unit mitigation commitments. Fulfillment of the Bonneville Unit mitigation commitments is a priority for the Mitigation Commission.

The Joint-Lead Agencies disagree that the wetlands mitigation efforts along the Provo River below Jordanelle Reservoir are not functioning properly. The plan for creation of wetlands on National Forest System lands in Diamond Fork Canyon was abandoned several years ago as unnecessary, because the wetland commitments resulting from the M&I and SACS systems were fulfilled by wetlands creation and enhancements below Jordanelle Reservoir, with the Provo River Restoration Project, along Rock Creek, and elsewhere. The Corps of Engineers has concurred that these wetland obligations are fulfilled.

Comment 23.12

It is stated that CUWCD water rights on Utah Lake will be exchanged upstream into Jordanelle to provide water for storage. Has an exchange application been filed with the State Engineer for this exchange? Past communications with the CUWCD have indicated that this water would be left in Utah Lake and no exchange application would be filed. According to Figure 1-21 on page 1-93, this will produce 34,540 (page 1-73) acre-feet of water. Conversely, with an Exchange Application, the entire 57,000 acre-feet might gradually come under ownership of CUWCD. As other water rights are removed from irrigation, the priority date of this water right would increase. Conversely, if other water rights on the Jordan River-Utah Lake system are sold, Change Applications would have to be filed on these water rights that would reset their priority water dates under the Change Applications to dates later in time than the CUWCD rights and associated Change Application. This would also cause the CUWCD water rights to produce an increased yield and make Strawberry water available for other uses.

Response 23.12

Two exchange applications have been filed with and approved by the State Engineer. Under E3100, 57,073 acre-feet of water diverted from the Jordan River and stored in Utah Lake was exchanged with 57,073

acre-feet of water diverted from the Provo River and stored in the Jordanelle Reservoir, Deer Creek reservoir, or Utah Lake. Under E3101, approximately 25,000 acre-feet of water was initially exchanged in the same manner. Subsequently, 7,900 acre-feet has been segregated and deeded to Reclamation (see E4319), while the District has retained rights to 16,862.4 acre-feet under E3101.

Comment 23.13

This would have the effect of increasing the value of the water rights that are being transferred to the DOI. From this point of view, there is a need to know that the interests of the DOI are being fully protected.

Response 23.13

This comment contains speculation on future markets for water rights in the Utah Lake basin. Speculative discussions and "what if" scenarios are beyond the scope of the ULS EIS. In planning all aspects of the ULS, the Joint-Lead Agencies have and will continue to comply with all tenants of state water law and will make all efforts to ensure that all valid rights to water are adequately protected.

Comment 23.14

It is stated that 3,000 acre-feet of water will be returned to the Department of Interior for instream flow and this water will be used for instream flow in the Utah Lake System. This will be transbasin water. Consequently, the entire 3,000 acre-feet should be available for environmental purposes in Utah Lake or can be traded back into the Uintah Basin for instream flow purposes in the Duchesne River System.

Response 23.14

As indicated in Chapter 1, Sections 1.4.9.4.2 and 1.4.10.2.1 of the EIS, 3,000 acre-feet of ULS M&I water would be returned to the Department of the Interior for use as Hobble Creek for June sucker spawning and rearing and in-stream flows. This transbasin water would not be available for environmental purposes in the Duchesne River System.

Comment 23.15

As noted on 1-7, Bottle Hollow was constructed to provide compensation to the Ute Indian for economic losses associated with alteration of Rock Creek. Has this been successful? It is our understanding that initially this project was a very attractive resource for the Ute Tribe, but that now there are questions regarding its continued success as a recreational facility.

Response 23.15

Bottle Hollow Reservoir has successfully fulfilled the mitigation obligation of developing 420 acres of surface water recreation and economic opportunity for the Ute Indian Tribe. The reservoir fishery and associated recreational and economic opportunities are managed by the Ute Indian Tribe with assistance from the Bureau of Indian Affairs and U.S. Fish and Wildlife Service. The success of the reservoir as a recreational facility is beyond the scope of this EIS, and such inquiries should be directed to the Ute Indian Tribe.

Comment 23.16

As noted on 1-7, it is stated that 10 million dollars was allocated for fishing and hunting development by Section 505(f) of CUPCA and that this money was then dedicated to the Lower Duchesne Wetland Mitigation Project. It is also stated that section 201(a)(1) was listed as the source of funding for the wetland project. Political issues have made the planning of this effort very complicated. Are planning costs being subtracted from the CUPCA allocation?

Response 23.16

Chapter 1, Section 1.1.2.1.3 of the EIS does not state that funds allocated under Section 505(f) of CUPCA

have been expended or will be expended on the Lower Duchesne Wetland Mitigation Project. A separate funding authorization under Section 201(a)(1) of CUPCA is available to the Mitigation Commission for the wetlands mitigation planning and construction along the Duchesne River. Funds appropriated under this authorization have been expended for project planning and NEPA compliance.

Section 505(f) funding is appropriated to the Secretary of the Interior, separately from funds for the Mitigation Commission, for big game hunting, fisheries, campgrounds and fish and wildlife management facilities on the Ute Indian Reservation.

Comment 23.17

As noted on 1-7, the M&I System provides flood control benefits. There is a need to review flood control operations of this project to insure that they are consistent with the Provo River restoration and the June Sucker Recovery Program.

Response 23.17

The flood control functions of Jordanelle Reservoir are governed under a Field Working Agreement between Reclamation and the Corps of Engineers. Flood control operations at Jordanelle Reservoir, as mandated by the Corps of Engineers, specify the surface elevation of the reservoir throughout the spring based on measured snowpack and expected snowmelt runoff. Reservoir management anticipates the required elevations and releases water throughout late winter and early spring in a pattern that does not exceed the maximum safe channel capacity in the middle Provo River of approximately 1,800 cfs. The Provo River Restoration Project and the June sucker recovery program were planned and are being implemented to be consistent with the Field Working Agreement.

The Mitigation Commission, coincident with its operation of the Provo River Restoration Project (PRRP), has frequently requested Jordanelle Reservoir releases up to 1,800 cfs to achieve riparian and floodplain improvements. Features of the PRRP, including privately-owned irrigation diversion structures within the project area, have been designed to withstand flows up to 1,800 cfs. Thus, no flood control-related impacts on the PRRP are anticipated.

The interim flow procedure recommended to benefit June sucker spawning in the lower Provo River also anticipates hydrologic cycles that include high flow conditions (see EIS Volume II, Appendix F, Figures F-1, 2, and 3). During high runoff years, a peak flow target of 1,050 cfs entering Utah Lake is recommended. This is believed to be well within existing channel capacities for the lower river and below historically recorded peak flows in this reach.

Comment 23.18

On page 1-17 there is a discussion of water needs in Southern Utah County and there is a conclusion 30,000 acre-feet of water can be used for exterior water use landscaping. As noted previously, there is a need for clear standards of use for this water. A range of 180 to 220 per capita water use is required to be eligible for Bonneville Unit water. Per capita figures are not appropriate when proposing water use standards for exterior water use; per household use would be more appropriate.

Response 23.18

Chapter 1, Section 1.2 of the EIS identifies one of the underlying needs of the project is "to implement water conservation measures". Water conservation measures are identified and discussed in some detail in Chapter 1, Section 1.2.1.2 of the EIS. DOI, the District, and the District's M&I petitioners have negotiated contracts which require the District and its petitioners to implement water conservation measures to comply with the State of Utah's water conservation goals of a 12.5 percent reduction in per capita water use by 2020 and a 25 percent reduction in per capita water use by 2050. In Chapter 1, Section 1.2.1.2.1 of

the EIS, the Joint-Lead Agencies indicated that they have established an average daily M&I water usage ranging from 180 to 220 gallons per capita per day (gpcd) for a petitioner to be eligible for ULS water. The ULS target conservation goals build on the State's water conservation goals. When the District's M&I petitioners implement the contractually required 12.5 and 25.0 percent reduction in per capita water use, this is the range of use allowed depending upon the individual petitioner. Section 1.2.1.2 of the EIS has been revised to document the process that will be utilized to assure compliance with the water conservation goals of CUPCA and the State.

Comment 23.19

On page 1-19 there is a discussion of water use levels in JVWCD. It is stated that currently residents are using 250 gpcd. On this measure, the JVWCD does not appear to be eligible for CUP water. Does this limit apply to all CUP water or only ULS water?

Response 23.19

Please see comment responses 27.16, 27.20 and 27.21.

Comment 23.20

On page 1-34 it is noted that the Spanish Fork Canyon Pipeline will hold 365 cfs. It is not clear why this capacity was selected. Once Highway 6 is reconstructed it would not be very difficult to increase the size of the pipeline. Will the canal size be adequate if at a later date, Strawberry Water Users water is placed in the canal? Will this capacity be adequate to provide an optimum flow on the Spanish Fork River?

Response 23.20

The Spanish Fork Canyon Pipeline has a design capacity of 365 cfs, which is necessary to convey the ULS M&I water and SVP water that would be conveyed through the Mapleton-Springville Lateral Pipeline. As described in Chapter 1, Section 1.4.10.2 of the EIS, up to an additional 10,200 acre-feet of SVP water shares held by SUVMWA member cities could be conveyed through the ULS pipelines on a space-available basis. Water conveyed through the Spanish Fork Canyon Pipeline would not be discharged into the Spanish Fork River, and therefore, would not have any bearing on optimal flows in the Spanish Fork River.

Comment 23.21

On page 1-77, this is described as a 207 project and as a measure to help restore the June Sucker population in Utah Lake. It is reasonable to ask how carefully water is being managed on Hobble Creek. If water is being wastefully diverted, purchase of those rights would be an additional mechanism to improve spawning habitat on Hobble Fork. Water purchases would also help Utah Lake. Consequently, this is a reasonable alternative that needs to be examined as part of this project.

Response 23.21

While there is no evidence of water being wastefully diverted, it should be noted that one water user's return flow from either an efficient diversion or a wasteful diversion makes up someone else's primary water right. Return flow in Hobble Creek flows to Utah Lake and supplies the water right associated with the lake, including a portion of the water required for exchange to Jordanelle Reservoir. Even so, acquisition of water rights would require the retirement of a percentage of the irrigated land tied to the water right. The Joint-Lead Agencies are not aware at this time of any water right holders willing to sell a portion of their water and retire acreage.

Comment 23.22

Establishing flows in Hobble Creek is only part of the effort needed. There needs to be commitment by local communities to protect the riparian corridor of this stream. It is also should be clear that fish have access up and down the entire river corridor. Will there be recreational access? Will there be flexibility to provide optimum flows to enhance Hobble Creek habitat? Much like the middle Provo, this plan will be of immense benefit to the town of Springville.

Response 23.22

The June Sucker Recovery Implementation Program (JSRIP) is studying the Hobble Creek corridor and will be responsible for modifications, such as fish passage and combining or eliminating diversion structures. The JSRIP is working with Springville City to protect the Hobble Creek corridor and establish public access in some areas. Additionally, the JSRIP is studying the acquisition of all land along the creek west of Interstate 15 for public access and stream management, as well as looking at management plans in Provo Bay near the inflow point of the creek. Flexibility is being planned in the water deliveries to Hobble Creek. There would be a firm supply of 4,000 acre-feet annually for management. Additional quantities of water would be released in 6 out of 10 years when ULS water would be available.

Comment 23.23

Finally, even if CUP water is added to Hobble Creek, there is a need to keep as much water as possible in the Creek (both local and CUWCD), to improve water quality in Utah Lake and to benefit June Suckers and possibly restoration of Bonneville Cutthroat trout. Consequently, we believe that the CUWCD should file a water right application covering all surplus water in Hobble Creek. Increased urbanization in this area would make such a filing even more important in the future. This type of filing might also in the future allow the CUWCD to re-direct the CUWCD water away from Hobble Creek for another water use or environmental purpose.

Response 23.23

The Utah Lake basin is fully appropriated and closed to new water filings by the Utah Division of Water Rights. Any Hobble Creek flows that are in excess to diversions by the water right holders along Hobble Creek enter Utah Lake. The Hobble Creek inflow to Utah Lake belongs to the primary and secondary water right holders in the lake. It is not legally possible for the Bonneville Unit to claim any Hobble Creek water as a new unappropriated water source.

Comment 23.24

On page 1-46 this canal is described. There is no explanation for the size of the canal. We view this canal as the most important part of this project. Once in place it would be very expensive to enlarge. How was this size selected? Is there additional water that could reasonably be added to the ULS water supply flowing north to Salt Lake or northern Utah Counties at a later date?

Response 23.24

The Spanish Fork Canyon – Provo Reservoir Canal Pipeline was sized to carry 85 cfs of dedicated capacity (17 percent of annual volume could be conveyed in each of the peak summer months) for ULS M&I water deliveries to Salt Lake County and 35 cfs of dedicated capacity to supplement the flow of the Provo River for a total peak conveyance capacity of 120 cfs. In the non-peak M&I water delivery months, there would be the ability to deliver a greater rate of supplemental flow to the lower Provo River, up to 75 cfs. Supplemental water to the Provo River would only be available when deliveries from Strawberry Reservoir to Utah Lake are required to make an exchange of water to Jordanelle Reservoir. In some years, there would be no supplemental water available to the Provo River from Strawberry Reservoir. The ULS EIS addresses all remaining Bonneville Unit water available for contracting on a permanent basis. There would be no additional Bonneville Unit water available for contracting to Salt Lake or north Utah

counties. Any speculative future non ULS water that may be available would require approval of the Department of the Interior and arrangements to deliver the water through the pipeline on a space available basis.

Comment 23.25

However, making full use of these rights might demand a Change Application to allow storage. In the event that natural flows on the Lower Provo are adequate to protect the June Suckers and the cold-water habitat, and there is space available in either Deer Creek or Jordanelle, storage should be possible. Such a filing should be made on the basis that it will gradually become more worthwhile and that intent to store and manage water rights was clearly the intent of CUPCA in asking for a combined operating agreement covering both projects.

Response 23.25

Change application of direct flow water to storage is not an efficient way of managing the in-stream flows. Bonneville Unit operations provide for the "exchange" of some direct flow water that has been acquired in the following manner. When acquired direct flows water is not needed in the river for minimum flows, it is delivered to Bonneville Unit M&I petitioners if they are calling for Bonneville Unit water. This action frees up by "exchange" Bonneville Unit storage water that can be regulated in time and quantity in the reservoirs for delivery as minimum flows to the stream.

Comment 23.26

We would propose that flows through the Olmsted Power Plant would only be allowed when there in 75 cfs from Olmsted to the outflow of Olmsted Power Plant. We are particularly concerned about the sections just downstream from the Olmsted Diversion and the Murdock Diversion.

Response 23.26

Olmsted Flowline was acquired by the United States for the Bonneville Unit under a settlement agreement with Pacificorp. The agreement provides for continued operation of the power plant using space available capacity in the facility. Reducing flows through the pipe in the manner suggested is inconsistent with terms of the settlement agreement.

Comment 23.27

It is stated that the water savings will be 8,000 acre-feet. How was this calculated? We have heard rumors that the amount saved will actually be greater. If so, what is the fate of any additional water? If it is being assigned to the Provo Water Users, do they have authority to expand the yield of the Deer Creek Project?

Response 23.27

The calculation has been made as eight percent of 100,000 acre-feet. The eight percent is based on a large quantity of water being conveyed through the canal. If a small quantity of water is conveyed, then the percent loss is higher, but the overall loss quantity may be less than 8,000 acre-feet. For example, if 10,000 acre-feet of water is conveyed such as in the year 2002, then possibly 50 percent of the water is lost; however, the total is then only 5,000 acre-feet. The higher loss percentage rates during years of low flow in the canal have led to the so called "rumors." The plan under the ULS Proposed Action is to obtain 8,000 acre-feet of water from the canal enclosure project for use in the lower Provo River for the June sucker. The Provo River Project is not prevented from improving its conveyance system, and if it does, it has the right to benefit from the saved water. In addition, please see comment responses 15.20 and 15.23.

Comment 23.28

Will the water savings be calculated based on past performance of the canal or should it be calculated on performance of the canal in the future? It appears that the canal will be carrying more water in the future and consequently future water savings will be greater.

Response 23.28

A discussion of water savings to be derived from the proposed enclosure of the Provo Reservoir Canal can be found in the final EA prepared by Reclamation (2003). The enclosure project is beyond the scope of the ULS EIS. For the purposes of the ULS EIS, as stated in Chapter 1, Section 1.4.9.4.1, if the enclosure project proceeds using Federal funding under Section 207 of CUPCA, the Joint-Lead Agencies would require that 8,000 acre-feet of water be provided to the DOI to be used for in-stream flows in the Provo River. This requirement is independent of the actual water savings that may be derived from the canal enclosure. Any additional water savings would accrue to the benefit of the canal water users.

Comment 23.29

The nature of the contract between the DOI, CUWCD, and the Provo Water Users are extremely complex and it is not clear that they have been fully disclosed.

Response 23.29

The Joint-Lead Agencies are unsure of exactly which contract the comment is referring. All of the contracts related to the ULS have been negotiated with public participation. Please see comment response 15.20.

Comment 23.30

We have been told that the State Engineer has determined that saved water from this project is considered Utah Lake water and consequently once it enters Utah Lake, it loses its identity as being appropriated by the DOI. Some of this water is in fact Deer Creek transbasin water, some is going to be Jordanelle water returned to the Department of Interior, some will be water normally lost to wetlands, and some will be Strawberry Transbasin water. Consequently, some of this water should be available to the Department of the Interior for environmental purposes. It would appear that because of the nature of the Utah Lake Water Distribution Plan that allowing this ruling to stand means that this saved water will, in fact, be used by either the CUWCD or the Provo Water Users for consumptive uses instead of being used by the Department of Interior for environmental purposes.

Response 23.30

The concept is that the saved water reaches Utah Lake as before, just in a different path. That is, directly in the river instead of through groundwater inflows to the lake. Please refer to Chapter 1, Sections 1.4.9.3, 1.4.9.4, and 1.4.9.5 of the EIS which discuss this matter in detail.

Comment 23.31

As noted previously, we feel that there are additional locations for which water right applications should be filed including Utah Lake, Provo Reservoir Canal, Hobble Creek and the Lower Provo River. There is also a need to clarify with the state engineer the legal rights to maintain stream flows to protect endangered flows for June Sucker and flows on the Duchesne.

Response 23.31

As indicated in Table 1-37, the Joint-Lead Agencies plan to file any necessary water right change applications. In addition, please see comment response 23.10.

Comment 23.32

In addition, it is not clear which segments of the Duchesne are being selected. Regardless there is a need to define the required flows on the Lower Duchesne River as part of the planning for the ULS.

Response 23.32

Please see comment response 23.6.

Comment 23.33

Should this water be under control of these agencies in Lake Powell? If CUWCD is allowed to accumulate water in Lake Powell, should it be under joint ownership with other responsible parties?

Response 23.33

These are issues well outside the impact area of influence of the ULS and beyond the scope of this EIS.

Comment 23.34

Next, we suspect that the flow pattern needed in the coldwater sections would generally match the flows needed for lower Duchesne River. Is this accurate? If not, the one alteration that would probably be needed is the accumulation of water in Starvation on a space available basis to amplify the spring runoff. Is this accurate and can this be done?

Response 23.34

Please see comment response 23.32.

Comment 23.35

Does the obligation to assist with these flows extend only to the CUWCD or does it also involve the operations of the Duchesne area irrigators, Strawberry Water Users and Provo River Water Users? Does the Recovery Program with DOI assistance have the right to acquire shares in these two organizations for use in the Upper Basin Recovery Program?

Response 23.35

These are issues outside the impact area of influence of the ULS and beyond the scope of this EIS.

Comment 23.36

We are concerned that the needs of the Spanish Fork River are being ignored. Will water belonging to the CUWCD flowing in the Spanish Fork River be diverted by the Strawberry Water Users through their power plant on the River?

Response 23.36

Chapter 3, Sections 3.2.8.3.1.7 through 3.2.8.3.1.10 and Table 3-3 in the EIS discuss and identify the environmental impacts, from both action alternatives, in the Spanish Fork River caused by flow regime changes. These flow changes result, in part, from project decisions to deliver a substantial portion of the project water to Utah Lake via Hobble Creek and the lower Provo River, rather than the Spanish Fork River, to achieve other important environmental benefits. Impacts in the Spanish Fork River resulting from these decisions are discussed throughout Section 3.6.8 (Aquatic Resources), Section 3.3.8. (Surface Water Quality), and elsewhere, for both action alternatives. The Strawberry Water Users Association has the contractual right to use Bonneville Unit water non-consumptively for power generation in its Spanish Fork River powerplant with adequate NEPA compliance.

Comment 23.37

We are very impressed by the comments regarding the value of deltas in Utah Lake for the June Sucker. These areas are probably of great value to the overall lake ecology. Have you or the Mitigation Commission reviewed the degree to which increasing flows in these river systems increases the value of these deltas? Again, this point shows the importance of keeping water in rivers instead of irrigation canals.

Response 23.37

The Joint-Lead Agencies have not reviewed the degree to which enhanced tributary flows increase the value of deltas at the tributary/lake interface. Prior to settlement, tributaries entering Utah Lake had broad flood plains and branched into multiple channels forming deltas before they entered Utah Lake. It is believed that these types of complex habitat provided conditions, which allowed for the survival of young June sucker (i.e. productive transitional habitats that provided cover from predators, food and suitable thermal conditions). With the settlement and growth of the valley's human population, tributary flood plains have been encroached by development for housing, municipal, recreational and agricultural purposes, and tributary streams have been channelized and simplified. The Joint-Lead Agencies are partners to the June Sucker Recovery Implementation Program (JSRIP). The JSRIP recognizes the need to enhance altered habitats and has identified transitional zones at the tributary/lake interface as high priority. These habitats are believed to be important for the survival and growth of young-of-year June sucker and this life stage seems to be the bottleneck in the life-cycle of the species in Utah Lake (as evidence, juvenile June sucker stocked into Utah Lake have survived to adulthood and entered the spawning run in the Provo River, successful spawning has occurred in the Provo River every year that monitoring has taken place; however, naturally produced fish do not appear to survive past about 20 days in age presumably because of limitations in habitat suitability and/or impacts from nonnative fish). Feasibility analyses and conceptual plans for enhancing habitat in the lower Provo River and lower Hobble Creek flood plains have been conducted under the JSRIP. At this time, however, final designs are on-hold pending the acquisition of private land necessary for habitat enhancements. Although the JSRIP has acquired some funding for land acquisitions, to date there has not been an interest in private landowners to sell target properties at appraised value. The Joint-Lead Agencies agree that there is a connection between water supply and the extent of habitat enhancement that can be implemented and maintained; however, further refinement of conceptual designs prior to land acquisition would be premature. In the event that lands are acquired for the purpose of enhancing tributary/lake interface areas around Utah Lake for June sucker recovery purposes, final design and compliance with the National Environmental Policy Act will be implemented under the JSRIP.

Comment Letter 24: Utah Chapter of the Sierra Club and Sierra Club Colorado River Task Force

Comment 24.1

Currently there is little monitoring of irrigation diversions in the Uinta Basin and some individuals appear to be benefiting from the lack of monitoring by using more water than their water rights allow. Does the District plan to monitor diversions and water use in the Uinta Basin in the future? What will the impact of full CUP build-out be on individual farmers that have previously had access to unused CUP water?

Response 24.1

The Joint-Lead Agencies disagree with the comment. The Utah Division of Water Rights (State Engineer) has and will continue to regulate all Uinta Basin irrigation diversions in compliance with Utah State water law. With respect to Bonneville Unit irrigation water deliveries in the Uinta Basin, the District has, and will continue to, monitor, document and report all such diversions to the Secretary in accordance with Reclamation law. The Strawberry Aqueduct and Collection System (SACS) and the Starvation Collection System have operated at full capability since their completion in 1989. Therefore, individual water users in the Uinta basin have not had access to any unused Bonneville Unit water, except for a few operational spills that have occurred. In addition, the impacts on Uinta Basin farmers from full Bonneville Unit build-out were already evaluated in previous NEPA compliance documents, and is beyond the scope of this EIS.

Comment 24.2

What will be the cumulative impact on individual Uinta Basin farmers of completing the ULS in conjunction with the exercise of 1861Tribal water rights as described in the November 2003 Lower Duchesne River Wetlands Mitigation Project DEIS?

Response 24.2

Bonneville Unit operations in the Uinta Basin will not interfere with the senior water rights including Tribal water rights. Bonneville Unit operations divert project water in priority as directed by the Utah State Engineer. The construction and operation of the ULS facilities would not result in any cumulative impacts on individual Uinta Basin farmers that have not already been addressed in previous NEPA compliance documents. Full exercise of Tribal water rights, whether through implementation of the Lower Duchesne Wetlands Mitigation Project, or by other means, will not affect or modify the operation of the SACS or ULS facilities in any manner not already recognized and addressed in other NEPA compliance documents.

Comment 24.3

Has the baseline hydrology used in the ULS DEIS included ALL mitigation obligations including the base flows for listed fishes and the Strawberry Aqueduct and Collection System mitigation obligation (currently proposed to be met by the Lower Duchesne River Wetlands Mitigation Project)? Unless the ULS baseline hydrology includes full exercise of Tribal water rights and full implementation of ALL mitigation obligations, it is inadequate and should not be used.

Response 24.3

As addressed in this EIS, the ULS baseline hydrology, as well as the hydrology for the ULS action alternatives, was developed utilizing all previous NEPA compliance documents and all previous environmental commitments as a basis. This includes the aquatic habitat mitigation obligations documented in the 1980 Streamflow Agreement, as amended in 1990. However, base flows for the Colorado River "listed fish" have not been developed in final form by the U.S. Fish and Wildlife Service and the Colorado River Endangered Fishes Recovery Program. As a result, such flows, whatever they might be, are not included in any Bonneville Unit NEPA compliance document. The Lower Duchesne River Wetlands Mitigation Project is outside the impact area of influence of the ULS, is beyond the scope of the ULS EIS, and as a result, is being addressed in a separate NEPA compliance document. Please see comment response 23.6.

Comment 24.4

Has the use of all 1861 priority water rights in the Duchesne River system been accounted for in the operation of Starvation Reservoir? If not, why not?

Response 24.4

The 1861 priority water rights (Tribal water rights) in the Duchesne River System were accounted for in project operation, including Starvation Reservoir, in the report entitled, Central Utah Project, Initial Phase, Bonneville Unit, Definite Plan Report, August 1964. In accordance with the 1965 Deferral Agreement and the 1992 Ute Indian Water Rights Settlement (Title V of CUPCA), previous Bonneville Unit NEPA compliance documents correctly and fully addressed all 1861 tribal water rights in the Duchesne River system. These previous NEPA documents, the associated hydrology studies, and all previous environmental commitments have been utilized as a basis for preparing this EIS.

Comment 24.5

If they have, the EIS needs to provide documentation that these rights have been accounted for and that the CUP operation does not depend on any use of Tribal water rights, either now or in the future, for the system to function as described in the DEIS.

Response 24.5

Please see comment response 24.4. In addition, see Chapter 1, Sections 1.1.2.1.3, 1.1.2.3.7, 1.1.2.6, 1.10.2, and Chapter 3, Section 3.24 of the EIS. Section 3.24.4.1 of the EIS indicates that Bonneville Unit operations do depend, in significant part, upon implementation of the 1965 Deferral Agreement signed among the State of Utah, the United States, and the Ute Indian Tribe of the Uintah and Ouray Agency to supply a sufficient water supply for the Bonneville Unit, and that the construction and implementation of the ULS would not affect these prior agreements in any way.

Comment 24.6

For the ULS EIS to adequately address Tribal Trust Resources, it must provide full documentation and disclosure of how Tribal water rights are being accounted for, not only the operation of Starvation Reservoir but also in the entire ULS.

Response 24.6

The Joint-Lead Agencies disagree with the comment. See comment responses 24.4 and 24.5, and Chapter 3, Section 3.24 of the EIS including the meetings and consultations held directly with the Ute Indian Tribe (see Section 3.24.4.1 of the EIS). The Bureau of Indian Affairs and the Utah Division of Water Rights are responsible for the administration and diversion of tribal water rights in the Uinta basin.

Comment Letter 25: State of Utah, Department of Natural Resources, Division of Water Quality

Comment 25.1

We feel that we have a good understanding of the proposed project alternatives and their potential impacts to the Utah Lake Watershed. At this time, we offer no additional comments on the Draft ULS EIS.

Response 25.1

Thank you for your comment.

Comment Letter 26: U.S. Department of the Interior, Fish and Wildlife Service

Comment 26.1

Page 1-87. This section should discuss how the "interim operation" of the preferred alternative (baseline) differs from the "interim operation" described in the 1999 Diamond Fork System Final Supplement to the Final Environmental Impact Statement (1 999 FS-FEIS). Specifically, this section should discuss that the "exchange water" will be primarily delivered in the winter to Utah Lake via Diamond Fork Creek and the Spanish Fork River. Flows in Diamond Fork Creek would not change from those in the 1999 FS-FEIS because the Diamond Fork pipeline has been completed and will be operational. However, flows in the Spanish Fork River will be different, and this project provides the NEPA evaluation for the revised "interim operation" flows. The associated tables in this section should be checked for consistency and accuracy given the revised interim flows.

Response 26.1

Streamflows in Diamond Fork Creek and the Spanish Fork River under the No Action Alternative are the same as ULS baseline conditions, and the same as the "interim operation" of the Proposed Action described in the 1999 Diamond Fork System FS-FEIS. Under the ULS Proposed Action, the flows in Diamond Fork Creek would not change from those described in the 1999 FS-FEIS because the Diamond Fork System is now complete and is operational. However, flows in the Spanish Fork River are different under the ULS Proposed Action. This is documented in Chapter 1, Section 1.6.4.3 and Table 1-23 of this EIS, and can be compared to the Proposed Action stream flow data shown in Volume 1, Hydrology and Water Resources Technical Memorandum, Diamond Fork System 1999 FS-FEIS. There are some slight variations between the two documents because of the change in hydrologic study period, which in the 1999 FS-FEIS was from 1930 to 1973 and in this EIS is from 1950 to 1999. Chapter 1, Section 1.4.10.3 and Table 1-16 of this EIS describe the flows in these streams under the ULS Proposed Action and Table 2-1 compares these flows among the alternatives. The deliveries to Utah Lake for exchange to Jordanelle Reservoir are discussed in Chapter 1, Sections 1.4.9.1 and 1.4.10.2.1, are shown in Figure 1-18 of this EIS, and are documented in detail in Section 2, Volume 3, Appendix B of the Surface Water Hydrology Technical Report.

Comment 26.2

Page 1-135. Erosion Control and Restoration. This section should state that thatching, straw mulch, etc. will be weed free. Although this is covered in Volume 2 in your Noxious Weed Control Plan, it should also be mentioned here.

Response 26.2

The text in Chapter 1, Section 1.8.8.1 Erosion Control and Restoration has been revised in the Final EIS.

Comment 26.3

Page 1-143. The document states that monitoring for revegetation success will be conducted for a period of three years following completion of initial revegetation.. ..Revegetation will be considered successful if visual surveys indicate density and non-nuisance vegetation are similar in intensity and cover to adjacent, undisturbed lands... We recommend developing more specific success criteria, perhaps specific to each land type and adjacent land use. We also recommend monitoring until success criteria are met for three consecutive years without the need for outside intervention.

Response 26.3

Based on the revegetation success of previous District projects, the District does not believe it is necessary to monitor for more than 3 years or to develop more specific revegetation success criteria. If there appears to be a problem with revegetation success, it would be handled on a site-specific basis by implementing

additional measures to establish desirable vegetative cover. Please see the SOPs in Chapter 1, Section 1.8.9.1 of this Final EIS.

Comment 26.4

Page 1-146. There is no incidental take provision for golden eagle nests. If direct impacts to a golden eagle nest are anticipated and unavoidable, we recommend consulting with the FWS for appropriate permits and compliance with relevant laws and regulations.

Response 26.4

Table 1-37 in Chapter 1, Section 1.9.1, Permits and Approvals and Table 1-39 in Section 1.9.2 in the Final EIS have been revised. No direct impacts on golden eagle nests are anticipated. The Wildlife and TES Resources Standard Operating Procedures (SOPs) During Construction in Chapter 1, Section 1.8.8.5 mandate consultation with the U.S. Fish and Wildlife Service or the Utah Division of Wildlife Resources if any threatened, endangered or sensitive species is encountered during construction.

Comment 26.5

Page 3-14. We recommend that the last paragraph repeat the assumption from the previous page that the M&I System is under full operation during the entire hydrologic period. In addition, we recommend that you repeat the discussion in Chapter 1 that describes how the "interim operation" used in the baseline differs from the "interim operation" described in the 1999 FS-FEIS.

Response 26.5

It is not necessary to repeat this assumption, since it is included on the previous page. The explanation of the assumption has been expanded in the Final EIS. In addition, please see comment response 26.1.

Comment 26.6

Page 3-32. We recommend that the last sentence in the first paragraph of 3.3.7.1 include endemic endangered fish and seasonal use by endangered birds.

Response 26.6

The text in Chapter 3, Section 3.3.7.1.1 Utah Lake, has been revised in the Final EIS.

Comment 26.7

Page 3-34. We recommend that additional data be evaluated if available, including sources other than the State of Utah. Table lists 10 days of sampling. One date is from seemingly representative areas around the Utah Lake, the remaining 9 sampling dates are adjacent to the outflow of the Geneva Steel and may not be representative of the lake as a whole.

Response 26.7

Additional TDS data in Utah Lake have been acquired and evaluated. The revised text in Chapter 3, Section 3.3.7.1.1.2 Total Dissolved Solids demonstrates that in-lake TDS concentrations are generally uniform throughout the lake on historic sampling dates. These data indicate that during ice-free periods, the lake is well-mixed and that TDS data from STORET station 491731 (0.5 mile west of the Geneva Discharge site) during the 9 sampling dates is representative of the lake as a whole.

Comment 26.8

Page 3-24. 3.3.7.2.1. The treatment of selenium data throughout the DEIS would be better if modified. Two problems exist. First, State data for selenium prior to about 1996 likely underestimates selenium. Analytical techniques were changed as a result of round-robin testing and comparison. See pages A-132 and 133 of the Surface Water Quality Technical Report for data before and after November 1995. Selenium was not detected prior to this time but averaged 1.6 ppb after this time.

Response 26.8

The selenium data has been re-analyzed using only data from 1996 and on in Appendix A, Table A-6 of the Surface Water Quality Technical Report. Please see the revised text and tables in Chapter 3, Section 3.3 Surface Water Quality. Also, please see the contaminants letter received from the U.S. Fish and Wildlife Service in Appendix F of this Final EIS.

Comment 26.9

Second, selenium was not shown in either this or the Tech Report to be significant. In fact because of the large number of non-detects, and the use of 1/2 the detection level in calculations, the data shown shows an average calculation below what can be detected. Most of the data points represent unknown concentrations making extrapolations difficult for this element.

Response 26.9

The use of ½ the detection limit is an EPA-accepted methodology for non-detect data, since non-detect data are results of analyses as well as values that are detected. The analysis of selenium data has been revised to include only data from 1996 and on, based on the Fish and Wildlife Service comment that indicates the pre-1996 analytical technique for selenium was inappropriate. Non-detect data recorded since 1996 are counted as ½ the detection limit (0.5 µg/L) in the revised analysis and text changes in Chapter 3, Section 3.3 Surface Water Quality. Also, please see the contaminants letter received from the U.S. Fish and Wildlife Service in Appendix F of this Final EIS.

Comment 26.10

We suggest that the selenium data be presented in the Technical Report and limitations discussed in more detail there. In addition, in this Chapter, we recommend that the selenium be shown as an average value for the 1996 and later data, and the range of values be disclosed. Overall, based on the low concentrations, we believe selenium will not exceed water quality criteria as modeled, and will not be further discussed.

Response 26.10

The selenium data are reported in the revised Surface Water Quality Technical Report and further discussion of the data limitations are included in the revised text. The text and tables in Chapter 3, Sections 3.3.7.2.3 and 3.3.8 where Spanish Fork River is discussed have been revised in the Final EIS. Also, please see the contaminants letter received from the U.S. Fish and Wildlife Service in Appendix F of this Final EIS.

Comment 26.11

"Provo River" should be "Lower Provo River" for consistency and clarity.

Response 26.11

The text in Chapter 3, Section 3.3.7.2.1 Provo River From Murdock Diversion to Utah Lake, has been revised in the Final EIS.

Comment 26.12

Page 3-35 and later. Much is said about phosphorous levels, but a more general baseline condition discussion, of sources and the impending TMDL process seems warranted. Phosphorous levels are consistently elevated with and without the project, exceeding the State recommendation for rivers and streams going to Utah Lake. We suggest that the minor changes in phosphorus attributable to this project in Utah Lake, would be best addressed in conjunction with other sources through the TMDL process.

Response 26.12

The total phosphorus analysis for Utah Lake in Chapter 3, Section 3.3 Surface Water Quality has been revised in the Final EIS.

Comment 26.13

Page 3-36. In the last paragraph, some clarification seems needed: "upper (should this be lower) Spanish Fork River are below the state (State) water quality standard.. .". Does this mean that the stream was in compliance or not?

Response 26.13

The text in Chapter 3, Section 3.3.7.2.3 Spanish Fork River From Diamond Fork Creek To Utah Lake, has been revised in the Final EIS.

Comment 26.14

Page 3-37; 3.3.7.2.4. Language in this paragraph should be corrected. This river segment has a warm-water game fishery also, not just non-game fishery.

Response 26.14

The text in Chapter 3, Section 3.3.7.2.4 Jordan River, has been revised in the Final EIS.

Comment 26.15

This table (Table 3-12) has the heading "Maximum Water Quality Conditions". Previous tables indicated that these were monthly average maximum (or minimum as appropriate) values. Is this an average minimum? If so, it would be useful to disclose the range of values and what percent of the time was the DO lower than the average monthly minimum of 5.5 mg/L.

Response 26.15

The minimum dissolved oxygen value shown in Table 3-12 is the minimum value from the data, not an average minimum.

Comment 26.16

See previous comments on TDS for Utah Lake. The actual data were not presented for either Utah Lake or the Jordan River in the Tech Report so it is unknown to the reader when the data were collected, number of data points, or how representative it is. Is this site also data poor? Is there additional data that have not been included that may illuminate the outflow? A quick search of STORET for the Jordan River at the Outlet of Utah Lake indicates much higher TDS in 2003 than for previous years. Baseline conditions were considered 1990-1999, however.

Response 26.16

Data for STORET station 499479 indicate higher TDS concentrations in the Jordan River at the Utah Lake Outlet than Utah Lake TDS concentrations on the same dates. Based on previous studies of salinity in Utah Lake, known salt springs near the Utah Lake outlet appear to increase to TDS concentrations in the Jordan River. Additional data have been analyzed and included in the Surface Water Quality Technical Report and summarized in the revised Chapter 3, Section 3.3.7.2.4 Jordan River.

Comment 26.17

Page 3-38; 3.3.8.1. "Significance" appears to be defined here for later discussion. If this is so, our review indicated inconsistency in the use of this term in the discussions. We recommend that a search be completed to check on its use. Similarly a check needs to be made to determine if "whether exceeded standards would be further degraded" has been adequately identified as significant in subsequent discussions, or the definition qualified.

Response 26.17

Chapter 3, Section 3.3.8.1 Significance Criteria defines significance of water quality impacts as being determined by one of the three following conditions:

- ***whether or not water quality standards or pollutant indicators that are currently met would be exceeded***
- ***whether standards that are exceeded would be improved***
- ***whether exceeded standards would be further degraded***

The term significance or significant is mentioned throughout Section 3.3 Surface Water Quality and is used in one of two contexts:

- ***The increase or decrease would not have a significant impact on the water quality***
- ***The increase or decrease would have a significant impact on the water quality***

If those water quality standards were to be improved or degraded with the addition of ULS water, it would be considered a significant change or impact.

Comment 26.18

The following discussions reference DO in terms of measured DO and standards. Some sites have low DO. The measurements for DO are presumably during the day when DO is maximized by vegetation or water is stirred up by currents or wind. We recommend that if data is available, discussion be presented of the diurnal ranges of DO values, particularly in Provo Bay, a potentially important area to June suckers.

Response 26.18

The water quality analysis presented in the DEIS is based on data collected and reported during the period from 1990 through 1999. The baseline data and projected impacts are documented in monthly values, consistent with the surface water hydrology analysis. Diurnal dissolved oxygen data are not available for Provo Bay, and the water quality analysis for the DEIS was not performed on a daily or diurnal basis.

Comment 26.19

Page 3-38; 3.3.8.2. The statement that includes 48000-85000 acre-feet needs to be re-written to improve understanding of what is being said or referenced to an area in the document with further explanation.

Response 26.19

The text in Chapter 3, Section 3.3.8.2 Potential Impacts Eliminated From Further Analysis has been revised in the Final EIS.

Comment 26.20

Page 3-39; Table 3-13. We suggest that the standards for temperature be expressed in centigrade (or both scales). All the subsequent tables reference centigrade.

Response 26.20

The text in Chapter 3, Section 3.3.8.1 Significance Criteria, Table 3-16, has been revised in the Final EIS.

Comment 26.21

We recommend that the phosphorous standards for lakes also be included for all the appropriate classifications.

Response 26.21

There are no state standards for phosphorus in either streams or lakes, only pollution indicators. Pollution indicator values have been added to Chapter 3, Section 3.3.8.1 Significance Criteria, Table 3-16 in the Final EIS.

Comment 26.22

Page 3-40; Table 3-13 continued, Units for selenium are shown as ppb, but those for 1C and 4 are actually ppm as shown.

Response 26.22

Chapter 3, Section 3.3.8.1 Significance Criteria, Table 3-16, has been revised in the Final EIS.

Comment 26.23

The citation indicates that these standards were in effect February 1, 2003. We believe this is incorrect and should be March 1, 2004.

Response 26.23

Please see comment response 26.22.

Comment 26.24

Page 3-41; Table 3-14. Jordan River is also listed as 3B for this reach. Whereas it is not indicated as 3C in the State Standards, these sub-classifications are typically listed for the most restrictive of the classifications. Footnote "d" needs clarification relative to the table.

Response 26.24

Chapter 3, Section 3.3.8.1 Significance Criteria, Table 3-17, has been revised in the Final EIS.

Comment 26.25

Page 3-45. It is unclear how the water temperatures under the preferred alternative would be lower than what appears to be the source water, e.g. upper Spanish Fork River. Please clarify.

Response 26.25

The source of the water being discharged to Hobble Creek is Strawberry Reservoir, with conveyance through an enclosed pipeline. This water would have an average temperature of 8.4 degrees C, compared with an average historic temperature of 10.6 in Hobble Creek.

Comment 26.26

Was ammonia analyzed as average conditions only, or were individual data points estimated, e.g. Table 3-19? As a directly toxic substance, average values are inappropriate when evaluating thc potential effect on endangered fish.

Response 26.26

Ammonia concentrations are an average of all monitoring data for each month. Twenty-seven of the ammonia data values in Table A-7, Syar Tunnel Outlet at Sixth Water, are non-detect values that indicate extremely low concentrations of ammonia in the water that would be mixed with Hobble Creek and lower Provo River water to provide in-stream flows. Eight data values were above the detection limit and recorded

as actual concentrations and were far below the water quality standards, which are set to protect aquatic life.

Comment 26.27

Page 3-51; last sentence. Can the intake be modified to change the load of phosphorous released? Was this evaluated and can it be referenced?

Response 26.27

The elevation (or depth) at which water is withdrawn from Strawberry Reservoir into the Syar Tunnel cannot be changed. When the reservoir is full, water is withdrawn from about 33 meters deep. When the reservoir is drawn down, water is withdrawn from closer to the surface. No attempt was made to correlate the water quality monitoring data for Strawberry Reservoir with the anticipated water level under alternative conditions. The same average concentrations (by month) were used throughout the simulation. The revised water quality analysis in Chapter 3, Section 3.3.8.3.1.1 Utah Lake demonstrates that the net total phosphorus load into Utah Lake would be unchanged from baseline conditions.

Comment 26.28

Page 3-58; Table 3-31. We suggest that the table and accompanying text reflect that the baseline data is being compared to simulated data from the 1999 Diamond Fork project for clarification.

Response 26.28

The table is not a comparison with simulated data, it is a comparison with historic data. Under the No Action Alternative, flows and water quality conditions in the Spanish Fork River would be identical to simulated baseline conditions, which is discussed in the preceding section (Chapter 3, Section 3.3.8.5.2 Stream and River Water Quality). Also, please refer to Chapter 3, Section 3.3.6 Methodology, Section 3.3.6.2.2 Mass Balance Model, where the two baseline conditions, the historic and simulated, are defined and how the values under each alternative were derived.

Comment 26.29

Page 3-81. One of the assumptions used to assess impacts to the aquatic environment states that "Wetted perimeter and macroinvertebrate habitat are directly related; thus, increases in wetted perimeter were assumed to result in increased habitat for macroinvertebrates." It is unclear on what biological data this assumption is based. Although the relationship between wetted area and macroinvertebrate habitat may be correlated, we suggest that sound biological information be provided that substantiates this claim.

Response 26.29

The text in Chapter 3, Section 3.6.6.1 Assumptions, has been revised in the Final EIS.

Comment 26.30

Page 3-90. We believe the percentages used to separate the three categories for "potential for impact" should reflect lower percentage dividing points for the Moderate Potential and High Potential categories. We believe that habitat availability changes of *"5* to 40 percent" represents too broad of a category for moderate impacts. Additionally, rather than using best professional judgment to determine the dividing points for Low, Moderate, and High Impact Potential, a scientifically based, more quantitative method should be used to make these determinations.

Response 26.30

The best data available for the macroinvertebrate habitat analysis were habitat ratings from previous Binns HQI analyses. These rating data are themselves based on professional judgement and as such are not conducive to a more quantitative method for determination of significance.

Comment 26.31

Page 3-91. We do not agree with the statement that "Changes in water quality that could have a significant impact on aquatic resources in this reach would not be expected to occur under any alternative." Page 34 of the ULS DEIS - Aquatic Resources Technical Report (3.3.4) states that the Jordan River from Bluffdale to the Narrows exceeded the temperature for a class 3A water (cold-water game fish). Also, low dissolved oxygen concentrations were recorded in the lower Jordan River further illustrating water quality problems. Because Jordan River water quality is currently not meeting state of Utah parameters and 2-13 percent decreases in monthly flows are predicted for the Utah Lake to Narrows section of river, it is likely that significant impacts may result. The effect of this additional water withdrawal on the Jordan River should be evaluated in light of its current water quality deficiencies and mitigated for if necessary.

Response 26.31

The statement on Page 34 of the Aquatic Resources Technical Report has been deleted because the Jordan River from Bluffdale to the Narrows is not in the ULS impact area of influence. Additionally, it is important to understand that water released from Utah Lake does not meet the Utah Water Quality Standards (March 1, 2004) beneficial use class 3A (Coldwater Game Fishery) temperature standard, and therefore, it would be difficult for this water to meet the class 3A standard in the Jordan River below the Narrows. The ULS impact area of influence on the Jordan River extends from the Utah Lake outlet to the Narrows. The ULS project would not measurably affect river flows or water quality in the Jordan River below the Narrows. No additional impact analysis on the Jordan River is necessary.

Comment 26.32

Page 3-136. We recommend discussing with orchard managers the possibility of revegetating areas near orchards with species beneficial for pollinators.

Response 26.32

The area of habitat change referred to (Chapter 3, Section 3.8.8.3.1.3, Spanish Fork – Santaquin Pipeline, Paragraph A. Habitat) would be located within the pipeline corridor right-of-way and the vegetation would be managed by the District for operation and maintenance of the pipeline. The revegetation seed mix specified in Appendix B, Noxious Weed Control Plan, Table B-2, Species for Transplanting and Seeding Upland Areas Disturbed by Construction Activities, contains numerous flowering species that would be beneficial for pollinators.

Comment 26.33

Page 3-138. There are numerous typos in the second paragraph.

Response 26.33

The text in Chapter 3, Section 3.8.8.3.1.5 Mapleton – Springville Lateral Pipeline, Paragraph A. Habitat, has been revised in the Final EIS.

Comment 26.34

Page 3-150. Second paragraph. Ute ladies'-tresses is not well adapted to banks, but rather to low floodplain terraces.

Response 26.34

The text in Chapter 3, Section 3.9.7.4.1 Ute ladies'-tresses has been revised in the Final EIS.

Comment 26.35

Pages 3-150 and 3-151. Typos and periods omitted from the ends of sentences.

Response 26.35

The bulleted items are not complete sentences and do not require periods. No other typos could be found.

Comment 26.36

Page 3-150 Although spawning habitat would increase between Tanner Race Diversion and Interstate 15, these areas would only be accessible to June sucker moving up from the lake during very high water years. [Refers to Page 3-154?]

Response 26.36

Under existing conditions migration of spawning June sucker to the reach between Interstate 15 and the Tanner Race Diversion is limited to high water years as a result of the impassability of the Fort Fields Diversion, just downstream from Interstate 15, in low and moderate flows. The Joint-Lead Agencies are partners to the June Sucker Recovery Implementation Program (JSRIP). As a JSRIP partner, and under authority granted by CUPCA, the Utah Reclamation Mitigation and Conservation Commission along with the U.S. Fish and Wildlife Service initiated an effort to investigate the feasibility of providing fish passage or removing the Fort Fields Diversion in 2004. Providing passage at Fort Fields Diversion could take several years; however, it is anticipated that the necessary modifications could be in place prior to completion of the ULS and that this river reach would be accessible to spawning June sucker under ULS operations.

Comment 26.37

Page 3-156. This section should discuss the anticipated increase in nonnative species. A concern for June sucker recovery is the opportunity that the target minimum flows in the Provo River provides for the establishment of a sport fishery. The establishment of minimum flows in tributaries to Utah Lake will be beneficial to the Utah Lake ecosystem and therefore June sucker. In addition, a minimum flow in the lower Provo River would reduce the amount of water needed to be acquired specifically for June sucker spawning and recruitment; however, minimum flows may further complicate nonnative control efforts by allowing the invasion and establishment of nonnative sport fish from upstream. The FWS supports pursuing a proactive approach towards managing the lower Provo River that includes minimum flows with the provision that sport fishery management be compatible with June sucker recovery.

Response 26.37

Please refer to comment response 15.3.

Comment 26.38

Page 3-157. The discussion on Ute ladies'-tresses needs to be expanded. There is no discussion of how the impact assessment was conducted or rationale for the not likely to adversely affect conclusion.

Response 26.38

The text in Chapter 3, Section 3.9.8.3.2.2 A. Ute ladies'-tresses has been revised in the Final EIS.

Comment 26.39

Although spawning habitat would increase between Tanner Race Diversion and Interstate 15, these areas would only be accessible to June sucker moving up from the lake during very high water years.

Response 26.39

Please see comment response 26.36.

Comment 26.40

Page 3-172. Columbia spotted frog also occurs in Diamond Fork Canyon. Contact UDWR for specific information about location and estimated population size.

Response 26.40

Please see comment response 21.7.

Comment 26.41

Page 3-237. The methods used for calculation of angler day use factor for Spanish Fork, Hobble Creek, and the Provo River should be discussed in the DEIS. As they are currently presented, the values for this category appear to be disproportionate based on the accessibility, fishability, and reputation factors. It is unclear why there are only minute differences in angler day use factor between the seemingly very different Spanish Fork/Hobble Creek and the Provo River sport fisheries. Is this resultant of ecological/recreational differences between these fisheries, or is it an artifact of the different sources (Diamond Fork FS-FEIS Interim Proposed Action vs. Wiley and Thompson 1997) used to obtain these numbers? Please explain and clarify.

Response 26.41

The methods used to calculate the angler-day use factor for Spanish Fork River, Hobble Creek and Provo River are based on the angler-day methodology reported in the Angler-Day Methodology Technical Memorandum (CUWCD 1999b). This methodology starts with the 2.81 angler-days per pound of wild trout standing crop in the Provo River (Wiley and Thompson 1997) and adjusts this value in Spanish Fork River and Hobble Creek for those months accessible, fishability because of high irrigation flows, and reputation based on proximity and easy access to major population centers. In the Spanish Fork River from Diamond Fork Creek to Spanish Fork Diversion Dam, the high SVP irrigation flows reduce the fishability for 6 months each year (50 percent reduction), and the reputation factor was adjusted down 10 percent compared to the Provo River in these streams with the ULS flows and the resulting changes in fish biomass. The remaining reaches of the Spanish Fork River are not subject to the high SVP irrigation flows and only the 10 percent reputation factor adjustment was made. Since fishing in Hobble Creek would be similar to the lower Spanish Fork River reaches if public access were available under the ULS flows and resulting trout biomass, the same values were applied to Hobble Creek. The text in Chapter 3, Section 3.15 Recreation Resources, has been revised in the Final EIS.

Comment 26.42

Page 3-242. Table 3-84. An increase in angler days of roughly 500 percent is shown for the Provo River segment from Spanish Fork-Provo Reservoir Canal Pipeline discharge to Tanner Race diversion. Because this area is heavily developed with a golf course and private residences there is little to no public access within this river segment. Angler-day increases of this magnitude may be not possible, and therefore changes to angler days per year should be reviewed in light of these public access issues.

Response 26.42

Chapter 3, Section 3.15.8.3.3 Summary of Alternative Impacts, and Table 3-84, Estimated Angler Days per Year Use of Key Stream Segments of the Spanish Fork Canyon – Provo Reservoir Canal Alternative (Proposed Action), have been revised in the Final EIS.

Comment 26.43

Page 3-325. The second paragraph should discuss the source of hydrology for restoring the 12 small, scattered wetlands.

Response 26.43

The source of hydrology for the 12 small, scattered wetlands that would be temporarily disturbed by construction is irrigation water that flows through existing canals. The proposed pipelines would be constructed adjacent to canal alignments, and in some places, riparian shrubs and trees growing along the canal banks would be within the construction rights-of-way. The text in Chapter 3, Section 3.25.2.1.1 Mitigation has been revised in the Final EIS.

Comment 26.44

Page 3-325. We concur that crediting a portion of the Mona Springs Unit of the Burraston Ponds Wildlife Management Area in Juab County as mitigation for permanently lost and temporarily impacted wetlands is appropriate.

Response 26.44

Thank you for your comment.

Comment 26.45

Page 3-327. This section provides information on the commitment of the joint-lead agencies to support the UDWR in evaluating population and habitat status of leatherside chub as well as to determine threats and/or identify conservation actions that could protect and where appropriate enhance the species. Although we are pleased that the join-lead agencies are committed to these efforts to protect, enhance, and restore leartherside chub populations, we believe that potential threats and conservation actions should be identified and addressed in the DEIS.

Response 26.45

As indicated in the Mitigation section, the problem will be studied and measures implemented. It is premature to try to predict what specific measures may be required until the appropriate studies and management plans have been completed.

Comment 26.46

Page 3-329. Mitigation or conservation measures for leatherside chub should be discussed here, rather than simply leaving a conclusion that the impacts exceed the significance criteria.

Response 26.46

Section 3.25.2.2.1 discusses mitigation for impacts on leatherside chub. It is not appropriate to discuss mitigation again under Section 3.26 Unavoidable Adverse Impacts. Also please see comment response 26.45.

Comment 26.47

Page 3-337. This section should acknowledge that the ULS Preferred Alternative will have cumulative detrimental impacts on leatherside chub, Ute ladies'-tresses, habitat fragmentation, and Utah Lake water quality, in addition to the beneficial effects on June sucker. Certain of these impacts can and will be mitigated by the JLA, e.g., leatherside chub, Ute ladies'-tresses, and habitat fragmentation. Improving Utah Lake water quality will require the participation of all Utah Lake water users and we believe is best accomplished through the TMDL process.

Response 26.47

Based on the analysis presented in the Draft EIS and revised in the Final EIS, no significant cumulative impacts are predicted to occur on leatherside chub, Ute ladies'-tresses, habitat fragmentation, and Utah

Lake water quality. Under the Proposed Action, cumulative impacts are based on impacts which would remain after the application of mitigation and impacts resulting from other projects. No other projects have yet to be identified that would cause an impact on leatherside chub, Ute ladies'-tresses or Utah Lake water quality.

Comment 26.48

Page 3-344. The document states there will be an increase of 7,674 angler days per year on the Provo River below Deer Creek Reservoir. This number is inconsistent with previously presented estimates. Please review for consistency.

Response 26.48

The angler-day values in Chapter 3, Section 3.28.2.2 Benefits, have been revised in the Final EIS.

Comment 26.49

Appendix A. List of Remaining Environmental Commitments on the Bonneville Unit of the Central Utah Project

We have reviewed this appendix carefully and believe it is complete and accurate.

Response 26.49

Thank you for your comment.

Comment 26.50

Page B-1 and B-2, Table B-1. We appreciate that the list of target species includes not only designated noxious weeds, but also weeds not yet officially designated as noxious and invasive species. The list looks complete for the present. However, we should recognize that additional species may need to be added by the time project construction is complete and the project is operational.

Response 26.50

During the three-year monitoring period, the noxious weed list would be updated as appropriate for the project area. Weed surveys would be conducted to identify and treat all noxious weeds and undesirable species. Please see the SOPs in Chapter 1, Section 1.8.9.1 of this Final EIS.

Comment 26.51

Page B-3, Table B-2. We recommend that alfalfa and crested wheatgrass be removed from the species for transplanting and seeding upland areas, unless these areas are within or adjacent to agricultural fields comprised of these species. Both of these species are not native and naturalize when introduced into native vegetation.

Response 26.51

Please see revised Table B-2 in the Final EIS Volume 2, Appendix B – Noxious Weed Control Plan.

Comment 26.52

Page B-4, Table B-3. We note that although redtop *(Agrostis stolonifera)* is ubiquitous in Utah wetlands, it is not a native. It may be unnecessary to include it in a revegetation species mix.

Response 26.52

Agrostis stolonifera is being left in the seed mixture because it adds diversity and is adapted to slightly different soil conditions and moisture regimes contributing to riparian vegetation success. A minor amount of redtop is recommended to be included in the seed mixture although the specific mixture is not specified in the EIS. The specific seed mixture would be specified in the construction contract documents. Please see the SOPs in Chapter 1, Section 1.8.8.1 of this Final EIS.

Comment 26.53

Page B-5. We appreciate that weed surveys would be conducted monthly during the growing season for three years. However, we recommend development of specific revegetation success criteria. Monitoring and management of undesirable species should be continued until success criteria are met for three consecutive years without outside intervention.

Response 26.53

Please see comment response 26.3.

Comment 26.54

We encourage the JLA to participate with the State of Utah and other partners in the TMDL process for Utah Lake and its tributaries.

Response 26.54

Please see comment response 22.6.

Comment 26.55

We recommend that the JLA work with the UDWR to develop specific measures to compensate for unavoidable loss of habitat for leatherside chub.

Response 26.55

Please refer to comment response 26.45.

Comment 26.56

We encourage the JLA to work with the FWS, Forest Service and UDWR to ameliorate the effects of habitat fragmentation in the Diamond Fork watershed caused by the Diamond Fork System and ULS.

Response 26.56

Please see comment response 26.47.

Comment 26.57

Cooperative efforts for restoring Diamond Fork Creek aquatic and riparian habitats provide an opportunity to greatly improve the quality for these highly valuable aquatic and riparian habitats and thus help compensate for unavoidable fragmentation.

Response 26.57

Thank you for your comment. The Mitigation Commission will involve the Fish and Wildlife Service and other agencies in planning and implementing identified measures.

Comment Letter 27: U.S. Environmental Protection Agency

Comment 27.1

Our primary environmental concern relates to potential water quality impacts of the project. The State has identified Utah Lake as a waterbody that is not currently meeting water quality standards. In particular, Utah Lake has been listed on the State's Clean Water Act Section 303(d) list of impaired waters in need on TMDLs. Total phosphorus and total dissolved solids (TDS) are the pollutants identified as causing the impairment.

Response 27.1

The Joint-Lead Agencies disagree with EPA's concern about the potential water quality impacts of the project. The State of Utah Department of Environmental Quality, Division of Water Quality issued Utah's Year 2004 303(d) List of Waters on April 1, 2004 after the ULS Draft EIS was filed. The State's 2004 Clean Water Act Section 303(d) list of impaired waters shows Utah Lake as impaired for total phosphorus (TP) and total dissolved solids (TDS) in partial support of beneficial use class 4 (Agriculture-irrigation).

Utah does not have a water quality standard for TP. Table 2.14.2 of the Utah Water Quality Standards (March 1, 2004), Numeric Criteria for Aquatic Wildlife, shows a TP pollution indicator value of 0.025 mg/L for beneficial use classes 3B and 3C in reservoirs and lakes. Table 2.14.1 of the Utah Water Quality Standards (March 1, 2004) shows a TP pollution indicator value of 0.025 mg/L for beneficial use classes 2A (Recreation-primary contact) and 2B (Recreation-secondary contact) in reservoirs and lakes. Utah does not have a TP pollution indicator for beneficial use class 4 (Agriculture-irrigation). Table 3-13 in Chapter 3, Section 3.3 of the DEIS has been updated in the Final EIS.

Table 2.14.2 of the Utah Water Quality Standards (March 1, 2004), Numeric Criteria for Aquatic Wildlife, does not include a water quality standard or pollution indicator for TDS under any beneficial use class. Utah has one TDS water quality standard for beneficial use class 4 (Agriculture). Table 2.14.1 of the Utah Water Quality Standards (March 1, 2004) includes a TDS water quality standard of 1,200 mg/L for beneficial use class 4 (Agriculture-irrigation), with a qualifying note that the "TDS standards shall be at background where it can be shown that natural or un-alterable conditions prevent its attainment."

Comment 27.2

Based on our review of the DEIS and associated documents it appears that all the alternatives analyzed in detail have the potential to further degrade the water quality of Utah Lake. Although a TMDL would describe the level of controls needed to attain standards for Utah Lake, the State has yet to establish the TMDL.

Response 27.2

The Final EIS, Chapter 3, Section 3.3.8, Environmental Consequences (Impacts) has been revised based on re-analysis of water quality impacts and the Joint Lead Agencies do not agree with EPA's comment that the project has the potential to degrade the water quality of Utah Lake. Water quality in Utah Lake would not be further degraded under the Proposed Action. The Proposed Action would decrease the net load of TDS to Utah Lake, and it would have no net change on TP load to Utah Lake. The Proposed Action TP and TDS concentrations in ULS inflows to the lake would be lower than in-lake TP and TDS concentrations. The ULS inflows would cause dilution of in-lake TP and TDS concentrations.

Comment 27.3

The options that appear to be available at this point in time include:
1) develop mitigation measures that will offset any increase in load and/or ambient concentrations from existing conditions in Utah Lake that may result with any of the alternatives; such mitigation measures would prevent any increase in pollutants from contributing to the existing water quality standards exceedences; or
2) work with the State to expedite development of the TMDLs for phosphorus and TDS.

Response 27.3

The Final EIS, Chapter 3, Section 3.3.8, Environmental Consequences (Impacts) has been revised based on re-analysis of water quality impacts. The Joint-Lead Agencies disagree with EPA's comment that the Joint-Lead Agencies should be developing mitigation measures to offset increase in load and/or ambient concentrations from existing conditions in Utah Lake that may result with any of the alternatives. Mitigation measures would not be necessary for the Proposed Action because net loads of TP and TDS to Utah Lake would not be increased from existing conditions, and ambient concentrations of TP and TDS in Utah Lake would not increase from existing conditions. Mitigation measures may be appropriate for the Bonneville Unit Water Alternative and the No Action Alternative to offset increases in TP and TDS load to Utah Lake. The District has been participating with the State in development of TMDLs for TP and TDS, and will continue to work with State as the TMDLs are developed.

Comment 27.4

The first option could be followed to address the situation where the State TMDL is not available prior to delivery Strawberry Reservoir water under any of the alternatives. The second option would address the situation where the ULS Lead Federal Agencies and other project proponents work with the State to develop the TMDL prior to delivery of Strawberry Reservoir water. Development of TMDLs for the relevant pollutants would result in a plan that would define the level of control, if needed, to avoid further exceedences of standards in Utah Lake and prevent any selected alternative from contributing to water quality standards exceedences. We believe the project proponents can play a key role in the State's effort to develop and implement TMDL plans for Utah Lake. We encourage you to work with the State and other affected parties to improve the water quality of Utah Lake such that it can be removed from the 303(d) list.

Response 27.4

Please see comment response 27.3.

Comment 27.5

This DEIS continues to project water quality degradation as a result of both the existing M&I system and the new proposal under the ULS project.

Response 27.5

Please see comment responses 27.2 and 27.3. The ULS EIS only assesses the impacts of the ULS project on the affected environment.

Comment 27.6

The DEIS presents impacts related to both total phosphorus (TP) and total dissolved solids (TDS). The results of the TP analysis are expressed as changes to the annual loading into Utah Lake corresponding to each alternative. The results of the TDS analysis are presented as changes to in-lake concentrations at various monitoring stations. As indicated before, the Utah DEQ has identified Utah Lake as impaired due to TP and TDS on its Section 303(d) list of water in needs of TMDLs. Any increase in TP loadings and TDS concentrations are seen as further degradation to an impaired water and a contribution to current exceedences of state water quality standards.

Response 27.6

Please see comment responses 27.2 and 27.1.

Comment 27.7

The TP analysis was done without a substantial amount of data. As such, it is difficult to predict water quality responses with much accuracy. What does appear certain is that all alternatives have some level of negative effect on TP through increased loadings to Utah Lake over loadings portrayed for the historic baseline.

Response 27.7

The Joint-Lead Agencies disagree that the TP analysis was done without a substantial amount of data, and that all alternatives have some level of negative effect on TP through increased loadings to Utah Lake over loadings portrayed for the historic baseline. The revised TP analysis presented in the FEIS, Chapter 3, Section 3.3.8, Environmental Consequences (Impacts) was prepared using 204 TP data points from the lower Provo River at the Utah-114 crossing, 127 TP data points from Hobble Creek at I-15, 158 TP data points from the lower Spanish Fork River at Lakeshore Diversion, 32 TP data points from the Syar Tunnel outlet at Sixth Water, and 265 TP data points for wastewater treatment plants (WWTPs) discharging into Utah Lake or tributary streams. The Other Inflow TP value was estimated based on a simple mass balance model of Utah Lake TP concentration. These data points are from the period 1990 through 1999, which is the study period recommended by the Utah Division of Water Quality to the Joint-Lead Agencies. The WWTP TP concentration used was obtained from the Phase 1 EPA Clean Lakes Study, Diagnostic and Feasibility Report on Utah Lake (May 1999). According to the WWTP TP concentration data reviewed, the 3.0 mg/L TP concentration used in the revised TP analysis is at the lower end of the concentration range for WWTP discharge TP concentrations. Average TP concentrations representing each inflow source and average inflows were calculated and used to estimate the TP loads by major source category. This statistically-based method provided an appropriate level of accuracy for the impact analysis. The revised TP analysis displays the estimated impacts of the ULS project for NEPA compliance purposes, and is not the level of exhaustive analysis that would be performed to develop a TMDL. The revised TP analysis shows that the Proposed Action would result in no net change on TP loads to Utah Lake compared to TP loads occurring under historic baseline conditions. The Bonneville Unit Water Alternative and No Action Alternative would increase TP loads to Utah Lake compared to TP loads occurring under historic baseline conditions.

Comment 27.8

The DEIS portrays the magnitude of effect of TP to be minor, but the accuracy of that projection is questionable even though it is based on all available information.

Response 27.8

Please see comment responses 27.2 and 27.7.

Comment 27.9

It is not clear what the localized effects may be within the Lake in those areas where the increased TP loadings are highest.

Response 27.9

Please see comment response 27.2. The revised water quality analysis in Chapter 3, Section 3.3.8.3 demonstrates that the Proposed Action average TP inflow concentration of 0.09 mg/L for Spanish Fork River would be 0.01 mg/L lower than the average TP concentration in Utah Lake at STORET station 491770 near the mouth of the Spanish Fork River. The Proposed Action average TP inflow concentration of 0.05 mg/L for Hobble Creek would be 0.07 mg/L lower than the average TP concentration in Utah Lake at STORET station 491777 near Provo Bay. The Proposed Action average TP inflow concentration of 0.06 mg/L for Provo River would be 0.01 to 0.07 mg/L lower than the average TP concentration in Utah Lake at STORET stations 491739, 491734, and 491740 near the mouth of the Provo River. The net effect of Strawberry Reservoir water flowing through Spanish Fork River, Hobble Creek, and Provo River dilutes and reduces TP concentrations in Utah Lake.

Comment 27.10

The effects of TDS are projected to vary with decreasing concentration in one part of the Lake and significant increase (i.e., 25% increase from historic baseline for the preferred alternative) in yet another part. Those sites where significant increases in TDS are projected are at monitoring stations reporting data below the State water quality standard of 1200 mg/l. However, any increase in TDS concentrations may be considered "significant environmental" degradation simply because of the magnitude of the increase.

Response 27.10

The EPA comment raised the issue of significant increase in TDS, which caused the Joint-Lead Agencies to re-analyze the water quality data for Utah Lake. As a result of the re-analysis, the Joint-Lead Agencies found mistakes and a significant anomaly in the hydrologic events in 1992 and 1993. Thank you for the comment.

Please see the revised text in Chapter 3, Section 3.3.8.3.1.1 Utah Lake regarding TDS concentrations in Utah Lake. The data shown in FEIS Table 3-20, ULS Proposed Action, includes the in-lake concentration of TDS that would occur on specific dates as simulated using the LKSIM 2000 model. The LKSIM 2000 model incorporates inflows, evaporation, outflows, and operations by the State Engineer because Utah Lake is operated as a reservoir to meet water rights. The ULS and the M&I System (Jordanelle Reservoir) exchange water originates in Strawberry Reservoir, which has an average TDS concentration of 159 mg/L. When the Strawberry Reservoir water is mixed with and conveyed through the Spanish Fork River under the Proposed Action, the resulting inflow to Utah Lake has an estimated TDS concentration of 488 mg/L. When the Strawberry Reservoir water is mixed with and conveyed through Hobble Creek under the Proposed Action, the resulting inflow to Utah Lake has an estimated TDS concentration of 230 mg/L. When the Strawberry Reservoir water is mixed with and conveyed through the Provo River under the Proposed Action, the resulting inflow to Utah Lake has a TDS concentration of 257 mg/L. ULS project return flows to Utah Lake under the Proposed Action would have an estimated TDS concentration of 457 mg/L. Wastewater treatment plant inflows to Utah Lake have an estimated TDS concentration of 600 mg/L (based on Table 3-5, Metcalf and Eddy 1979). Other inflows (irrigation return flows, other tributary inflows, springs, etc.) are estimated to have a TDS concentration of 450 mg/L (derived from LKSIM2000 model inflow and outflow concentrations). Therefore, the impact of the ULS inflows would be to dilute and reduce TDS concentrations in the primary tributary inflows and would dilute and reduce in-lake TDS concentrations.

The revised text in Chapter 3, Section 3.3.7.1.1.2 Total Dissolved Solids describes in-lake TDS concentrations as being generally uniform throughout the lake on historic sampling dates. TDS concentration data for STORET station 491731 (0.5 mile west of the Geneva Discharge site) collected during the period from 1990 through 1999 and lake volume show a correlation index of $r^2 = 0.811$ between increasing lake volume and decreasing TDS concentration.

The Joint-Lead Agencies disagree with the EPA that any increase in TDS concentrations may be considered "significant environmental" degradation within Utah Lake simply because of the magnitude of the increase. Chapter 3, Section 3.3.8.1 Significance Criteria identifies that the Utah water quality standard of 1200 mg/L TDS for agricultural irrigation water is the significance threshold for the TDS water quality analysis. Increases in TDS resulting from direct, indirect and cumulative impacts of the ULS project to a level below the significance threshold are disclosed by the Joint-Lead Agencies as impacts in the EIS. The 25 percent increase in TDS concentration shown for July 1993 in Table 3-17 of the DEIS was an error, as were other values in the same table and in Table 3-24. These tables have been revised in the FEIS Chapter 3, Section 3.3. The correct estimated change from historic baseline TDS is +17.9 percent in July 1993, which coincides with several anomalous events: 1) Utah Lake volume dropped to approximately 208,000 acre-feet in August 1992; 2) 40,000 acre-feet of Strawberry Reservoir water was conveyed down Spanish Fork River to supplement Utah Lake volume in winter 1993; 3) Jordanelle Reservoir began storing Provo River water in April 1993 significantly reducing the Provo River inflow to Utah Lake; 4) the 1993 winter snowpack and precipitation resulted in an extreme spring runoff to Utah Lake; and 5) the lake volume doubled from 309,000 acre-feet in December 1992 to 691,000 acre-feet in June 1993. The effect of these anomalous events was to decrease the Utah Lake TDS concentration in July 1993 at the one station sampled, because of dilution with low TDS water and increased volume. However, the LKSIM 2000 model projected a somewhat higher TDS concentration with the ULS project and did not reflect as much TDS dilution in the lake. This single month with higher predicted TDS concentration should be balanced against the 4 other months when the predicted TDS concentration is lower than the historic baseline. The TDS dilution from Bonneville Unit inflows to Utah Lake beginning with 1995 is demonstrated by the in-lake TDS concentrations that occurred from 1995 through 1999, which ranged from 700 to 924 mg/L, at least 276 mg/L below the 1200 mg/L water quality standard for agricultural irrigation water.

During the revisions to Chapter 3, Section 3.3 Surface Water Quality, the Joint-Lead Agencies concluded that the TDS concentrations with the ULS Proposed Action (Table 3-17 in the DEIS) and the Bonneville Unit Water Alternative (Table 3-24 in the DEIS) represent cumulative concentrations rather than concentrations caused solely by the ULS. Chapter 3, Section 3.27.2 Surface Water Quality has been revised to disclose such changes in TDS concentrations as cumulative impacts resulting under ULS operations. Regarding the EPA's comment on "significant environmental" degradation simply because of the magnitude of the increase, historic TDS concentrations between 1990 and 1999 ranged from 682 to 1330 mg/L in Utah Lake because of the combined effects of evaporation, tributary and wastewater treatment plant inflows, other inflows including salt springs and irrigation return flows, upstream water demands, and State Engineer operations of Utah Lake volume and levels, all independent of the ULS project. The cumulative impacts resulting from any increased TDS concentrations in Utah Lake with the ULS project are well within the natural variation in the historic TDS data and would not constitute a "significant environmental" degradation of water quality in Utah Lake.

Comment 27.11

The project purpose needs to be more clearly defined. The project purpose is to be the underlying purpose for which the agency is developing alternatives. (40 CFR 1502.13) The Bonneville Unit of the Central Utah Project (CUP) was initially, and continues to be, primarily a water supply project. The various modifications to CUP over the years have been to eliminate portions of the water supply (e.g., the Irrigation and Drainage system) or add mechanisms to increase water supply while reducing environmental impact (i.e., Central Utah Project Completion Act (CUPCA)). While arguably unrelated purposes have been added (e.g., power generation), realistically such purposes were added to improve the funding potential for the project. They do not alter the amount of water always envisioned to be developed. The purpose and need discussion in the DEIS (pg. S-1) confuses this basic, underlying, water supply project purpose by listing seven purposes, none of which clearly state that increasing municipal water supply is the basic project purpose.

Response 27.11

The EPA comment does not correctly state the full regulation addressing purpose and need in the CEQ regulations. 40 CFR 1502.13 Purpose and Need states "The statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." CEQ does not limit the discussion to just the identification of the underlying purpose, but also the underlying need. As defined in Webster's Dictionary, a need is a condition requiring supply or relief. The first need listed in the Summary, S.2 Purpose and Need clearly identifies the underlying need to supply Bonneville Unit water and project water from other sources to meet some of the municipal and industrial (M&I) demand in the Wasatch Front. The need is clear; the Wasatch Front needs additional water to supply the growing population of the area. Chapter 1, Section 1.2.1 Explanation of Needs provides a discussion of the needs within the area of concern.

Purpose is defined in Webster's Dictionary as an object or end (goal) to be attained. The purposes listed in the Summary, Section S.2 clearly provide a set of objectives and goals to be attained by the Proposed Action and alternatives.

The purpose of power generation was not added to improve the funding potential for the project. The Sixth Water and Upper Diamond Fork power facilities provide an opportunity to generate hydroelectric power with minor construction impacts and no operation impacts, and meet a growing demand for electric energy.

Comment 27.12

Perhaps the best statement which indicates the confusion related to the project purpose is contained in the Alternatives discussion on page 1-158 where it is indicated: "During the study of methods to distribute the ULS water supply, numerous alternatives were identified and studied that would develop and deliver the remaining Bonneville Unit water supply plus District-owned water in Utah Lake that would be acquired by the DOI." This statement clearly indicates that the alternatives are various methods to develop and deliver the water supply.

Response 27.12

Please see comment response 27.11.

Comment 27.13

This confusion is expanded in the Clean Water Act Section 404(b)(1) evaluation (DEIS Appendix C) where it is stated that: The basic purpose is to define alternatives that would provide M&I water to the Wasatch Front are in addition to that committed to in the 1979 and 1986 M&I Environmental Impact Statements." While the phrasing of this statement is questionable (e.g., the basic project purpose is probably not to "define alternatives"), the statement appears to indicate that the basic purpose is to develop additional water supply, over and above the water supplies committed to in previous Bonneville ***Unit EISs.***

Response 27.13

Please see the revised text in Appendix C, Section C.2.1, Project Purpose in the Final EIS.

Comment 27.14

To resolve the confusion, the project purpose statement needs to be a clear, concise statement of the problem to be solved. In this case, the problem is inadequate Municipal and Industrial (M&I) water supply. Therefore, the basic project purpose is to increase the M&I supply. The amount of increase needed should be based on a verifiable analysis of the water demand. The alternatives should be methods to reduce the difference between available supply and existing/project demand. This can be accomplished by increasing supply, reducing demand, or both.

Response 27.14

Please see comment response 27.11 and 27.20.

Comment 27.15

While not clearly stated, the alternatives analyzed in detail in the DEIS provide two levels of increased water supply over that committed to in previous EISs. The no action alternative would implement the previous decisions and deliver 86,100 AF of Strawberry Reservoir system water to Utah Lake via the Diamond Fork System and Spanish Fork River. This water is ultimately diverted from the Provo River via exchanges to M&I supplies in Salt Lake County. Each action alternative delivers a different amount of water in a different manner to different locations. This results in different impacts, and differing levels of meeting the other "purposes" listed in the DEIS. None of the alternatives provide a water supply adequate to meet the projected water demands.

Response 27.15

The Joint-Lead Agencies have tiered the ULS EIS off previous EIS and Record of Decision (ROD) documents, including the 1979 Municipal and Industrial (M&I) System EIS and ROD, the 1987 M&I System EIS and ROD, the 1990 Final Supplement to the Final EIS for the Diamond Fork Power System EIS and ROD, and the 1999 Final Supplement to the Final EIS for the Diamond Fork System and ROD. These documents successively commit to delivering 101,900 acre-feet of Bonneville Unit water to the Wasatch Front. The ULS EIS supports the delivery of water for increasing M&I demands and completes the NEPA compliance for delivery of the remaining uncommitted water, which is part of the 101,900 acre-feet. The ULS alternatives are not intended to meet the total water demands of the Wasatch Front.

Comment 27.16

The project alternative of reducing demand to solve the problem of inadequate water supply is incorporated into each alternative by requiring a certain level of demand reduction by the project water recipients. The EIS needs to document how demand reduction will be measured and enforced for the life of the project.

Response 27.16

Section 1.2 of the Final EIS identifies the purposes and needs for the project. One of these purposes is to develop and implement water conservation measures, which is incorporated into each of the action

alternatives. These water conservation measures are identified and discussed in some detail in Section 1.2.2 of the Final EIS. Between the DEIS and this Final EIS, DOI, the District, and the District's M&I petitioners have negotiated water petition contracts which require the District and its petitioners to implement water conservation measures to comply with the State of Utah's water conservation goals of a 12.5 percent reduction in per capita water use by 2020 and a 25 percent reduction in per capita water **use by 2050. Section 1.2.1.2.1.1 of the Final EIS describes how this reduction in per capita water use will be measured and enforced for the life of the project.**

Comment 27.17

The EIS does not address growth-related land use alterations as methods to reduce demand. Such alternatives should be evaluated to further reduce demand. Particularly in areas where increased development is projected but has not been designed.

Response 27.17

Growth-related land use alterations as methods to reduce water demand are beyond the scope of the ULS project. The Governor of the State of Utah prepared a report titled "Envision Utah-Quality Growth Strategy and Technical Review", January 2000 that presented various land use development concepts, which would reduce or encourage reduction in per capita water use.

Comment 27.18

The EIS does document that future water demands (132,000 AF in 2050) greatly exceed the new water supplies available from the preferred alternative (60,000 AF). While the preferred alternative is portrayed as reducing impacts (particularly groundwater alterations and associated wetland and other related habitat) over those displayed for the No Action alternative, this reduction is really short-term avoidance as such impacts are projected to occur in the future as the project water is used up and the Wasatch Front communities develop their remaining groundwater sources.

Response 27.18

The Joint Lead Agencies agree with your observation. Thank you for your comment.

Comment 27.19

Each section of the impact analysis presents a very useful listing of major assumptions developed for each of the disciplines. However, there is no indication why the lead agencies believe any of the assumptions are correct. The rationale for inclusion of the assumption, and to support each assumption, needs to be clearly explained in the EIS. For assumptions where the lead agencies cannot present rationale to support the validity of the assumption, the lead agencies need to address any unavailable information as presented at 40 CFR 1502.22 (incomplete or unavailable information). Without an understanding of the validity of the assumptions being made, it is not possible to determine if the resultant analysis is valid and it is not possible to complete a valid 404(r) evaluation.

Response 27.19

Please see the revised text for the assumptions in each resource section of Chapter 3, Affected Environment and Environmental Consequences and Appendix E in the Final EIS.

Comment 27.20

Pg 1-17 – In the DEIS the Lead agencies have established an average daily M&I water usage ranging from 180 to 220 gallons per capita per day (gpcd) to be eligible for Bonneville Unit water. EPA strongly supports development of criteria specific to water use as requirements to participate in the Central Utah Project water supply system. However, the DEIS does not explain the rationale for selection of these specific values, why there is a range of values, nor how pre- and post-participation compliance with these criteria would be measured. This missing information is extremely important as it establishes the only apparent method to assure compliance with the water conservation goals of CUPCA. It needs to include verifiable, consistent mechanisms to actually measure and publicly report annual water use and water savings for each supply entity.

Response 27.20

In Chapter 1, Section 1.2.1.2.1 of the EIS, the Joint-Lead Agencies indicated that they have established an average daily M&I water usage ranging from 180 to 220 gallons per capita per day (gpcd) for a petitioner to be eligible for ULS water. EPA is aware that the State of Utah has established a water conservation goal of a 12.5 percent reduction in per capita water use by 2020 and a 25 percent reduction in per capita water use by 2050, and that the ULS target conservation goal builds on the State's water conservation goals. When the District's M&I petitioners implement the contractually required 12.5 and 25.0 percent reduction in per capita water use, this is the range of use (180 to 220 gpcd) allowed depending upon the individual petitioner. Section 1.2.1.2.1 of the Final EIS has been revised to document the process that will be utilized to assure compliance with the water conservation goals of CUPCA and the State. This process does include verifiable, consistent mechanisms to actually measure and publicly report annual water use and water savings for each of the District's M&I petitioners. In addition, please see comment response 27.16.

Comment 27.21

Mechanisms also need to be documented and in place to address situations where annual water use exceeds the eligibility criteria. Section 1.2.1.2.5 restates the lead agencies' commitment in the Diamond Fork System FEIS to include such water demand information in the ULS process. These mechanisms need to be displayed in the EIS so the public and affected water suppliers have the ability to understand and comment prior to project implementation. These mechanisms need to assure that dual-water systems are also clearly quantified as we mentioned in our March 22, 2002, scoping comments. Since this EIS is the final major NEPA compliance document for the Central Utah Project, the water conservation discussion needs to quantifiably document how the project has complied with Section 207 of the Central Utah Project Completion Act (CUPCA), and how it will maintain compliance in the future. Particular emphasis needs to be placed on documentation of long-term compliance with CUPCA Section 207(4).

Response 27.21

See comment responses 27.16 and 27.20. In addition, Sections 1.1.2.3.4 and 1.2.1.2 of the Final EIS have been expanded and revised to discuss and to quantifiably document how the project has complied with the water conservation goals required under Section 207 of CUPCA, and how compliance with these water conservation measures will be maintained in the future. This expanded and revised text also discusses the "use of saved water" as authorized in section 207(b)(4) of CUPCA.

Comment 27.22

The EIS also needs to present the methods to be used to determine if a water conservation program is acceptable. It has been EPA's experience that water conservation plans that rely solely on educational and subsidy approaches (such as portrayed for Jordan Valley Water Conservancy District) are not effective in reducing water demand over the long term. For example, the May 19, 2004, Salt Lake Tribune presented a comparison of the year-to-date water use in Salt Lake City which indicated that while water use in 2004 was below the three-year average, water use in 2003 was above the three year average.

Response 27.22

Please see comment responses 27.16, 27.20, and 27.21.

Comment 27.23

How would the lead agencies determine if the water conservation eligibility requirements would be met based on such variable water conservation results? Long-term averages may not be sufficient, as the result would not be available until after the water had been delivered, and infrastructure had been developed which encouraged the overuse during development of the long-term average data.

Response 27.23

See responses to comments 27.16, 27.20, and 27.21. In addition, please see revised Sections 1.1.2.3.4 and 1.2.1.2.1.1 in the Final EIS.

Comment 27.24

Pg 1-18 – There needs to be an established definition of "conservation" as it pertains to the conservation plans for the Utah Lake System. Membrane treatment is a water treatment mechanism that allows treatment of a water supply that was not previously used, i.e., acquisition of a new water supply, not reduction in water demand. It needs to be clear that the gpcd values established for program eligibility are not confounded by bringing new water supplies on line by use of methodology that allow reuse of water. Water conservation should be treated as demand reduction, not increased water supply.

Response 27.24

There are three definitions of "water conservation" for the ULS project. The first definition is derived from Section 207 (a) (1 through 6) of Public Law 102-575, Central Utah Project Completion Act (CUPCA), which promotes cost-effective and environmentally sound means to: encourage conservation and wise use of water; reduce probability and duration of periods necessitating extraordinary curtailment of water use; achieve beneficial reductions in water use and system costs; prevents or eliminates unnecessary depletion of waters in order to assist in improving and maintaining water quantity, quality, and streamflow conditions necessary to augment water supplies and support fish, wildlife, recreation, and other public benefits; make prudent and efficient use of currently available water prior to importing any Bear River water into Salt Lake County; and provide a systematic approach for accomplishing conservation and an objective basis for measuring achievement. This is primarily applicable to the portions of the ULS project that involve Section 207 of CUPCA. The second definition is found in the ULS petitions for water (i.e., water contracts with water conservancy districts), which require water conservation goals for reducing per capita water use within the conservancy district boundaries. This is applicable to the water conservation plans required as part of the ULS and enforceable through contracts with petitioners. The third definition is an authorization in the CUPCA Amendment (Public Law 107-366) enacted in December 2002 to provide "water conservation measures" through the use of reverse osmosis, water recycling and conjunctive use. This is primarily oriented to extending and adding water to the current water supply.

Comment 27.25

Page 1-28 – The last paragraph discusses the CUPCA instream flow requirements of providing 75 CFS between the Olmsted diversion and Utah Lake. The language in this discussion omits a significant term ("exchange") which occurs in the legislation. The EIS should explain the efforts that have been made via exchange to acquire such waters. In particular, use of CUWCD waters via exchange should be addressed. To date, 3,300 AF of summer irrigation flows have been acquired. When 3,300 AF is distributed over the 6-month irrigation period, an average flow of only 9.1 CFS results. Since this standing offer for water purchase has existed since 1992, and only 9 of the 75 CFS (and that only for the summer period) has been acquired, the EIS needs to document what will happen if the 75 CFS is not acquired, and how the impact analysis projected for the ULS system would be altered by the reasonable assumption that additional instream flows will not be acquired from willing sellers.

Response 27.25

The comment incorrectly states that CUPCA imposes "...instream flow requirements of providing 75 cfs between the Olmsted Diversion and Utah Lake" (emphasis added). CUPCA authorized in section 302(a) $15 million in 1991 funds for the acquisition by "purchase from willing sellers or exchange, twenty-five thousand acre-feet of water rights ... to achieve the purposes of this section"; and section 303(c)(4) states that "Upon acquisition of the water rights (emphasis added) ... identified in section 302 ..." the yield and operating plans of the Bonneville Unit would be established or adjusted to provide the minimum in-stream flows. From these statutes, the Joint-Lead Agencies have determined that sections 302 and 303 together authorize funds for acquisition of water rights for the purpose of establishing a minimum instream flow in the Provo River from Olmsted Diversion to Utah Lake, but because of the restriction on using the funds for acquisition from willing sellers only, that this is an objective but not a mandate that 75 cfs must be provided unless and until sufficient water rights are acquired. Nonetheless, since 1994, the Joint-Lead Agencies have endeavored to acquire water and water rights in satisfaction of section 302(a) and to date, water rights and water shares in irrigation companies, constituting only approximately 3,300 acre-feet under a full supply (which may be reduced in some years based on hydrologic yield of the watershed) have been acquired from willing sellers. Recognizing the increasing cost and decreasing availability of water rights on the willing seller market to achieve this objective, the Joint-Lead Agencies believe that satisfaction of the objective of sections 302(a) and 303 (c)(4) will not be achievable only through purchase of water rights on a willing seller basis. The Joint-Lead Agencies therefore incorporated the objective of providing minimum in-stream flows of 75 cfs into the planning for the ULS project by utilizing the funding authorized in section 302(a) to do so. Constructing and operating the Proposed Action to provide an average 16,000 acre-feet of project water annually to be delivered to Utah Lake via the Spanish Fork-Provo Reservoir Canal Pipeline to the lower Provo River helps accomplish the objective established in sections 302(a) and 303(c)(4) to provide a minimum in-stream flow of 75 cfs in the lower Provo River.

In addition to natural flows that are sometimes available, the use of exchanges has been and will be continued to be applied under each ULS alternative including the No Action Alternative, to help achieve the 75 cfs in-stream flow objective. Bonneville Unit operations provide for the "exchange" of some direct flow water that has been acquired in the following manner. When acquired direct flow water is not needed in the river for minimum flows, it is delivered to Bonneville Unit M&I petitioners if they are calling for Bonneville Unit water. This action frees up by "exchange" Bonneville Unit storage water that can be regulated in time and quantity in the reservoirs for delivery as minimum flows to the stream. This approach has been applied to the extent allowed by law, and has been incorporated into the planning for each alternative. The amount of water that can be made available through exchange is limited, however, by the amount of water rights that have been acquired, among other things. The No Action Alternative describes the anticipated hydrologic regime with no additional acquisitions under Section 302(a) and utilizing all exchange possibilities. The FEIS does not need to be revised to show the consequences of this action, as it is already included in the DEIS and supporting technical reports.

Comment 27.26

Pg 1-29 – Section 1.2.1.4 indicates that DOI would acquire up to 57,000 acre feet of CUWCD's secondary water rights. These would become Central Utah Project water. In DEIS Section 1.3, it is indicated that the action alternatives would include federal acquisition of some or all of the CUWCD's secondary water rights in Utah Lake (emphasis added). The document should clarify if the 57,000 AF is all, or just a portion of CUWCD's Utah Lake water rights. If 57,000 AF is just a portion of CUWCD rights, the percent involved should be documented. An explanation of the significance of the term "secondary" should be provided. If there are additional CUWCD water rights, the amount and availability, should be included. Since CUWCD is a Federal agency for purposes of the Central Utah Project, there should be a clear explanation of why DOI needs to acquire water rights from another "Federal" Agency to implement the project. There should be discussion of why CUWCD water rights have not been available for purchase to meet the instream flows required by Section 302(a) of CUPCA.

Response 27.26

Under the Proposed Action, DOI would acquire 57,073 acre-feet of the District's secondary water rights in Utah Lake, and the associated water supply would become project water. Section 1.3 of the Final EIS has been revised to better describe all of the District's water rights in Utah Lake, and the portion of those rights to be acquired by the United States under each alternative. Since the District is a private entity, and is only considered a Federal agency for purposes of NEPA compliance, acquisition by the United States is necessary to transfer ownership. Although the District has additional water rights in Utah Lake, detailed studies by the Joint-Lead Agencies indicate that the opportunity to meet the in-stream flows objectives contained in section 302(a) of CUPCA have already been maximized under the Proposed Action.

Comment 27.27

Pg 1-30 – Section 1.4.1 indicates that the 30,000 AF of CUP M&I project water delivered to southern Utah County is being provided for use in "secondary water systems." The "secondary water systems" are non-potable outdoor irrigation systems typically developed as a dual water system. The use of this water needs to be better explained so that the reader can understand why future NEPA compliance would be required for this water to be converted to a potable, indoor water system.

Response 27.27

Chapter 1, Section 1.4.1 in the Final EIS has been revised to better indicate that "secondary water systems" are non-potable outdoor irrigation systems typically developed as dual water systems and to explain why future supplemental NEPA compliance would be required for this water to be converted to a potable, indoor water system.

Comment 27.28

What types of additional impacts are expected from this conversion that cannot be evaluated today?

Response 27.28

Since the South Utah Valley Municipal Water Association and its member cities do not plan to utilize the 30,000 acre-feet as a potable water supply, it is beyond the scope of this EIS and entirely speculative to guess what types of additional impacts could be expected from such a conversion. However, the Joint-Lead Agencies anticipate that there could be impacts depending whether all or only a portion of the 30,000 acre-feet would be converted to a potable water supply, the location of the required water treatment facilities, impacts associated with the construction of the treatment facilities and their impacts on wetlands, stream flows, etc., and whether additional potable distribution systems would have to be constructed and their potential impacts on wetlands, and other resources.

Comment 27.29

The EIS discussion needs to clearly explain why calling the CUP supply "agricultural water" is, or is not, important. Some of the local communities have indicated that the availability of Central Utah Project Water will actually result in reduced water rates (Deseret News, 15 May 2004, Spanish Fork may cut cost of irrigation) which will result in increased use, not water conservation.

Response 27.29

The DEIS clearly indicates that the 30,000 acre-feet of ULS M&I water being made available to South Utah Valley Municipal Water Association and its member cities is for utilization in secondary systems within the cities. The repayment contract with the District and the M&I petition with the South Utah Valley Municipal Water Association and its member cities make the water available at an M&I rate. These M&I rates, together with the cost of constructing the secondary systems, would actually result in increased water rates. In addition, please see comment responses 27.16 and 27.20.

Comment 27.30

Pg 1-45 – Section 1.4.2.5 discusses the provision of project features for the potential future use by the June sucker recovery implementation program. There is an indication that the future actions, if they occur, will have to show that the pipeline is "economically justified." Since the preferred action contains many structures and operational features to address the June sucker recovery implementation program, similar economic justification to support the preferred action as it relates to the June Sucker recovery should be included in this EIS.

Response 27.30

The only purpose of the Santaquin-Mona Reservoir pipeline (Chapter 1, Section 1.4.2.5) would be to provide a water supply for a conservation pool in Mona Reservoir that could be utilized as a refugia for the endangered June sucker. Since the June Sucker Recovery Implementation Program has not yet endorsed the refugia in Mona Reservoir or the pipeline, and has not acquired the necessary water supply and agreements, supplemental NEPA compliance will be necessary. In addition, the June Sucker Recovery Implementation Program will have to determine if the refugia, pipeline, and appurtenant facilities are "economically justified." The economic justification for the other structures and operational features included in the Proposed Action that assist in the recovery of the June sucker have already been addressed in the 2004 Supplement to the Definite Plan Report that was made available to the public along with the DEIS.

Comment 27.31

Pg 1-78 – Section 1.4.9.4.3 discusses the water which would be saved under various CUPCA Section 207 conservation programs. This water is being used to replace flows in the lower Provo River for June Sucker recovery purposes. It is mentioned that some undocumented amount of this water will be provided by future yet to be defined 207 projects. This amount of water should be quantified to show how much water will actually be available upon pipeline completion.

Response 27.31

Section 1.4.9.4.3 of the DEIS indicates that the Joint-Lead Agencies are committing to provide 12,165 acre-feet annually that would be released to the lower Provo River to assist in recovery of the endangered June sucker. Of this amount, 4,165 acre-feet of permanent water has already been obtained, 6,300 acre-feet has been obtained on a temporary for the next 10 years, and 8,000 acre-feet would be conserved and made available to DOI from either enclosure of the Provo Reservoir Canal or other future 207 projects on a permanent basis. Please see comment response 15.20.

Comment 27.32

The timing of the 3,000 AF of Section 207 water envisioned from the Springville-Mapleton area for Hobble Creek should also be presented.

Response 27.32

Chapter 1, Section 1.4.9.4.2 Mapleton-Springville Lateral Piping has been revised in the Final EIS. This water is included in the 12,037 acre-feet of water shown in Table S12-b of Section 2 and the 23,510 acre-feet of water shown in Section 3, of the Surface Water Hydrology Technical Report, Volume 3, Appendix B. In almost all years, this water is released from Strawberry Reservoir as needed to satisfy the assumed June sucker flow requirements in April, May, and June (most frequently in April), until it is used up. During extremely wet springs (such as occurred in the early 1950s, and in 1982), when the naturally occurring water is adequate to meet the June sucker flow requirements, the water may not be released until later in the summer.

Comment 27.33

Pg 1-85 – The footnote to Table 1-13 indicates that some of the conserved water is included in the 3,300 AF acquired for instream flows. CUPCA Section 207(b)(4) indicates that Section 207 water savings may be used for instream flows, however they are to be "in addition" to flows acquired under CUPCA Section 303. This distinction should be explained so that an assessment of the actual amount of water that has been acquired for instream flows under each section of the CUPCA programs can be assessed and tracked independent of the other CUPCA program instream flow acquisitions. Since June sucker flows are typically planned for the April through July period, these flows need to be separated from the annual average flows requirement of 75 CFS.

Response 27.33

The footnote to Table 1-14, which indicates "that some of the conserved water is included in the 3,300 acre-feet of water acquired....toward meeting the 75 cfs target flow" is correct. A detailed explanation of the 3,300 acre-feet of water that has been acquired to date for the 75 cfs target flow and the source of the water was provided in the "Provo River Spreadsheet Model – Schematic" located in Section 2 of the Surface Water Hydrology Technical Report, Volume 2, Appendix A, which is part of this EIS. Please see comment response 27.25.

Comment 27.34

Pg 1-145 – Table 1-35 indicates that one of the necessary agreement for implementation of the preferred alternative is a CUPCA Section 207 agreement for the Springville-Mapleton pipeline. How do these agreements incorporate the water conservation goals and requirements of CUPCA?

Response 27.34

Chapter 1, Table 1-36 identifies as necessary contracts or agreements, including a repayment contract and three-M&I water petitions. These four contracts will incorporate the water conservation goals and requirements of CUPCA. In addition, please see comment responses 27.16, 27.20, 27.21, and revised Chapter 1, Sections 1.1.2.3.4 and 1.2.1.2 of the Final EIS.

Comment 27.35

Pg. 1-158 – The alternatives considered but eliminated section provides various approaches to cost comparisons (absolute dollars, percent differences) as rationale to eliminate alternatives from detailed analysis. This analysis should include a consistent approach so the eliminated alternatives costs can be compared to each other , as well as to the selected alternatives.

Response 27.35

Please see the revised text in Chapter 1, Section 1.11 Alternatives Considered but Eliminated from Detailed Analysis in the Final EIS.

Comment 27.36

Pg. 1-163 – The rationale for elimination of the Strawberry Reservoir – Daniels Pass Alternative is primarily based on erosion and resultant sedimentation impacts. There is no indication of the magnitude of these impacts, nor the ability to avoid via design or mitigate for the impacts, particularly if they are relatively small. This rationale should be expanded to provide sufficient detail for the reader to understand the significance of the impacts.

Response 27.36

Please see the revised text in Chapter 1, Section 1.11.6 Strawberry Reservoir-Daniels Pass Alternative in the Final EIS.

Comment 27.37

Pg. 1-164 – The Strawberry Reservoir – Deer Creek Reservoir Alternative was eliminated from consideration based on inability of the alternative to meet water quality requirements. While EPA supports this conclusion, it is inconsistent to use the total maximum daily load (TMDL) water quality requirements to eliminate this alternative, yet dismiss the need to evaluate the increases of nutrient loading to Utah Lake for lack of a TMDL. Utah Lake has been identified by the State as not currently meeting its water quality standards due to total dissolved solids and total phosphorus. Until such time as the TMDL is established and numeric nutrient goals are established as part of the TMDL, it is incumbent on the project proponent to demonstrate how all the alternatives will avoid impacting the affected environment in Utah Lake.

Response 27.37

Please see comment responses 27.2 and 27.7.

Comment 27.38

Pg. 2-3 – Impact Comparison Table – This Table is the single side-by-side comparison of the three alternatives analyzed in detail in the DEIS. Many of the parameters used for this table do not provide the reader with the ability to make an adequate comparison. For example, under Water Quality Resource, the values are presented as actual values with no indication if these are average, maximum or minimum values. Often water quality comparisons based on averages are not meaningful comparisons, as usually it is extreme water quality events that cause exceedences of water quality criteria. This Table is an area where the "affected environment" appears to sometimes be depicted as a future "baseline" condition, while other times it is depicted as the actual existing condition. EPA believes this is an incorrect approach *to defining* the affected environment and such an approach reduces the usefulness of this table.

Response 27.38

The values shown in the Surface Water Quality section of Table 2-1 are averages. The maximum, minimum and average values for water quality characteristics analyzed are shown in Chapter 3, Section 3.3 Surface Water Quality. Additional detailed analysis is presented in the Surface Water Quality Technical Report.

Comment 27.39

This Table is an area where the "affected environment" appears to sometimes be depicted as a future "baseline" condition, while other times it is depicted as the actual existing condition. EPA believes this is an incorrect approach to defining the affected environment and such an approach reduces the usefulness of this table.

Response 27.39

The affected environment (baseline condition) for the ULS must consider the full operation of the M&I System water on the Provo River. Conditions documented to occur on the Provo River in the 1979 M&I System EIS and approved by the decision document are partially occurring now and when the M&I System is fully operational, the full 90,000 acre-feet of M&I System water will be conveyed down the Provo River prior to the time when the ULS impacts will begin to occur. The following table shows the dates and amount of water that are in block notices issued by the Department of the Interior, which demonstrates that only a portion of the M&I System water has increased the flow in the Provo River. The remaining block notices to complete the full 90,000 acre-feet of M&I System water have been issued as of June 30, 2004. Please see the following on the block notices that have been issued.

Block Notice	*Date*		*Quantity (acre-feet)*
4A	*5/16/1986*		*11,000*
4B	*5/16/1986*		*9,000*
S22	*3/31/1995*		*5,000*
5A	*5/30/1997*		*13,000*
5B	*1/28/2000*		*2,400*
1A	*4/3/2000*		*15,100*
5C	*10/23/2002*		*7,900*
6	*6/30/2004*		*43,300*
		Total	*107,500*

Comment 27.40

The water quality analysis presented in the ULS DEIS is the water quality analysis committed to be completed for the Bonneville Unit in the Diamond Fork Supplemental FEIS. EPA raised significant concerns about the potential water quality of Utah Lake at that time, and those concerns remain. The water quality analysis in this document indicates water quality degrades from the Diamond Fork affected environment condition (presented as historic baseline) under all the alternatives. EPA indicated in previous CUP comment letters that without avoidance of adverse water quality impacts, the DOI and the CUWCD have not met their Clean Water Act responsibilities. This document continues to project water quality degradation as a result of both the M&I system as well as the new proposal under the ULS project.

Response 27.40

Please see comment responses 27.2, 27.5, 27.7, 27.9 and 27.10. Water quality impacts of the M&I System are included in the Provo River affected environment, upon which the ULS impacts were analyzed. Also, please see comment response 27.39.

Comment 27.41

The hydrology comparison in this Table (and other resources that rely on the groundwater alterations for impact prediction) presents a no action condition that is likely to result under all alternatives, just at a different point in time. This should be documented in the table.

Response 27.41

The action alternatives provide a short-term benefit to the groundwater resource that supports wetlands in southern Utah County during the period analyzed.

Comment 27.42

The Socioeconomic resource should include the actual cost/ acre-foot for the alternatives, not just for the no action alternative. The limited cost information available for the alternatives on page 3-347 indicates the alternatives would cost much more than the $1000/acre-foot listed for the no action alternative. It would also be useful if the increase in end-user cost was presented for each alternative so the public would understand project costs at the household level.

Response 27.42

The estimated annual costs per acre-foot shown in Table 3-80 for the No Action Alternate are entirely different and cannot be compared to the total estimated cost of the action alternatives provided in Chapter 3, Sections 3.29.2 and 3.29.3 of the EIS. Table 3-80 in Section 3.12 of the Final EIS has been expanded with volumes and cost per acre-foot of other water sources. Sections 3.12, 3.29.2 and 3.29.3 have been revised to include an estimated reimbursable cost per acre-foot of project M&I water.

Comment 27.43

Pg 3-2 – Description of existing environment. EPA continues to disagree with the lead agencies' approach to the description of the affected environment. The NEPA regulations at 40 CFR 1502.14 indicate that the impacts of all the alternatives (to include the no action alternative) are to be presented in a comparative form. This comparison is to be based on comparing the impacts of each alternative on the "affected environment." The "affected environment" is the "environment of the area(s) to be affected or created by the alternatives under consideration. (40 CFR 1502.15) The current DEIS has created a condition called baseline which is not representative of the environment that exists today, but, is a projection of what the environment would be after implementation of the no action alternative.

Response 27.43

The Joint-Lead Agencies disagree with EPA's conclusion. The DEIS and this FEIS describe a baseline condition that is representative of the environment that will exist when the full water supply for the M&I System is delivered to northern Utah County and Salt Lake County. The full water supply for the M&I System will be delivered annually before the impacts of the ULS occur. Please see comment response 27.39.

Comment 27.44

The no action alternative is the projection of the future "baseline" condition. The result is a comparison of impacts to the no action alternative, not the affected environment which is the NEPA requirement. EPA has raised this issue in our March 24, 2003, and October 23, 2003, letters, and it has not been altered in the document. We have several interagency discussions concerning this portrayal of the affected environment without resolution.

Response 27.44

The ULS No Action Alternative is not a projection of a future "baseline" condition. The ULS No Action Alternative is the future without the ULS project and with completion of the Bonneville Unit, which includes full operation of the M&I System and Strawberry Reservoir. This means that an average of 86,100

acre-feet of Bonneville Unit water from Strawberry Reservoir would be conveyed down the Spanish Fork River to make the exchange from Utah Lake to Jordanelle Reservoir to provide the full 90,000 acre-feet of water conveyed down the Provo River to meet the existing contracts under the M&I System. Please see comment response 27.39.

Comment 27.45

The Final EIS needs to be modified to present an evaluation of the existing environment, not a projected, future "baseline" that may or may not occur.

Response 27.45

Please see comment response 27.39.

Comment 27.46

Pg. 3-31 – Water Quality Analysis – The section uses the past 10 years of water quality data to represent the affected environment. This points out the inconsistency of the various approaches to "baseline" in the document. The other resource areas should use a similar approach to the affected environment with actual, recent data being used to represent the affected environment, not a projection of future conditions. The projected future conditions that result from the no action alternative should be the impacts of the no action alternative. This is also important from a Clean Water Act perspective to assure that sufficient information is available to make a determination of which alternative would have the least adverse impact on the aquatic ecosystem.

Response 27.46

The District consulted with the Utah Division of Water Quality during preparation of the ULS EIS water quality impact analysis. The Utah Division of Water Quality recommended that the ULS EIS water quality impact analysis be based on the past 10 years of water quality data. To accommodate this recommendation, the Joint Lead Agencies presented two analyses: 1) the water quality analysis using historic conditions to satisfy State of Utah water quality analysis concerns, and 2) the water quality analysis using simulated baseline conditions to satisfy NEPA compliance requirements. Please see comment response 27.39.

Comment 27.47

The discussion of available data does not mention water quality data acquired by the lead agencies as part of their mitigation commitments from previous portions of the project (see Appendix A, Environmental Commitments # 24 & 25.) Such data, particularly as it relates to the water quality of Utah Lake, should be included in the data evaluation to describe the affected environment.

Response 27.47

The water quality analysis presented in Chapter 3, Section 3.3 Surface Water Quality and in the Surface Water Quality Technical Report incorporates data from the Syar Tunnel Outlet at Sixth Water to estimate TP and TDS concentrations in the in-stream flow water conveyed via ULS pipelines to Hobble Creek and the Provo River. These water quality data are contained in Appendix A, Table A-7 of the Surface Water Quality Technical Report.

Comment 27.48

In general, it appears that the available water quality data for the project area is limited for a water quality analysis of this nature. The water quality of Utah Lake has been an important concern since the beginning of the Central Utah Project. It is now being further complicated by the use of two baselines, one of which is labeled historic and one which is labeled simulated.

Response 27.48

Please see comment responses 27.7, 27.10, 27.39 and 27.46.

Comment 27.49

Pg 3-338 – Section 3.27.4 discusses the cumulative wildlife impacts and mentions the future creation of the Utah Lake Wetland Preserve. The text indicates that the preserve would provide alternate habitat for wildlife displaced by the ULS project and its alternatives. The text should be expanded to document which wildlife species occur in the direct impact zone for the ULS project and how these species would relocate to the wetland preserve, and how these species would benefit from a preserve which is currently existing habitat, and, as such, is currently inhabited by wildlife.

Response 27.49

Please see the revised text in the Chapter 3, Section 3.27, Cumulative Impacts, Sections 3.27.4.1 and 3.27.4.3.

Comment 27.50

Pg 3-343 – This discussion presents a list of trade-offs for the various alternatives. In particular, it points out increases in phosphorus concentrations to levels above pollution indicator levels in the three Utah Lake tributaries impacted by the project. Based on the water quality analysis, these values (phosphorus concentrations) are increased under both action alternatives, while the no action alternative (3.28.4) indicates phosphorus concentrations would also increase. This inconsistency with the water quality analysis should be resolved.

Response 27.50

Please see the revised text in Chapter 3, Section 3.28 Short-Term Use of Man's Environment Versus Maintenance of Long-Term Productivity in the Final EIS.

Comment 27.51

This discussion also mentions that the no action alternative does not provide a means of meeting M&I water needs. However, none of the alternatives actually meet the M&I water delivery needs of the project area, rather they meet a different proportion of the total demand. As such, each alternative, including the no action alternative, does meet the basic project purpose of "increasing M&I supply."

Response 27.51

Please see comment response 27.15. The action alternatives are not intended to meet the total M&I water needs of the Wasatch Front. The ULS water supply is not sufficient to meet the total M&I water needs of the Wasatch Front. The No Action Alternative does not provide any new water, it only conveys water to Utah Lake for exchange to Jordanelle Reservoir so that 90,000 acre-feet can be delivered to Salt Lake County and Northern Utah County as described in the 1979 M&I System EIS.

Comment 27.52

This discussion indicates the no action alternative does not result in implementation of water conservation measures. To-date, water conservation has been essentially a voluntary mechanism within the CUP service area, and, as presented in the DEIS, would continue to be so. As such, as presented, none of the alternatives "require" water conservation. If water conservation is a project purpose, then alternatives should be developed to address water conservation independently of the ULS system. As discussed above, water conservation is an important requirement of CUPCA, and applies to all portions of CUP, including the no action alternative. The no action alternative should include similar water conservation requirements as the "action" alternatives.

Response 27.52

Please see comment responses 27.15 and 27.19. The Joint-Lead Agencies have no authority to develop water conservation requirements for the ULS area. The Joint-Lead Agencies can only require water conservation for the water developed and contracted to ULS project petitioners.

The ULS No Action Alternative does not develop additional M&I water and therefore, the Joint-Lead Agencies have no authority to impose water conservation on the use of water they have no jurisdiction over.

Comment 27.53

This discussion lists "maximization" of M&I water supply as a trade-off/benefit for the various alternatives. It also lists both the action alternatives as "maximizing" the Bonneville Unit M&I water supply, yet the action alternatives provide differing amounts of M&I water. How can differing amounts of supply both be considered as "maximization" of the supply?

Response 27.53

The action alternatives provide M&I water to different areas, consist of different facilities, and have a different M&I water supply. Therefore, when all of these factors are considered, both of the action alternatives "maximize" the available M&I water supply from the ULS project.

Comment 27.54

Pg 3-347 – Section 3.29.1 appears to be the only place where project costs for the action alternatives are provided in the DEIS. Since project costs are used in several places to justify portions of the preferred action, as well as eliminate other alternatives from detailed consideration, a detailed table of project costs for each alternative (to include alternatives that were eliminated because of costs) needs to be included in the EIS. Without this information, a valid "practicability" conclusion on the 404(b)(1) evaluation cannot be made.

Response 27.54

Chapter 1, Section 1.11 in the Final EIS has been revised to include information and a table of estimated costs for each alternative including the alternatives that were eliminated because of factors such as cost.

Comment 27.55

Appendix C: 404(b)(1) evaluation. Section C.1.1 – This section indicates that CWA Section 404(r) provides an exemption ".... From the requirements to obtain a Section 404 Permit...." EPA suggests that this section be modified to indicate that Section 404(r) indicates that a project is not prohibited or subject to Section 404 if information on the effects of the project, including consideration of the 404(b)(1) Guidelines is included in the EIS for the project. It is also necessary for the EIS to be submitted to Congress before any discharge for the project occurs, and prior to either Congressional authorization or appropriation for the project.

Response 27.55

Please see the revised text in the Final EIS, Volume 2-Appendices, Section C.1.1 Purpose of the 404(b)(1).

Comment 27.56

Appendix C: 404(b)(1) evaluation. Section C.2.1 – The project purpose section mentions "needs" for the project. EPA suggests the term "need" be removed as the Guidelines do not include the term "need" and do not infer any distinction between "purpose" and "need." The basic project purpose is the underlying purpose of the project. In this case, this is essentially a rephrasing of the DEIS' project "need," not something different that a project need. For the ULS project, the basic project purpose should be to provide increased M&I water supply.

Response 27.56

Please see the revised text in the Final EIS, Volume 2-Appendices, Section C.2.1 Project Purpose.

Comment 27.57

Appendix C: 404(b)(1) evaluation. This section goes on to state that the project purpose is to define alternatives to provide M&I water. EPA believes the basic project purpose is to increase M&I water supply. While the Guidelines require an evaluation of alternatives, the "purpose" of a project which requires a 404 permit is not to define alternatives for the project.

Response 27.57

Please see the revised text in the Final EIS, Volume 2-Appendices, Section C.2.1 Project Purpose.

Comment 27.58

Appendix C: 404(b)(1) evaluation. Section C.2.2 – This section presents a description of the allocation of the water supply, and the structures necessary to complete the allocation. The allocation portion needs to be revised so the reader can determine the actual volume of M&I water supply supplied to each entity, and volumes can be readily summed to the total of 60,000 AF presented at the beginning of the discussion. A table at this point comparing the project allocation for the alternatives would be useful.

Response 27.58

Please see the table added to Section C.2.2 of the 404(b)(1) analysis in Appendix C of the Final EIS.

Comment 27.59

Appendix C: 404(b)(1) evaluation. Section C.2.3 – This section discusses alternatives that were considered but found to be impracticable. Practicability under the Guidelines is based on the concepts of costs, logistics, and technology. Several of the alternatives were eliminated based on costs, however, no comparable cost information is presented to determine if the analysis is reasonable. The project costs for all the alternatives, both those considered in detail, and those eliminated, need to be presented so the reader can review the actual costs of each alternative in a comparative manner to determine the significance of the differences between the alternatives. A table needs to be provided with total project costs (construction costs and annual operation and maintenance costs as calculated in Definite Plan Report for the preferred alternative) and M&I water supply presented for each alternative, including those determined to be impracticable based on cost analysis. Based on the above, cost per acre foot of delivered M&I water also needs to be presented for each alternative. There is a very brief discussion of the cost of the preferred alternative on DEIS Page 3-347. That discussion indicates that the cost presented would be less because of water sales. We compared this cost estimate with that provided in Table 9-7 of the March, 2004, Draft Definitive Plan Report and could not develop a comparative value. In order to use the cost of an alternative as rationale to eliminate the alternative, the cost estimates for all alternatives need to be developed equally so they can be compared equally. There needs to be enough information in the analysis so that the analysis is defensible and not arbitrary and capricious.

Response 27.59

Please see the revised text in the Final EIS, Volume 2-Appendices, Section C.2.3 and new text in Section C.2.5.

Comment 27.60

This impracticability analysis also includes environmental impacts as rationale for eliminating several alternatives. While the impacts for several alternatives may be greater for various resources than other alternatives, that is not a reason to determine an alternative is impracticable. For projects that meet the project purpose (in this case, the basic project purpose to be accomplished is increased M&I water supply), costs, logistics, and technology are the criteria against which to determine practicability. Projects that are determined to be practicable are then examined to determine which is the least environmentally damaging. An alternative can be eliminated for excessive environmental impacts to the aquatic environment, but this is not part of the practicability analysis. This section of the 404(b)(1) evaluation should be rearranged so that alternatives which are eliminated because of environmental impacts are discussed under part C.12 in the 404(b)(1) evaluation.

Response 27.60

Please see the revised text in the Final EIS, Volume 2-Appendices, Section C.2.3 and new text in Section C.2.5.

Comment Letter 28: U.S. Department of the Interior, National Park Service

Comment 28.1

We have found the following L&WCF projects that may possibly be in the area of this project and could be impacted.

49-00258 Utah Lake State Park
49-00172 Vivian Park
49-00295 Provo River Parkway
49-00138 Wasatch Mountain State Park
49-00130 Deer Creek State Recreation Area
49-00050 Hobble Creek
49-00115 Springville Golf Course
49-00312 Jolly Ranch

We recommend you consult directly with the official who administers the L&WCF program in the State of Utah to determine any potential conflicts with section 6(f)(3) of the L&WCF Act (Public Law 88-578 as amended).

Response 28.1

The Provo River Parkway is the only Land and Water Conservation Fund project that has the potential of being temporarily impacted during construction of the Proposed Action. The Spanish Fork-Provo Reservoir Canal Pipeline would cross under University Avenue and the adjacent parkway at 5600 North. This impact would be temporary and would not remove any of the parkway from use or change its intended use. The Joint-Lead Agencies have consulted with the State of Utah official who administers the Land and Water Conservation Fund program, and there would be no conflicts with Section 6(f)(3) of the Land and Water Conservation Fund Act.

4.5.3 Hearing Comments and Responses

Public Hearing April 28, 2004, Sandy City

Comment P.H. SC.1

In general you had commented that you'd like to hear where the Draft EIS may be lacking. We would like to see more detail with regard to the power generation and power feature arrangements that are anticipated. And we would suggest that those arrangements should be consistent with the final definite plan report when that is available.

Response P.H. SC.1

The Draft EIS includes only the information on the powerplants that is considered essential to the NEPA process. Detailed information on the powerplants is contained in the Power Appendix that accompanies the Definite Plan Report for the Bonneville Unit. A draft of the Power Appendix was completed in April 2004 and contains detail information on the powerplants at Sixth Water and Upper Diamond Fork including information on methodology for selection of optimal size of powerplants, cost estimates and general design drawings. The final Power Appendix will be completed on essentially the same time schedule as the Final EIS. A copy of the Power Appendix is available to the public by contacting the Central Utah Water Conservancy District.

Comment P.H. SC.2

Sandy City also believes the past allocation of 5/7 the to the Jordan Valley Water Conservancy District and 2/7 the to the Metropolitan Water District of Salt Lake and Sandy is no longer fair and needs to be reconsidered. Sandy City's population was part of the Jordan Valley system for the original allocation which is now part of the Metro. At the time of the original allocation Sandy City was the second largest City in Jordan Valley's system.

Response P.H. SC.2

The petitions for project water and water pricing have been negotiated and have been agreed to by MWDSLS.

Comment P.H. SC.3

Sandy City believes any subsidization of the price for the ULS water for the South Utah Valley Municipal Water Association would be borne by Salt Lake County residents and thus unfair. All participants in the ULS water should share in any subsidy.

Response P.H. SC.3

Please see comment response P.H. SC.2.

Public Hearing April 29, 2004, Spanish Fork

Comment P.H. SF.1

Strawberry expects that its contractual rights with respect to its power privilege as addressed in the 1940 repayment contract and the 1991 agreement will be honored.

Response P.H. SF.1

Please see comment response 14.6

Comment P.H. SF.2

I would like to make a suggestion. As a possible conveyance pipeline for the Springville-Mapleton Lateral to the Hobble Creek debris basin for transfer of Division of Wildlife Resources fishery water to the Hobble Creek channel.

Response P.H. SF.2

In addition to SVP water for existing Mapleton-Springville Lateral water users, the Mapleton-Springville Lateral Pipeline would convey two types of ULS water. The first type of water would be a firm annual amount of 4,000 acre-feet of ULS water that would be conserved water under the Section 207 Program. This conserved ULS water would be made available to the DOI for instream flow purposes and used for the benefit of the June sucker. A purpose of the ULS is to assist in the recovery of an endangered fish, the June sucker. The June Sucker Recovery Implementation Program has identified springtime attraction and spawning flows in Hobble Creek as a first priority for establishing a spawning run of June sucker in Hobble Creek. The 4,000 acre-feet of conserved ULS water would be conveyed and released to Hobble Creek during portions of the months of April, May and early June to match the snowmelt runoff period. During this period, the reach of Hobble Creek below the debris basin has water flowing in it and there would not be any recharge benefit of adding more water. The reach of creek where the June sucker may spawn is located downstream of the Mapleton-Springville Lateral. The remaining approximately 8,000 acre-feet of ULS water is for delivery to Utah Lake and exchange to Jordanelle Reservoir. This water would only be available in 6 out of 10 years based on the needs to refill Jordanelle storage. This water is already committed for existing contracts for M&I water from Jordanelle Reservoir to water users in North Utah and Salt Lake County. It would not be available for a conjunctive use program or for other water users, such as Springville City. It would further violate one of the purposes of the project to maintain the water supply for existing contracts.

Comment P.H. SF.3

The purpose for this facility would be to convey DWR fishery water to the Hobble Creek debris basin. It would then be released to flow downstream to maintain a live stream in the channel between the basin and the Hobble Creek siphon. This part of the channel is usually dry between May 15 and October 1 and is the natural recharge area for the Springville City well field. Stream losses could then be credited to an aquifer-storage-recovery system for the City. Funds could be provided by the conjunctive-use provisions in the CUPCA Section 207 program. This facility and its operation would enhance the environment, conserve water for a drinking-water supply. And implement conjunctive use of surface water and ground water.

Response P.H. SF.3

Please see comment response P.H. SF.2.

Central Utah Water Conservancy District

355 WEST UNIVERSITY PARKWAY, OREM, UTAH 84058-7303
TELEPHONE (801) 226-7100, FAX (801) 226-7107
TOLL FREE 1-800-281-7103
WEBSITE www.cuwcd.com

OFFICERS
E. Tim Doxey, President
R. Roscoe Garrett, Vice President

Don A. Christiansen, General Manager
Secretary/Treasurer

March 14, 2003

Brooks Carter
Chief Intermountain Regulatory Section
U.S. Army Corps of Engineers
533 West 2600 South, Suite 150
Bountiful, Utah 84010

Subject:

Dear Mr. Carter:

Attached please find a copy of a Cooperating Agency Agreement for the Corps of Engineers (COE) participation in the planning and preparation of an Environmental Impact Statement (EIS) for the Utah Lake Drainage Basin Water Delivery System (ULS). The COE participation will be very important in guiding the Joint Lead Agencies Section 404(b)1 analysis for inclusion in the EIS.

The Joint Lead Agencies have determined that they meet the criteria set out in the Section 404(r) of the Clean Water Act. We therefore have made the decision to follow that process for complying with the provision of Clean Water Act and incorporating a Section 404(b)1 analysis in the preparation of the EIS for ULS.

Please have the proper COE official sign this agreement and return it to the Central Utah Water Conservancy District (District). If you have any questions regarding the agreement, please call Harold Sersland of the District at 801-226-7110.

Sincerely,

H. Lee Wimmer, P.E.
CUPCA Program Manager

pc: Ron Johnston
Mike Weland

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO
ATTENTION OF

March 19, 2003

Regulatory Branch (200350103)

Central Utah Water Conservancy District
Attn: Harold Serslund
355 West University Parkway
Orem, Utah 84058-7303

Dear Mr. Serslund:

This letter is in response to your letter dated March 14, 2003, requesting the Corps of Engineers to participate as a cooperating agency in the preparation of the environmental impact statement for the proposed Utah Lake Drainage Basin Water Delivery System.

Your letter indicates that the Central Utah Water Conservancy District intends to comply with the Clean Water Act through the 404(r) process. Due to our heavy workload and small staff, we have difficulty justifying the staff time needed to serve as a cooperating agency, particularly with a project where we would not be issuing a permit. Therefore, we will not act as a cooperating agency.

Please refer to identification number 200350103 in any correspondence concerning this project. If you have any questions, please contact Mr. Shawn Zinszer at our Utah Regulatory Office, 533 West 2600 South, Suite 150, Bountiful, Utah 84010, email *Shawn.H.Zinszer@usace.army.mil*, or telephone 801-295-8380, extension 16.

Sincerely,

Nancy Kang for

Brooks Carter, Chief
Intermountain Regulatory Section

Copies Furnished:

Dave Ruiter, Environmental Protection Agency, Region VIII-Wetlands Section (8EPR-EP), 999 Eighteenth Street, Suite 300, Denver, Colorado 80202-2466
Lucy Jordan, U.S. Fish and Wildlife Service, Utah Field Office, 2369 West Orton Circle, West Valley City, Utah 84119
Doug Sakaguchi, Division of Wildlife Resources, Central Region, 1115 North Main, Springville, Utah 84663

THIS PAGE INTENTIONALLY LEFT BLANK

References Cited

Adamus, P. R., E. J. Clairain, Jr., R. D. Smith and R. E. Young. 1987. *Wetland evaluation technique (wet) volume ii: methodology*. Operational Draft Technical Report Y-87-___. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Addley, R. C. and T. B. Hardy. 1998. Integrated ecologically based instream flows for Diamond Fork, Utah. Prepared for Woodward-Clyde under contract with the Central Utah Water Conservancy District. Logan, Utah. As cited in CUWCD 1999.

American National Standards Institute (ANSI). 1990. ANSI S12.40-1990 (R1996) *American National Standard sound level descriptors for determination of compatible land use.*

ANSI (See American National Standards Institute)

BEBR (See Bureau of Economics and Business Research)

Belk, M.C. and C.M. Ellsworth. 2000. Fish diversity and abundance, and availability and use of aquatic habitats in the Provo River between Deer Creek and Jordanelle Reservoirs, 1997-1999: pre-restoration baseline report. Salt Lake City: Utah Reclamation, Mitigation, and Conservation Commission. 18 p.

Binns, N.A. 1982. Habitat Quality Index Procedures Manual. Wyoming Game and Fish Department.

BIO-WEST. 2003a. Draft Provo River flow study, Deer Creek Reservoir to Utah Lake. Prepared for Utah Reclamation, Mitigation, and Conservation Commission, Salt Lake City, Utah. March 2003.

_____. 2003b. Provo River high flow study. Jordanelle Reservoir to Deer Creek Reservoir. Prepared for the Utah Reclamation, Mitigation and Conservation Commission. Salt Lake City, Utah. April 2003.

BLM (See U.S. Bureau of Land Management)

Bovee, K.D., B.L. Lamb, J.M. Bartholow, C.B. Stalnaker, J. Taylor and J. Henriksen. 1998. Stream habitat analysis using the instream flow incremental methodology. U.S. Geological Survey, Biological Resources Division Information and Technology Report, USGS/BRD-1998-0004. viii + 131 pp.

Brooks, L. E., and B.J. Stolp. 1995. *Hydrology and simulation of ground-water flow in Southern Utah and Goshen Valleys, Utah.* State of Utah Department of Natural Resources Technical Publication No. 111. 96 p.

Brotherson, J. D. and W. E. Everson. 1982. Vegetation communities surrounding Utah Lake and its bays. Utah Lake Vegetation Studies. Prepared for Reclamation, Contract No. 8-07-40-S0634.

Brusven, M. and E.W. Trihey. 1978. Interacting Effects of Minimum Flow and Fluctuating Shorelines on Benthic Stream Insects. Research Technical Completion Report to Office of Water Research and Technology, US Department of Interior, Washington, DC. Project No. A-052-IDA.78 pgs.

Bunnell, D. 1994. Telephone conversation with R. Williams, Biologist, Utah Division of Wildlife Resources regarding mid-winterbald eagle survey results. November 9, 1994.

Bureau of Economic Analysis, U.S. Dept. of Commerce. 2003a. Regional accounts data, local area personal income, Washington, D.C. Website: http://www.bea.gov/regional/reis.

_____. 2003b. Regional accounts, regional economic multipliers. Washington, D.C. website: http://www.bea.gov/regional/reis.

_____, University of Utah. 2003a. Economic indicators for Utah counties, 1997-2001. Salt Lake City, Utah. Website: http://www.business.utah.edu/bebr/utah.htm.

_____. 2003b. Single-family home building in Utah highest in 25 years. Press release, May 9, 2003. Salt Lake City, Utah. Website: http://www.business.utah.edu/bebr/utah.htm.

Burt, W. H., and R. P. Grossenheider. 1980. *A field guide to the mammals of North America.* New York. Houghton Mifflin.

Carter, D. 1969. A History of Commercial Fishing on Utah Lake. M.A. Thesis. Provo, Utah: Brigham Young University.

Central Utah Water Conservancy District (CUWCD). 1996a. *Final Environmental Impact Statement - Wasatch County Water Efficiency Project and Daniel Replacement Project.* Prepared for the U.S. Department of the Interior. November 1996.

_____. 1996b. *Aquatic resources technical report* for Wasatch County Water Efficiency Project, Daniel Replacement Project FEIS, and Provo River Restoration Project FEIS. Salt Lake City, Utah.

_____. 1997a. *Wasatch County Water Efficiency Project feasibility study.* Central Utah Water Conservancy District, Provo River/Utah Lake special studies.

_____. 1997b. *Final Report on the Direct Delivery of Colorado River Basin Water to the Provo River Basin.* Central Utah Water Conservancy District. Orem, Utah. June 1997.

_____. 1998a. *Draft environmental impact statement, Spanish Fork Canyon-Nephi irrigation system, Bonneville Unit, Central Utah Project.*

_____. 1998b. *Draft wetland resources technical report for the Spanish Fork Canyon-Nephi irrigation system draft environmental impact statement.*

_____. 1998c. *Draft special-status species technical report for the Spanish Fork Canyon-Nephi irrigation system draft environmental impact statement.* Orem, Utah.

_____. 1998d. *Final report on the hydrologic model analysis of the Provo River Basin.* Central Utah Water Conservancy District. Orem, Utah.

_____. 1999a. *Diamond Fork System, final supplement to the final environmental impact statement.*

_____. 1999b. *Diamond Fork System, final supplement to the final environmental impact statement. Angler-day methodology technical memorandum.*

_____. 2002a. *Final environmental assessment for the Diamond Fork proposed action system on the Central Utah Project, Diamond Fork System, Bonneville Unit.*

_____. 2002b. Scoping Summary Report for the Utah Lake drainage basin water delivery system (ULS).

_____. 2003. *Revised assessment of M&I water needs, supplement to plan formulation report of February 2002, Utah Lake drainage basin water delivery system.*

_____. 2004a. *Surface water hydrology technical report for the Utah Lake drainage basin water delivery system environmental impact statement.*

_____. 2004b. *Surface water quality technical report for the Utah Lake drainage basin water delivery system environmental impact statement.*

_____. 2004c. *Aquatic resources technical report for the Utah Lake Drainage Basin water delivery system environmental impact statement.*

_____. 2004d. *Wildlife resources and habitat technical report for the Utah Lake drainage basin water delivery system environmental impact statement.*

_____. 2004e. *Threatened and endangered and sensitive species technical report for the Utah Lake drainage basin water delivery system environmental impact statement.*

_____. 2004f. *Cultural resources technical report for the Utah Lake drainage basin water delivery system environmental impact statement.*

_____. 2004g. Bonneville Unit Definite Plan Report Current Supplement to 1988 Bonneville Unit Definite Plan Report.

Charter-Oak Environmental Services, Inc. 2001. Site investigation summary and corrective action plan. Prepared for the Ensign-Bickford Company, Spanish Fork, Utah.

Clary, W. P., E. D. McArthur, and D. B. and C.L. Wambolt. 1992. *Proceedings – symposium on ecology and management of riparian shrub communities*. Intermountain Research Station, Forest Service, U.S. Department of Agriculture. Ogden, Utah.

Contenius, K. N. and J. C. Coogan. 2002. Progress report geologic map of the east part of the Provo 30' X 60' quadrangle, Utah. Utah Geological Survey.

Cooper, C. D., and F. C. Alley. 1994. *Air pollution control, a design approach*. 2nd ed. Prospect Heights, Ill.: Waveland Press, Inc.

Cope, E. D. and H. C. Yarrow. 1875. Report on the collections of fishes made in portions of Nevada, Utah, California, Colorado, New Mexico, and Arizona, during the years 1871, 1872, 1873, and 1874. Report of the geographical and geological exploration and survey west of the 100th Meridian (Wheeler Survey). 5:635-703. As cited in USFWS 1999.

Crowl, T. 1994. Personal communication between Dr. Paul Holden of BIO/WEST and Dr. Todd Crowl at Utah State University.

_____. 2003. Personal communication between Chris Keleher and Dr. Todd Crowl at Utah State University.

CUWCD (See Central Utah Water Conservancy District)

Davis, F. D. 1983. Geology map of the southern Wasatch Front, Utah. Utah Geological Survey.

DB Engineering. 2003. Everyday noise list. Available from World Wide Web at: <http://www.800nonoise.com/tutorial_noiselist.htm>.

Dixon M. C. 1974. *Peetetneet Town: a History of Payson, Utah.* Press Publishing Co. Provo, Utah.

DOI (See U.S. Department of the Interior)

Edison Electric Institute, Washington, D.C. 1996. Suggested practices for raptor protection on power lines: the state of the art in 1996.

Ellsworth, C., and C. J. Keleher. 1998. Draft distribution status review for native fish in the central region, Utah Division of Wildlife Resources. Draft report on file at Utah Division of Wildlife Resources, Central Region Office, Springville, Utah. 155 pp.

Environmental News Network (ENN). Higgins, Margot. October 27, 1999. *Lynx report supports ESA listing.* http://www.enn.com/news/enn-stories/1999/10/102799/lynxreport_5913.asp

EPA. (See U.S. Environmental Protection Agency)

Erman, N.A. 1996. Status of Aquatic Invertebrates. 987-1008. In: Sierra Nevada Ecosystem Project: Final Report to Congress, Vol. II, Assessments and Scientific Basis for Management Options. University of California, Davis CA.

Federal Highway Administration (FHWA). 1977. *Highway construction noise: measurement, prediction and mitigation.* Office of Environmental Policy.

_____. 1998. *FHWA traffic noise model technical manual.* FHWA-PD-96-010/DOT-VNTSC-FHWA-98-2. Washington, D.C.: Government Printing Office

_____. 1999. Transportation air quality – selected facts and figures. (Cited May 12, 2003). Available from World Wide Web: <http://www.fhwa.gov////environment/aqfactbk/factbk12.htm>

FHWA (See Federal Highway Administration)

Gazin, C. L. 1941. The mammalian fauna of the Paleocene of central Utah. *Proceedings of the U.S. National Museum.* 91(3121):1-53.

Gentmiller, J. 2003. Personal communication with Richard Smith. April 23, 2003.

Grande, L. 1984. Paleontology of the Green River Formation, with a review of the fish fauna. Geological Survey of Wyoming Bulletin 63.

Gray, Larry. 2003. Utah Valley State College. Lower Provo River Macroinvertebrate Sampling Data from 6/28/99 to 10/5/01.

Grelinger, M. A. 1988. Gap filling Pm10 emission factors for selected open dust sources. EPA-450/4-88-003. Midwest Research Institute, Kansas City.

Hamblin, A. H. 1987. Paleogeography and paleoecology of the Myton Pocket, Uinta Basin, Utah (Uinta Formation – Upper Eocene). Brigham Young University Geology Studies. 34(1):33-60.

Henny, C. J., and R. G. Anthony. 1989. Bald Eagle and Osprey. In *Proceedings of Western Raptor Management Symposium and Workshop, Technical Series No. 12.* Washington, D.C.: National Wildlife Federation. Boise, Idaho. October 28, 1987.

Hershey A.E. and G.A. Lamberti. 1998. Stream Macroinvertebrate Communities. Pgs 169-199. In: River Ecology and Management, Lessons from the Pacific Coastal Ecoregion. Springer-Verlag, New-York.

Hintze, L. F. 1988. *Geologic History of Utah.* Brigham Young University Geology Studies. Special Publication 7.

Horton, H. 1989. *Interagency forage and conservation, planting guide for Utah.* Utah State University, Cooperative Extension Service. Extension Circular EC 433. August 1989.

Jennings, J. D. 1986. *Prehistory: Introduction. In: Great Basin.* Warren L. D'Azevedo, ed. *Handbook of North American Indians.* Vol. 11, William G. Sturdevant, general editor. Washington, D.C.

Jordan Valley Water Conservancy District (JVWCD). 2004. *Water Conservation Plan and Plans to Recycle Bonneville Unit Return Flows and to use Bonneville Unit Water Delivered Through ULS Facilities.* Jordan Valley Water Conservancy District, West Jordan City, Utah. February 2004.

JVWCD (see Jordan Valley Water Conservancy District)

Kaufman, K. 1996. *Lives of North American Birds.* New York: Houghton Mifflin.

Keleher, C. 1994. Leatherside chub life history and habitat requirements. Presented at the Diamond Fork/Spanish Fork Watershed Management Plan Biological Exchange Working Session. Provo, Utah. December 8, 1994. As cited in CUWCD 1998.

_____. 2004. Personal communication. Telephone conversation with MaryLouise Keefe.

_____. C. J., L. D. Lentsch, and C. W. Thompson. 1998. Evaluation of flow requirements for June sucker (Chasmistes liorus) in the Provo River: an empirical approach. Pub. Number 99-06. Utah Division of Wildlife Resources. Salt Lake City, Utah. As cited in USFWS 1999.

Kerschner, J. 1995. *Bonneville Cutthroat Trout in M.K. Young, ed. Conservation Assessment for Inland Cutthroat Trout.* General Technical Report RM-256. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 61 pp. As cited in USFS 2003. (Tom, this is correct. It is a paper within a collection of papers. You could cap the titles of both, if you want.)

Larsen, R. 2004. Personal communication, updated Utah Division of Wildlife Resources sensitive species list, 2/24/2004.

La Rocque, A. 1960. Molluscan faunas of the Flagstaff Formation. Geological Society of America Memoir 78.

Lee, D. S., C. R. Gilbert, C. H. Hocutt, R. E. Jenkins, D. E. McAllister, and J.R. Stauffer, Jr. 1980. *Atlas of North American Freshwater Fishes.* Publication #1980-12 of the North Carolina Biological Survey, North Carolina State Museum of Natural History. As cited in CUWCD 1998.

Lentsch, L., Y. Converse, and J. Perkins. 1997. *Conservation agreement and strategy for Bonneville Cutthroat Trout in the State of Utah.* Utah Department of Natural Resources, Publication Number 97-19. Salt Lake City, Utah.

Lilieholm, R. J. and Krannich, R. S. 2001. *2000 statewide survey of Utah anglers.* Prepared by Utah State University for the Utah Division of Wildlife Resources.

Loomis, J. and R. Walsh. 1994. *Recreation economic decisions: comparing benefits and costs.* State College, PA. Venture Publishing.

Major, S. T. and J. A. Sherburne. 1987. *Interspecific relationships of coyotes, bobcats and red foxes in western Maine. Journal of??? Wildlife Management* 51:606-615. correct

McDonald, M. G., and A. W. Harbaugh. 1988. A modular three-dimensional finite difference ground-water flow model. Techniques of Water Resources Investigations of the U.S. Geological Survey, Book 6, Chapter A1.

McKee, J. E., and H. W. Wolf. 1963. *Water Quality Criteria.* 2nd edition. California State Water Quality Board, Sacramento, CA.

Manci, K.M., D.N. Gladwin, R. Villella, and M.G. Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. U.S. Fish and Wildlife Service, National Ecology Research Center, Ft. Collins, CO. NERC-88/29. 88 pp.

Merritt, J., N.D. Belliston and S.A. Dewey. 2003 *Noxious weed guide for Utah.* Cache County Weed Department. Logan, UT.

Merritt, L. and W. Miller. 2004. Update and Calibration of the Utah Lake Water Quality Salinity Model (LKSIM2000).

Metcalf and Eddy, Inc. 1979. *Wastewater Engineering: Treatment, Disposal, Reuse.* McGraw-Hill Inc. New York, New York.

Metropolitan Water District of Salt Lake and Sandy. 2004. Plans to Use Bonneville Unit Return Flows and Bonneville Unit Water Delivered Through Utah Lake System Facilities. Metropolitan Water District of Salt Lake and Sandy, Salt Lake County, Utah. February 2004.

Michael Baker Corporation. 2001. Alternative heliport site analysis for the City and Borough of Juneau, final report. September 24, 2001.

Michael, G.Y., and T. F. Moore. 1997. *A suggested framework for conducting UAAs and interpreting results.* Project 91-NPS-1. Water Environment Research Foundation. pp 1-17 through 1-20.

Miller, J. 2004. Personal Communication. Telephone conversation with Cathy Cooper. August 23, 2004.

Miller, W. E. 2002, Quaternary vertebrates of the northeastern Bonneville Basin and vicinity of Utah. In *Great Salt Lake: an overview of change.* J. W. Gwynn, ed. DNR Special Publication. Utah Geological Survey.

Minckley, W.M. 1973. *Fishes of Arizona.* Department of Zoology and Lower Columbia River Basin Research Laboratory, Arizona State University: Phoenix, Arizona. Sims Printing Company, Inc.

Miner, D. 2003. Interview by Richard Smith. April 24, 2003. 998.

Mitchell, M. 2003. Report on reservations by facility at Rock Canyon Park: May 1 to October 1, 2003. Fax to Kristin Anderson, September 29, 2003.

Modde, T., and N. Muirhead. 1990. *Emergence patterns and feeding behavior of larval June sucker. Final report.* Utah Division of Wildlife Resources. Contract 90-0081.

Mountainland Association of Governments. 2003. Website: http://www.mountainland.org/demographics/index.

Natural Resources Conservation Service (NRCS). 1972. *Soil survey of Utah County, central part.*

NatureServe Explorer. 2003. Online database. Available from World Wide Web: <http://www.natureserve.org>

NRCS (See Natural Resources Conservation Service, formerly Soil Conservation Service)

Oliver, G. V. and W. R. Bosworth. 1999. Rare, imperiled, and recently extinct or extirpated mollusks of Utah; a literature review. Publication Number 99-29. Utah Division of Wildlife Resources, Salt Lake City, Utah.

Oliver, D. 2003. Personal Communication based on meeting held on July 8, 2003 that included representatives from CUWCD and MWH.

Pacific Northwest Project. 2003. Personal communications with city and water delivery service staff of Jordon Valley Water Conservancy District, Central Utah Water Conservancy District, Utah Division of Water Resources, Strawberry Water Users Association, Salt Lake County, Payson, Sandy, Salem and Santaquin, and Review of Water Rates Posted on Agency websites. May and June 2003.

Perkins, M .J., L. D. Lentsch,, and J. Mizzi. 1998. Conservation agreement and strategy for least chub in the State of Utah. Utah Department of Natural Resources, Publication Number 98-25. Salt Lake City, Utah.

Piper, A. M. 1944. A graphic procedure in the geochemical interpretation of water analysis. American Geophysical Union Transactions 25:914-923.

Radant, R. D. and D. K. Sakaguchi. 1980. Utah Lake Fisheries Inventory. Reclamation Contract 8-07-40-S0634. Salt Lake City, Utah: Utah Division of Wildlife Resources.

Radant, R. D. and D. S. Shirley. 1987. June Sucker - Utah Lake Investigations. Reclamation Contract 8-07-40-S0634. Modification No. 5. Salt Lake City, Utah: Utah Division of Wildlife Resources.

Reclamation (See U.S. Bureau of Reclamation)

Reiss, B. 2003. Telephone conversation with Cathy Cooper. May 15, 2003.

Rich, T. H. V. 1973. First mammalian fossil from the Flagstaff limestone, central Utah: Vulpavus Australis (Carnivora:Miacidae). *Journal of Paleontology* 47(5):854-60.

Ritter, W. W. 1974. Findings of fact and conclusions of law. Civil Action Number C-74-9. In the U.S. District Court for the District of Utah Central Division. June 24, 1974.

Robinson, S. F. 1986. Paleocene (Puercan – Torrejonian) mammalian faunas of the North Horn Formation, central Utah. Brigham Young University Geology Studies 33(1):87-133.

Robinson, 1994. Final Draft Nonpoint Source Water Pollution Control Plan of Hydrologic Modifications in Utah

Sakaguchi, D. 1994. Telephone conversations with Scott Cressey. January 31 and February 22, 1994. Cited in CUCWD 1998.

_____. 1995. Telephone conversation with Scott Cressey regarding brown trout spawning period in Diamond Fork Creek and emergence of young. September 13, 1995.

Scoppettone, G. G. and G. Vinyard. 1991. Life History and Management of Four Endangered Lacustrine Sucker. In W. L. Minckley and J. E. Deacon, eds. *Battle Against Extinction*. Univ. Ariz. Press, Tucson.

Shirley, D. 1994. Telephone conversation with Scott Cressey. January 31, 1994.

Sigler, W. F., and R. R. Miller. 1963. *Fishes of Utah.* Utah Department of Fish and Game. Salt Lake City, Utah. 203 pp.

Sigler, W. F., and Sigler, J. W. 1987. *Fishes of the Great Basin: a natural history.* University of Nevada Press, Reno, Nevada. 425 pp.

_____. 1996. *Fishes of Utah.* Salt Lake City, Utah. University of Utah Press. pp 169-177. As cited in USFS 2003.

Sipes, S. D., and V. J. Tepedino. 1996. Ute ladies'-tresses pollination biology. In Jordan, L. 1994. (ed.) Miscellaneous information about Ute ladies'-tresses orchid *Spiranthes diluvialis*. Summary of presentations given at the Ute ladies'-tresses information exchange meeting March 29 1994, Salt Lake City, Utah.

Smith, D. G., and J. R. Murphy. 1973. Breeding ecology of raptors in the eastern Great Basin of Utah. Brigham Young University Science Bulletin Biological Series 18(3).

Smith, J. D. 1986. Depositional environments of the Tertiary Colton and Basel Green River formations in Emma Park, Utah. Brigham Young University Geology Studies 33(1):135-174.

Smith, R. B., and C. L. Greenwood. 1983. *Mona Reservoir wildlife inventory studies, irrigation and drainage system, Bonneville Unit, Central Utah Project.* Utah Division of Wildlife Resources. Report prepared for Reclamation under Contract 2-07-40-S2096. February 5, 1983.

Sowby and Berg Consultants. 1984. Deer Creek Reservoir and proposed Jordanelle Reservoir water quality management plan.

Stamp, M. 2003. Telephone conversation with Steve Cox. August 7, 2003.

Stanley, K. O. and J. W. Collinson. 1979. Deposition history of Paleocene-lower Eocene Flagstaff Limestone and coeval rocks, central Utah. American Association of Petroleum Geologists Bulletin 63:311-23.

State of Utah, Office of the State Engineer. 1999. Memorandum decision for Application Number 55-1875 (A37093).

_____, Governor's Office of Planning and Budget. 2003a. State of Utah, demographics and economics data 2003. Website: http://governor.utah.gov/dea/atoz.html

_____. 2003b. *Utah state and local government fiscal impact model, working paper series: 2001-1, multipliers for Utah. Salt Lake City, Utah.*

_____. 2003c. Bureau of Health Statistics and Utah Office of Vital Statistics. Website: http://health.utah.gov/missing.html.

State of Utah, Office of the Governor. 2000. *Envision Utah - quality growth strategy and technical review.*

_____. 2003. Baseline 2020. Website: http://governor.utah.gov/dea/2003BaselineWEB.pdf

Stokes. W. L. 1977. *Subdivisions of the major physiographic provinces in Utah.* Utah Geological and Mineral Survey. Utah Geology 4(1):1-17.

_____. 1987. Geology of Utah. Utah Museum of Natural History occasional paper 6.

Stone, R. D. 1993. *Final report for 1992 challenge cost share project, Uinta and Wasatch-Cache National Forests. target species: Ute ladies'-tresses (Spiranthes diluvialis Sheviak).* Salt Lake City, Utah: Utah Natural Heritage Program, Utah Department of Natural Resources.

Thurin, S. 2003. ULS Baseline Provo River Flows Compared with CUP M&I System FES Conditions.

Tullis, R. 2003. Personal communication with Brian Liming. July 11, 2003.

UAC (See Utah Administrative Code)

UDA (See Utah Department of Agriculture)

UDEQ (See Utah Department of Environmental Quality)

UDNR. (See Utah Department of Natural Resources)

UDOT. (See Utah Department of Transportation)

UDWS. (See Utah Department of Workforce Services)

UGMS (See Utah Geological and Mineral Survey

UGS (See Utah Geological Survey)

USACOE (See U.S. Army Corps of Engineers)

U.S. Army Corps of Engineers, Department of the Army (USACOE). 1987. Corps of Engineers Wetlands Delineation Manual. Wetlands Research Program, Technical Report Y-87-1.

U.S. Bureau of Land Management (BLM). 1987. *General procedural guidance for paleontological resource management.* BLM manuel H-8270-1.

_____. 2003. *Utah weed program.* Available on the Worldwide Web at: http://www.blm.gov:80/utah/resources/weeds/weed2.htm. September 5, 2003

U.S. Bureau of Reclamation (Reclamation). 1964. *Bonneville Unit definite plan report. Central Utah Project Bonneville Unit*, Utah.

_____. 1973. *Bonneville Unit final environmental impact statement, Bonneville Unit,* Central Utah Project, Utah.

_____. 1979a. *Final environmental impact statement on the Central Utah Project, municipal and industrial system, Bonneville Unit.*

_____. 1979b. *Draft environmental impact statement on the Central Utah Project, Municipal and Industrial System, Bonneville Unit.*

_____. 1984. *Diamond Fork power system final environmental impact statement.* Central Utah Project-Bonneville Unit. Salt Lake City, Utah. October 4, 1984.

_____. 1987. *Final supplement to the M&I system's final environmental impact statement on the Central Utah Project, Municipal and Industrial System, Bonneville Unit.*

_____. 1988a. *1988 Bonneville Unit definite plan report. Regional director's report.* May 1988. (Originally titled Draft Supplement to Definite Plan Report, Central Utah Project, Bonneville Unit, Utah.)

_____. 1988b. *Central Utah Project Bonneville Unit-Utah, supplement to definite plan report, fish and wildlife resources appendix.* May 1988.

_____. 1990. *Final supplement to the final environmental impact statement,* Diamond Fork System, Bonneville Unit, Central Utah Project. There are two: 1990 (BOR) and 1999 (CUWCD).

_____. 1993. *Reclamation safety and health standards.* Safety and Occupational Health Office. Denver, Colorado.

_____. 2001. Final *Environmental assessment for the Olmsted flowline rehabilitation and replacement project.* . PRO-EA-01-001, June 29, 2001.

_____. 2003a. *Final environmental assessment for the Provo Reservoir canal enclosure project.* PRO-EA-03-006.

_____. 2003b. Personal Communication with Steve Thurin, MWH. Comparison between Reclamation and PROSIM2000 flows at Jordanelle Reservoir August 29.

_____. 2004. *Draft environmental assessment for public review and comment for the Provo Reservoir Canal enclosure project.* PRO-EA-03-006.

U.S. Census Bureau. 2003a. State and County Data. Website: http://quickfacts.census.gov/qfd/states/49/49051.html and http://eire.census.gov/popest/data/counties.php?PHPSESSID=2108d71016c05a9d20f280 6903195319.

U.S. Census Bureau. 2003b. Housing Data. Website: http://www.census.gov/hhes/www/housing/hvs/annual02/ann02t6.html

USDA (See U.S. Department of Agriculture)

U.S. Department of Agriculture (USDA). 1984. *Soil survey of Fairfield-Nephi Area, Utah, parts of Juab, Sanpete, and Utah counties.* In cooperation with U.S. Forest Service, U.S. Department of Interior, U.S. Bureau of Land Management, and Utah Agricultural Experiment Station. June 1984.

_____. 1993. *Federal pesticide recordkeeping requirements for certified private applicators of federal restricted-use pesticides.* Pesticide Records Branch. Manassas, Virginia. August 1993.

_____. 2003. *1997 Census of agriculture.* National Agricultural Statistics Service Website: http://www.nass.usda.gov/census.

U.S. Department of Interior (DOI). 1994. Executive Order 12898 on Environmental Justice in Minority Populations and Low Income Populations.

_____, and U.S. Department of Commerce. 2003. 2001 National Survey of Fishing, Hunting, and Wildlife Associated Recreation for Utah.

U.S. Environmental Protection Agency (EPA). 1971. *Noise from construction equipment and operations, building equipment, and home appliances.* PB 206 717/NTID300.1. Washington, D.C. Office of Noise Abatement and Control.

_____. 1974. *Information on levels of environmental noise requisite to protect public health and welfare with an adequate margin of safety.* 550/9-74-004. Washington, D.C. Government Printing Office.

_____. 1991. *Nonroad engine and vehicle emission study – report.* EPA 460/3-91-02, NTIS Stock Number PB92-126960.

_____. 1995a. *Compilation of air pollutant emission factors, AP-42, fifth edition, volume I:* stationary point and area sources. NTIS Stock Number 055-000-00500-1. Washington, D.C.: Government Printing Office.

_____. 1995b. *SCREEN3 model user's guide.* EPA-454/B-95-004. Office of Air Quality Planning and Standards Emissions, Monitoring, and Analysis Division. Research Triangle Park, North Carolina.

_____. 1999. *Phase I EPA Clean Lakes Study. Diagnostic and Feasibility Report on Utah Lake.* EPA Grant #S008647-01.

_____. 2001. *Code of federal regulations*, Appendix W to Part 51 – Guideline On Air Quality Models.

_____. 2003a. *STORET – a computerized database repository for storage and retrieval of water quality, biological, and physical data.* (online) 24-25 March, 2003. <http://www.epa.gov/STORET/dblop.html>.

_____. 2003b. *National ambient air quality standards.* (cited April 7, 2003). Available from World Wide Web http://www.epa.gov/airs/criteria.html

U.S. Forest Service (USFS). 1998a. *Diamond Fork campground final environmental assessment: September 1998.*

_____. 1998b. *Final wild and scenic rivers inventory, January 1998* (online). Uinta National Forest. Available from World Wide Web: < http://www.fs.fed.us/r4/uinta/projects/planning/index.shtml>.

_____. 2001a. *The built environment image guide for the national forests and grasslands.* USDA Forest Service Publication FS-710.

_____. 2001b. *Uinta Forest plan visual quality objectives.* On CD-ROM in GIS format provided by Ken Burton, GIS Coordinator. File created 2/16/2001. Provo, Utah.

_____. 2003a. *Final environmental impact statement for the 2003 land and resource management plan for the Uinta National Forest, threatened, endangered and sensitive species.* Available on the World Wide Web: http://www.fs.fed.us/r4/uinta/projects/planning/docs/2003/feis/acrobat/feis_vol1/feis_vol1_3_tes.pdf. 9/29/03

_____. 2003b. 2003 Land and Resource Management Plan for the Uinta National Forest Revision. Available on the Worldwide Web at http://www.fs.fed.us/r4/uinta/projects/planning/docs/2003/welcome.pdf. October 23, 2003.

USFS (See U.S. Forest Service.)

USFWS (See U.S. Fish and Wildlife Service)

U.S. Fish and Wildlife Service (USFWS). 1992. *Endangered and threatened wildlife and plants.* Final rule to list the plant Spiranthes diluvialis (Ute ladies'-tresses) as a threatened species. Federal Register 57 (12): 2048-2054.

_____. 1994. Endangered and threatened wildlife and plants; reclassify the bald eagle from endangered to threatened in most of the lower 48 States; Proposed Rule. *Federal Register*, Vol. 59(132). July 12, 1994.

_____. 1995a. *Snake River aquatic species recovery plan.* Snake River Basin Office, Ecological Services, Boise, Idaho. 92 pp.

_____. 1995b. Draft Recovery Plan, June Sucker (*Chasmistes Liorus*). Utah Division of Wildlife Resources for the U.S. Fish and Wildlife Service. Denver, Colorado.

_____. 1999. June sucker (*Chasmistes liorus*) Recovery Plan. U.S. Fish and Wildlife Service, Denver, Colorado. 61 pp.

_____, Mountain-Prairie Region. 2000. *Canada Lynx news and information.* http://www.r6.fws.gov/endspp/lynx/Q&A032000.htm

_____. 2001. *Status review for Bonneville cutthroat trout. October 2001.* Available at: http://mountain-prairie.fws.gov/endspp/fish/bct/UtahConservationAgreement.pdf

_____. 2002a. *Bonytail (Gila elegans) recovery goals: amendment and supplement to the bonytail chub recovery plan.* U.S. Fish and Wildlife Service, Mountain- Prairie Region (6), Denver, Colorado. Available at: http://arizonaes.fws.gov/Documents/RecoveryPlans/Bonytail.pdf

_____. 2002b. *Colorado pikeminnow (Ptychocheilus lucius) recovery goals: amendment and supplement to the Colorado squawfish recovery plan.* U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado. Available at: http://arizonaes.fws.gov/Documents/RecoveryPlans/Coloradopikeminnow.pdf

_____. 2002c. *Humpback chub (Gila cypha) recovery goals:amendment and supplement to the humpback chub recovery plan.* U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado. Available at: http://arizonaes.fws.gov/Documents/RecoveryPlans/Humpbackchub.pdf

_____. 2002d. *Razorback sucker (Xyrauchen texanus) recovery goals: amendment and supplement to the razorback sucker recovery plan.* U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado. Available at: http://arizonaes.fws.gov/Documents/RecoveryPlans/Razorbacksucker.pdf

_____. 2002e. *Status review for the Columbia spotted frog (Rana luteiventris) on the Wasatch Front, Utah.* Available at <http://mountain-prairie.fws.gov/spottedfrog/statusreport0802.pdf

_____. 2003. Endangered and Threatened Wildlife and Plants; Notice of Remanded Determination of Status for the Contiguous United States Distinct Population Segment of the Canada Lynx; Clarification of Findings; Final Rule, 50 CFR 17. Federal Register Volume 68, Number 128, July 3, 2003. Pages 40075 to 40101.

USGS (see U.S. Geological Survey)

U.S. Geological Survey (USGS). 1999. *Users guide to PHREEQC (Version 2) – a computer program for speciation, batch-reaction, one-dimensional transport, and inverse chemical calculations.* U.S. Geological Survey Water-Resources Investigations Report 99-4259, prepared by D.L. Parkhurst and C.A.J. Appelo.

Utah Administrative Code (UAC). 2003a. Rule R309-200. *Monitoring and water quality: drinking water standards.*

_____. 2003b. Rule R317-6. *Ground water quality protection.*

_____. 2003c. Rule R68-9-1. Available on the Worldwide Web at: http://www.rules.utah.gov/publicat/code/r068/r068-009.htm. October 23, 2003

_____. 2004. Rule R317-2. *Standards of quality for waters of the state.*

Utah Department of Agriculture. (UDA). 2003. Utah agricultural statistics, 2002. Website: http://ag.utah.gov/.

Utah Department of Environmental Quality. (UDEQ).1999. *State of Utah national ambient air quality standards areas of non-attainment and maintenance* (effective 5/99). (Cited February 28, 2003). Available from World Wide Web <http://www.deq.state.ut.us/EQAIR/GRAPHICS/MAPS/pcnonatt.gif>

_____. 2000. *Utah Division of Air Quality modeling guidelines.* Revised Draft (August 17, 2000). Utah Division of Air Quality Technical Analysis Section. Available from World Wide Web <http://airquality.utah.gov/Planning/modelingguidelines817.pdf>

_____. 2001. *Yearly state and local air monitoring system (SLAMS) reports.* (Cited April 7, 2003). Available from World Wide Web http://www.deq.utah.gov/EQAMC/slams.htm

_____, Division of Drinking Water. 2002. *Survey of Community Drinking Water Systems.* December 2002. Website: http://www.drinkingwater.utah.gov

_____. 2003a. Rivers, streams, and reservoirs on the year 2000 303(d) list of impaired waters (database online). Information taken for water bodies in the Jordan River/Utah Lake Basin. Available from World Wide Web: <http://waterquality.utah.gov/watersheds/jordan/water_quality.htm>

_____. 2003b. Standards for quality of waters of the state as in effect June 1, 2003, Rule R317-2. Available at: http://www.rules.utah.gov/publicat/code/r317/r317-002.htm

_____, Division of Water Quality (UDEQ). 2003. Standards for quality of waters of the state as in effect June 1, 2003, Rule R317-2. Available at: http://www.rules.utah.gov/publicat/code/r317/r317-002.htm

_____. 2004. *Utah's year 2004 303(d) list of waters.*

Utah Department of Natural Resources, Division of Wildlife Resources (UDNR). 1979. *Summary of analyses of alternative streamflows for fishery purposes* Memorandum to the Area Manager, USFWS from Reclamation Regional Director. Prepared by: UDWR, USFS, USFWS and Reclamation.

_____. 1997. *Inventory of sensitive species and ecosystems in Utah. Inventory of sensitive vertebrate and invertebrate species: A Progress Report.* Prepared for Utah Reclamation Mitigation and Conservation Commission and the U.S. Department of Interior. September 30, 1997. Available at: <http://dwrcdc.nr.utah.gov/ucdc/ViewReports/vertrpt.pdf>

_____. 2000. *Fish populations in West Fork and Duchesne River during 1999.* Final Report of Fish Survey Results by the Interagency Aquatic Biological Assessment Team. 38 pp.

_____. Energy Office. 2002. Energy Data Information System (EDIS), Crude Oil and Petroleum Products. Website: http://www.energy.utah.gov/oilpetrol.htm.

_____. 2003a. GIS files provided by Anne Axel, information manager on electronic media. Salt Lake City, Utah.

_____. 2003b. Species counts and general distribution information from the website at http://dwrcdc.nr.utah.gov/ucdc/

_____. 2003c. Binns HQI datasheets from surveys performed between 1998 and 2000.

Utah Department of Transportation (UDOT). 2003. Utah's automatic traffic recorders 2002, Utah's automatic traffic recorders 2002 Utah County, traffic volume map Utah 2001, North central area annual average daily traffic, Provo-Orem urbanized area average annual daily traffic 2001, Map enlargements average annual daily traffic. Available from World Wide Web <htpp:www.udot.utah.gov/progdev/traffic/>

Utah Department of Workforce Services (UDWS). 2003. Workforce information, as reported within the Governor's Office of Budget and Planning, Website: http://governor.utah.gov/dea/Publications/TofC.pdf

Utah Geological and Mineral Survey (UGMS). 1983a. Non-metallic mineral resources of utah. Utah Geological and Mineral Survey Map 71, prepared by H.H. Doelling.

_____. 1983b. Energy resources map of Utah. Utah Geological and Mineral Survey Map 68, prepared by K. D. Gurgel, B. R. Jones, and D. E. Powers.

Utah Geological Survey (UGS). 2003. Coal, mineral, and geothermal occurrences online map and database. <http://atlas.utah.gov/ugs/viewer.htm>.

Van Cott, J. W. 1990. *Utah place names.* Salt Lake City, Utah: University of Utah Press.

WAPA (See Western Area Power Administration)

Webmet, 2003. *Meteorological data processing, section 6.4 stability.* (Cited May 22, 2003). Available from World Wide Web: <http://www.webmet.com/met_monitoring/642.html>

Western Area Power Administration (WAPA). 2003. Facts about the Western Area Power Administration. Website: http://www.wapa.gov.

Western Regional Climate Center (WRCC). 2001. Provo BYU, Utah (427064) Period of monthly climate summary, period of record: 10/1/1980 to 12/31/2001. (Cited April 8, 2003). Available from World Wide Web: <http://wrcc.dri.edu/cgi-bin/cliRECtM.pl?utpbyu>.

_____. 2003. Average wind speed at Provo Municipal Airport, 1992-2002. (Cited April 9, 2003). Available from World Wide Web <http://www.wrcc.dri.edu/htmlfiles/westwind.html>.

Wiley, D., and C. Thompson. 1997. *Sixth Water Creek fishery investigation and recommendations.* Utah Department of Natural Resources, Division of Wildlife Resources.

Williams, F. 2003. Average daily number of vehicles on highway 40, Daniels Canyon: 2001. Fax to Chris Hoffman, October 2, 2003.

Wilson, K. W., and M. C. Belk. 1996. *Current distribution and habitat use of leatherside chub (Gila copei) in the Sevier and Beaver River drainages in south central Utah.* Final Report to the Utah Division of Wildlife Resources, Contract No. 93-0870. October 1996. As cited in CUWCD 1998.

Wilson, K. W. 2003. Personal communication. Presentation to the Spotted Frog Technical Workgroup, December 2003.

WRCC (Western Regional Climate Center)

Zawiskie, J., D. Chapman and R. Alley. 1982. *Depositional history of the Paleocene-Eocene Colton Formation, north central Utah.* In Nielson, D. L., ed. Overthrust belt of Utah, 1982 symposium and field conference. Utah Geological Association Publication 10:273-84.

Glossary

Accretion. The gradual accumulation of water in a surface or subsurface body of water.

Acre-foot. A volume of water 1 foot deep and 1 acre in area, or 43,560 cubic feet.

Affected Environment. Parts of the environment that would be impacted by a change in operation or management.

Algae. Small aquatic plants, usually free-floating.

Alternative. A proposition or situation offering a choice between two or more proposals, only one of which may be chose. An opportunity for deciding between two or more courses or propositions.

Ambient. Referring to conditions in the encompassing atmosphere.

Amphibian. Cold-blooded vertebrates evolutionarily intermediate in many characteristics between fishes and reptiles and having gilled aquatic larvae and air-breathing adults.

Angler Day. One person fishing for 2.6 hours.

Animal Unit Months. The amount of feed or forage required by one animal for 1 month, which is equivalent to the average monthly forage consumption of 800 pounds of dry matter.

Aquatic. Habitats or species that occur in or on water.

Aquifer. A subsurface body of water.

Alluviated or alluvial channels. Stream channels containing deposits of water-borne sediments.

Alluvium. Water-deposited materials or sediments.

Aquitard. A low permeability unit (clay or silt layers) that inhibit groundwater flow from one aquifer to another.

Arable. Soil fit for, or cultivated by, plowing or tillage.

Attribute. A characteristic of the aquatic habitat (e.g., late summer streamflow and eroding channel banks) that is given a numerical rating based on a field evaluation. The rating is used to compute a score using the Binns HQI (Habitat Quality Index) model (see description below).

AutoCAD. A computer assisted design and drawing program.

Average annual flow. Average annual flow (the sum of all monthly average flows for a 12-month period) can be calculated for one year, or as an average of all the years in the period of record.

Backfill. The soil that is used to cover a pipe once it is in a trench.

Background Distance Zone. The distant part of a landscape, picture, etc.; surroundings, especially those behind something and providing harmony or contrast; surrounding area or surface. Area located from 3 to 5 miles to infinity from the viewer.

Bankfull Depth. The water surface depth of a stream flowing at channel capacity. Often the maximum stream depth corresponding to the annual peak flows.

Bankfull Width. The water surface width of a stream flowing at channel capacity. Often the maximum stream width corresponding to the annual peak flows.

Base Flows. Most commonly refers to the component of stream flow that is relatively constant from year to year, in contrast to the total flow that is affected by snowmelt and rainfall.

Baseline. The set of starting conditions from which changes and impacts are quantified.

Bed load. Material (e.g., sand, gravel and cobbles) transported by flowing water that moves and interacts with the channel bed.

Benthic Macroinvertebrates. A group of small aquatic insects, crustaceans and worms typically found in the substrate (mud, sand, silt, gravel, cobble and boulders) of a stream or body of water.

Benthos. Organisms that live on or in the bottom of bodies of water.

Biochemical Oxygen Demand. A measurement of dissolved oxygen consumption in water as a result of organic material decomposition.

Biota. The plant and animal life of a region or ecosystem, as in a stream or other body of water.

Binns HQI Model II. A method of calculating a score that measures existing stream habitat quality for trout and estimates potential trout production resulting from improvements in habitat quality attributes.

Biomass. A measurement of the weight of living organisms per unit area.

Bore/Jack Construction (and Microtunneling). This is a construction technique, as is microtunneling, that involves excavating underground from a jacking pit to a receiving pit to avoid disturbing surface features between the two pits. These techniques are used to cross under highways, freeways, railroads, rivers, streams and associated wetlands. Microtunneling is used for distances up to 500 feet; bore/jack operations used up to 300 feet.

Braided. A term used to describe a stream that has formed several interlacing channels.

Buffer. Space adjacent to the channel or other project feature where certain activities which could adversely impact the feature would be restricted.

Candidate Species. Any species of plant or animal for which the U.S. Fish and Wildlife Service has sufficient information on their biological status to propose them as threatened or endangered under the 1973 Endangered Species Act (ESA).

Canopy. The overstory of vegetation in a forest environment.

Carnivore. A mammal predator that consumes animal flesh as a major component of its diet.

Caudex. The underground base of the stem of many perennial herbaceous plants.

Clearing. Remove all surface vegetation and debris in preparation for construction.

Cobble. Rock fragments between 2.5 and 10 inches in diameter, especially that have been naturally rounded.

Coliform. Types of bacteria used as indicators of pollution.

Colony. A group or cluster of individuals of a species living together.

Compromise (or Compromise Elevation): The elevation of Utah Lake at which the outlet gates must be fully opened to avoid inundation of lands around the lake. Established as 4,489.045 feet above mean sea level.

Confluence. The location where two or more streams come together.

Construction Staging Areas. Storage area for equipment and construction materials, location of the contractor's trailer, base for construction workers.

Conversion: The water rights process under the Utah Lake Distribution Plan by which system storage becomes priority storage.

Conversion Line: The total volume of system storage in Utah Lake, Jordanelle Reservoir, and Deer Creek Reservoir at which system storage may be converted to priority storage.

Council on Environmental Quality (CEQ). An advisory council to the President of the United States established by the National Environmental Policy Act of 1969. It reviews federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

Creel Census. A determination of fish catch success based on interviews with anglers.

Cubic feet per second (cfs). A measurement of flow: volume per unit time, in English units.

Culinary Water. A water use classification that designates water to be used for indoor human consumption or use.

Cumulative Impacts. As defined in Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations (CEQ 1978), cumulative impacts are "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Decibel. A unit for expressing the relative intensity of sounds on a scale from zero for the average least perceptible sound to 130 for the average pain level.

Deciduous. Trees that lose their leaves during the winter.

Discharge. The amount of water taken out of a hydrologic system or feature.

Dissolved Oxygen. The concentration of oxygen in a volume of water, normally expressed as milligrams of oxygen per liter of water.

Distance Zone: Areas of landscapes denoted by specified distances from the observer. Used as a frame of reference in which to discuss landscape characteristics or activities of man.

Distribution Plan: The Utah State Engineer's interim operation plan for Utah Lake, which allows surplus system storage to be stored in Jordanelle and Deer Creek reservoirs and to be subsequently converted to priority storage when the total system storage is above the conversion line.

Diversion. A place where water is diverted from a river or reservoir.

Diversion Dam. A structure across a main river channel that maintains the channel bottom elevation and increases the water surface elevation just to improve the performance of the diversion.

Easement. A partial ownership of land providing the owner access or other rights to certain uses of the parcel.

Ecosystem. A community of animals and plants and their interrelated environment.

Eddies. A current of water running contrary to the main current, as in a small whirlpool.

Edge Effect. Increased value of habitat in areas where different types of vegetation occur along a boundary (open land – trees, grassland – shrubs, etc.).

Effluent. Water discharged from a wastewater treatment plant.

Emission. Substances discharged into the air (as by automobiles or construction equipment engines).

Emergent Marsh. A meadow-like area overgrown with herbaceous aquatic plants such as cattail, rushes and sedges.

Emergent Vegetation. Erect, rooted, herbaceous vegetation (excluding mosses and lichens).

Endangered Species. Any species of plant or animal that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as endangered in accordance with the 1973 Endangered Species Act (ESA).

Environmental Impact Statement (EIS). A document that discusses the likely significant impacts of a proposal, methods to lessen the significance of impacts, and alternatives to a proposed action. This documentation is required by the National Environmental Policy Act.

Eocene. The geologic epoch from 58 million to 40 million years before the present.

Erosion. The carrying away of surface material by wind or water.

Ethnographic. The scientific description of specific human cultures.

Eutrophication. The process of over-enrichment of water bodies by nutrients often typified by the development of algal blooms.

Exchange: The water rights process under which water in one location or under one owner's control is traded for water in another location or under another owner's control.

Extirpated. A species that is no longer found in a particular area but which exists in other locations.

Fauna. The animal life of a region.

Floodplain. The area covered by floodwaters from channel overflows; generally associated with a particular recurrence interval (e.g. the 100-year floodplain is the area covered by floodwaters from the 100-year flood).

Flora. The plant life of a region.

Flow Control (Pressure Reducing) Structures. A valve used to reduce the pressure in a pipeline.

Forebay. The area of a reservoir from which water is withdrawn.

Foreground Distance Zone: The detailed landscape found within zero to one-quarter to one-half mile from the observer.

Fry. Recently hatched fish.

Fugitive Dust/Fugitive Emission. Short-lived dust or emissions.

Gaging Station. A permanent facility on a stream which measures the depth (also called stage) of the water in the river. Depths are then converted to flows using a stage-discharge equation that has been developed for that particular site.

Game species. Animals that are hunted, fished or trapped.

Geomorphology. The study of how various land forms are sculpted by surface agents such as wind and flowing water.

Geotextile. Fabric used in construction applications for separation layers, load-bearing increasers, filter, impermeable layers, and soil retention and weed control.

Gradient. The slope of a streambed or groundwater level.

Gravel. Rock fragments that are less than 2.5 inches in diameter, usually naturally rounded.

Groundwater. Water beneath the surface that feeds wells and springs and maintains the level of rivers and lakes in dry weather.

Groundwater Discharge. The movement (usually laterally or upward) of water from a body of groundwater to its emergence into a surface water system such as a spring, seep or stream channel.

Groundwater Recharge. The process of adding water to the zone of saturation; also, the amount of water added.

Grubbing. Remove all subsurface vegetation and debris in preparation for construction.

Habitat. The place or type of site where a plant or animal naturally or normally lives and grows.

Herbaceous. With the characteristics of an herb; a plant with no persistent woody stem above ground.

High Flow. The annual average maximum flow observed in a stream.

Holocene. The geologic epoch of approximately the last 10,000 years.

Hybridization. Breeding between distinct, but closely-related species to produce mixed-species offspring.

Hydroelectric. The production of electricity by water power.

Hydrology. The scientific study of the properties, distribution, and effects of water. Also, the local conditions of surface or subsurface water in an area.

Hydrologic period. The historical period of time used to define baseline hydrologic conditions.

Hydroseeding. Spraying a slurry mixture of seeds, fertilizer and mulch onto an area to be revegetated.

Hydrostatic Testing. Checking a pipe for leaks or structural problems by filling it with water and pressurizing the pipe to a specified pressure.

Infrastructure. The basic facilities, services, and installations needed for the functioning of a community or society, such as transportation and communications systems, water and power lines, and public institutions including schools, post offices, and prisons.

In-stream Flow. The volume of water per unit of time (usually cubic feet per second) flowing within a stream channel.

Lacustrine. Related to, formed in, or growing in lakes.

Landform: Each of the numerous features that together make up the surface of the earth. It includes all broad features such as plains, plateaus, and mountains, and also all of the minor features, such as hills, valleys, slopes, canyons, arroyos, and alluvial fans.

Land use. The way the land is used in terms of the types of activities allowed (e.g. agriculture, residences, industry) and the size of buildings and structures permitted. Certain types of pollution are often associated with particular land uses, such as sedimentation from construction or farming activities.

Load. The total quantity of a substance delivered into a water body from all sources in a unit of time.

Long-term Impact. A general term used to describe impacts that continue after completion of project construction. The length of time they continue may vary.

Low Flow. The annual average minimum flow observed in a stream.

Macroinvertebrates. See Benthic Macroinvertebrates.

Median. The middle value in a distribution, above and below which lie an equal number of values.

Micron. A unit of length equal to one millionth (10^{-6}) of a meter, or 0.0000394 inch.

Middleground Distance Zone. The space between the foreground and the background in a picture or landscape. The area located from one-quarter to one-half to three to five miles from the viewer.

Migratory. An animal that seasonally shifts from one habitat to another.

Mitigate, Mitigation. Cause to become less severe or harmful; reduce impacts; actions to avoid, minimize, reduce, eliminate, compensate, or rectify impacts to resources.

MODFLOW. A computer program to model groundwater flow.

Monitor. To systematically and repeatedly measure conditions in order to track changes.

Mortality. The whole sum or number of deaths in a given time or a given community.

Mulch. A protective covering spread or left on the ground to reduce evaporation, maintain even soil temperature, prevent or reduce erosion, control weeds and enrich the soil to enhance establishment of vegetation.

Municipal and Industrial Water (M&I). A water use classification that designates water to be used for domestic, commercial, or industrial purposes.

National Environmental Policy Act. A congressional act requiring an environmental impact statement on all major federal actions significantly affecting the quality of the human environment. [42 U.S.C. 4332 2(2)(C).]

Neotropical. Occurring or migrating south of the Tropic of Cancer, typically including the regions of Central and South America.

Niche. The particular area within a habitat occupied by an animal or plant.

Nitrate. A chemical compound having the formula NO_3^-. Nitrate salts are used as fertilizers to supply a nitrogen source for plant growth. Nitrate addition to surface waters can lead to excessive growth of aquatic plants.

Noxious Weeds. A plant species that is undesirable, conflicts, restricts or otherwise causes problems with intended land-use goals and objectives.

Nutrients. Essential chemicals required by all living forms (plants and animals) for growth and health, such as nitrogen or phosphorus. Excessive amounts of nutrients can lead to degradation of water quality by promoting high growth rates of certain species, such as algae. Some nutrients can even be toxic in high concentrations.

Oxbow. A U-shaped bend in a river.

Paleocene. The geologic epoch from 63 million to 58 million years before the present.

Paleontological Resources. Fossilized remains of plants and animals from former geologic periods.

Palustrine. Defining a wetland area that is not continuously flooded.

Partial Retention: A visual quality objective, which generally means man's activities may be evident, but must remain subordinate to the characteristic landscape.

Passerine. Perching and, typically, song birds.

Peak Discharge. Maximum flow rate, such as maintained by a canal or pipeline. Usually measured in cubic feet per second (cfs).

Perched Aquifer. A shallow aquifer that is separated from the groundwater aquifer by an aquitard.

Permeability. The rate of flow of a liquid or gas through a porous material.

Perennial. A plant that lives or continues more than two years, whether it retains its leaves in winter or not.

Phosphorus. A nonmetallic element of the nitrogen family that occurs widely as phosphates.

Photochemical. An atmospheric chemical reaction occurring in sunlight.

Physiographic. Pertaining to the natural features of the earth's surface, especially in its current aspects, including land formation, climate, currents, and distribution of flora and fauna.

Piezometer. An open vertical tube inserted into an aquifer to measure the groundwater level.

Pipeline Rupture. A break in a pipeline resulting in an uncontrolled spillage of water until the pipeline can be shut down.

Pleistocene. The geologic epoch from two million to 11 thousand years before the present.

Population. A group of organisms of the same species inhabiting a given area.

Portal. A tunnel's entrance and exit points from the ground.

Preferred Alternative. Of the alternatives proposed by the joint lead agencies in the environmental impact statement (EIS), this is the favored course of action.

Prime Farmland. Lands that have the best combination of physical and chemical characteristics for food production, feed, forage, fiber and seed crops. In Utah, to be officially considered prime farmland, they must meet certain criteria, as defined by the Soil Conservation Service (now the Natural Resource Conservation Service).

Priority Storage. Legal storage under a water right. Such water is not subject to call by other rights and can be used in accordance with the right.

PROSIM2000. A computer water balance allocation calculator or simulation model.

Quartile. One portion of a body of data that has been separated into four equal parts.

Raptor. Bird of prey.

Recharge. Water returned to the underground aquifer through wells or infiltration basins.

Reaches. A specified section of a stream or a pipeline.

Reclamation. Returning disturbed land to a form and productivity that will be ecologically balanced and in conformity with a predetermined goal and land-use objective.

Record of Decision. A document separate from but associated with an Environmental Impact Statement that publicly and officially discloses the responsible official's decision on which alternative assessed in the Environmental Impact Statement to implement. It also includes commitments to mitigation.

Redd. A nest formed by fish in the substrate where they deposit their eggs.

Reptiles. A class of air-breathing vertebrates that includes the alligators and crocodiles, lizards, snakes, turtles, and extinct related forms.

Return Flow. The flow of unconsumed water back to the stream, river or reservoir after delivery; often to describe groundwater discharge to surface water.

Revegetation. Restoring plants in a disturbed area by planting or seeding.

Riffle. A hydraulic (flowing water) habitat type that is characterized by relatively high velocity, coarse substrate, and shallow water. Riffles are sub-divided into high-, medium-, and low-gradient habitat types.

Riparian. Related to or living or located on the bank of a natural watercourse such as a river, lake or tidewater.

Riprap. A foundation or sustaining wall of stones or chunks of concrete thrown together without order usually on an embankment slope to prevent erosion.

Riverine. Defining a wetland area occurring within a river or stream bed.

Roost. A place where birds rest and sleep.

Run. A flowing water habitat type, in a stream that has intermediate flow velocity and depth.

Salinity. The concentration of dissolved "salts" in the water, measured by total dissolved solids (TDS).

Salmonids. A family of long-bodied, soft-finned fish species (trout and salmon)

Scoping. Process established to incorporate public input on proposed activities, disclosed in a NEPA document.

Scour. Erosion that occurs on the bottom of a river.

Scrub-shrub. Defining a specific type of wetland dominated by woody vegetation less than 6 meters (20 feet) in height.

Secondary Water. Water used for outdoor irrigation.

Sedimentation. The introduction of sediment material from an erosion source into a stream or lake.

Sediment. Material suspended in or settled to the bottom of a liquid from natural sources such as soil erosion or rock weathering or from human activity such as forest or agricultural practices or construction.

Selenium. A nonmetallic element linked to various animal maladies when absorbed in high concentrations.

Shoring. Framework to support the walls of a trench and prevent the trench from collapsing.

Silt Fencing. Fabric fence that filters out sediment. Usually erected between a potential sediment source and a river or wetland to prevent sediment from entering the water.

Siltation. The process of introducing fine-particle materials to a stream or lake, which then can cover larger substrate materials, such as cobble and rocks, that are often quality habitat for species such as trout for feeding and rearing their young.

Sinuous. Having a serpentine or wavy form.

Slope Breakers. Barriers erected on a slope to reduce runoff velocity and divert waste. Usually constructed of materials such as soil, silt fence, staked hay or straw bales, or sandbags.

Socioeconomics. The resource topic or discipline that addresses potential impacts of a project on people and affected economies. Analysis could include impacts on businesses, personal income, and public services.

Spawning. Egg-laying by aquatic animals, including fish and amphibians.

Species Diversity. Having multiple different species; a variety of species.

Spillway. The portion of a dam where water can flow over the top and into the channel below.

Spoil. Material removed from a tunnel during construction.

Standard Operating Procedures (SOPs). A process followed during construction, operation or maintenance of a project to avoid, minimize or rectify adverse impacts on natural resources and people.

Standing Crop. The biomass of a particular group or groupings of organisms present at any one time (i.e., total weight of trout species in a stream).

Storage. The volume of water in a reservoir or aquifer.

STORET Station. A water quality sampling point defined by the Environmental Protection Agency.

Stratification. Layering of water, typically in deep lakes and reservoirs, caused by differences in water density.

Substrate. Sediment particles that make up a creek, river or reservoir bottom. The classification or categorization of sediment particles present within a stream, lake or body of water includes; silt, sand, gravel, cobble and boulders.

System Storage: The total active storage in Utah Lake, excluding the primary storage, plus water stored in upstream reservoirs under junior priority water rights. System storage is subject to call to satisfy the diversion requirements of primary and secondary Utah Lake storage rights.

Temporary Impact. An impact that lasts for a limited time, such as only during the construction phase of a project.

Terraced. Having several different elevations.

Threatened Species. Any animal or plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as threatened in accordance with the 1973 Endangered Species Act (ESA).

Topography. The surface contour of a land area.

Total Dissolved Solids(TDS). The mass of dissolved ionic compounds in water per volume of water, usually expressed in mg/L or equivalently parts per million. (See salinity).

Transbasin Diversion. A water diversion from one hydrologic drainage basin to another.

Tributary. A stream that flows into a large stream, river or other body of water.

Turbidity. The ability of water to transmit light. Suspended solids, organics, and dissolved species, which color the water, contribute to turbidity.

Turbulent Flow. Flow characterized by random fluctuations in fluid velocity and by intense mixing of the fluid on the macroscopic level.

Upland. As defined herein, any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils, and/or hydrologic characteristics associated with wetlands. Such areas occurring within floodplains are more appropriately termed non-wetlands.

Vertebrate. Animals which possess a backbone.

Visual Absorption Capability (VAC). The ability of a landscape to absorb visual impact.

Visual Quality Objective (VQO). A desired level of excellence based on physical and sociological characteristics of an area. Refers to degree of acceptable alteration of the characteristic landscape.

Visual Resource. The composite of basic terrain, geologic features, water features, vegetation patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for viewers.

Volatile. A substance that evaporates easily.

Waterfowl. Birds that are found in aquatic habitats.

Water Rights. A legal right to take water and put it to beneficial use.

Water Table. The upper surface of groundwater or the level below that the soil is saturated with water.

Water Year. The water year starts October 1 and ends September 30. For example, the 1995 water year started October 1, 1994, and ended September 30, 1995.

Weir. A grade control feature extending across a channel or reservoir, designed for water to flow over the top.

Wetlands. Areas that are inundated by surface or groundwater often enough to support – and under normal circumstances does or would support – vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

Wetted Channel/Wetted Perimeter. The portion of the streambed that conveys water.

Wild Trout. A landlocked salmonid that lives, grows, and reproduces in natural habitat as opposed to hatchery reared trout.

Wildlife. Animals normally existing in the wild, not domesticated.

Abbreviations and Acronyms

Abbreviation/Acronym	Meaning/Description
AADT	Average Annual Daily Traffic
ACHP	Advisory Council on Historic Preservation
AD/YR	Angler Days per Year
AF	Acre-Feet
APE	Area of Potential Effect
ATV	All – Terrain Vehicle
AUMs	Animal Unit Months
BEBR	Bureau of Economic and Business Research
BIA	Bureau of Indian Affairs
Binns HQI	Binns Method Habitat Quality Index
BLM	U.S. Bureau of Land Management
BOD	Biochemical Oxygen Demand
B.U.	Bonneville Unit
CAD	Computer Assisted Design
CEM	Constituents of Energetic Materials
CEQ	Council on Environmental Quality
cfs	Cubic feet per second
CO	Carbon Monoxide
COE	U.S. Army Corps of Engineers
CRSP	Colorado River Storage Project
CUP	Central Utah Project
CUPCA	Central Utah Project Completion Act
CUWCD	Central Utah Water Conservancy District
dB	Decibel
dBA	A-weighted Decibels
DEIS	Draft Environmental Impact Statement
DEQ	Utah Department of Environmental Quality
DO	Dissolved Oxygen
DOI	U.S. Department of the Interior
DPR	Definite Plan Report
EBCo	Ensign-Bickford Company
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	1973 Endangered Species Act
F	Fahrenheit
FDM	Fugitive Dust Model
FEIS	Final Environmental Impact Statement
fps	Feet per Second
FS-FEIS	Final Supplement to the Final Environmental Impact Statement
ft	Foot/feet
ft^3	Cubic Foot/feet
FHWA	Federal Highway Administration
FR	Federal Register
FWS	U.S. Fish and Wildlife Service
GIS	Geographic Information System
gpd	Gallons per Person per Day

Abbreviation/Acronym	Meaning/Description
GPS	Global Positioning System
HEC-RAS	Hydrologic Engineering Center – River Analysis System
HEP	Habitat Evaluation Procedure
HQI	Habitat Quality Index
IABAT	Interagency Aquatic Biological Assessment Team
IFIM	Instream Flow Incremental Methodology
in	Inch/inches
JVWCD	Jordan Valley Water Conservancy District
kw/kwhr	Kilowatt(s)/Kilowatt hour(s)
lb	Pound/pounds
Ldn	Day-night Average Sound Level
Leq(h)	The A-weighted, hourly equivalent sound level
M&I	Municipal and Industrial
Mg/L	Milligrams per Liter
Mitigation Commission	Utah Reclamation Mitigation and Conservation Commission
Mph	Miles per Hour
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHP	Natural Heritage Program
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service, formerly SCS
NRHP	National Register of Historical Properties
NTU	Nephelometric Turbidity Units
NWI	National Wetlands Inventory
O&M	Operations and Maintenance
O_3	Ozone
OSHA	Occupational Safety and Health Administration
Pb	Lead
pH	A measure of a solution's hydrogen ion concentration (acidity)
Physiographic	
PM_{10}	Particulate matter less than 10 microns in diameter
ppm	Parts Per Million
ROD	Record of Decision
RTUs	Remote Telemetry Units
SCADA	Supervisory Control and Data Acquisition System
SCS	Soil Conservation Service, now known as NRCS
SFN	Spanish Fork Canyon – Nephi Irrigation System
SHPO	State Historic Preservation Officer
SO_2	Sulfur Dioxide
SOPs	Standard Operating Procedures
STORET	STOrage and RETrieval water quality database maintained by the EPA
SVP	Strawberry Valley Project
SWUA	Strawberry Water Users Association
T&E	Threatened and Endangered

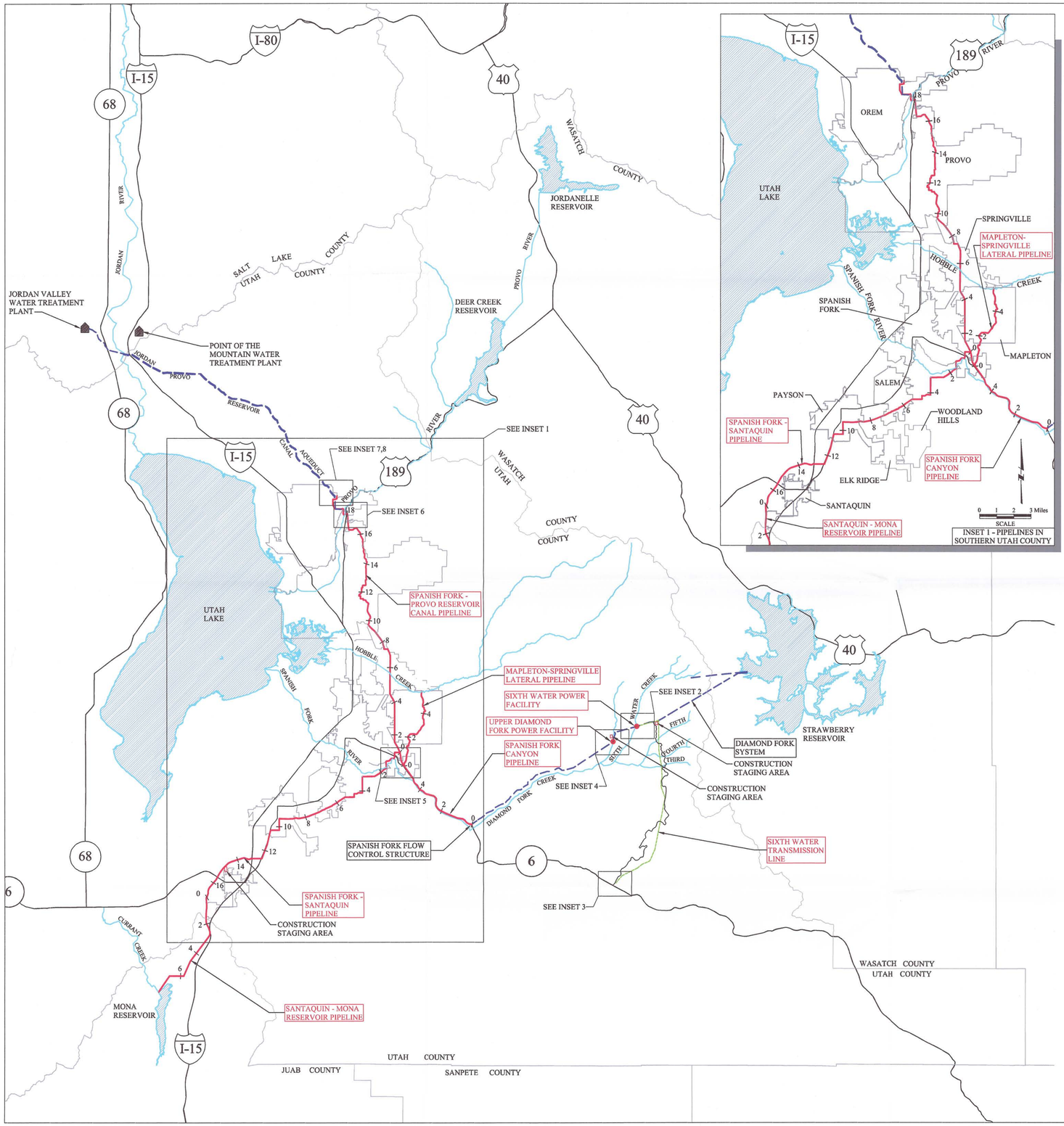
Abbreviation/Acronym	Meaning/Description
TDS	Total Dissolved Solids
TP	Total Phosphorus
TSP	Total Suspended Particulates
UDEQ	Utah Department of Environmental Quality
UDNR	Utah Department of Natural Resources
UDOT	Utah Department of Transportation
ULS	Utah Lake Drainage Basin Water Delivery System
ULT	Ute ladies'-tresses
µg	Microgram
UNF	Uinta National Forest
URMCC	Utah Reclamation, Mitigation and Conservation Commission
Reclamation	U.S. Bureau of Reclamation
UGS/UGMS	Utah Geological Survey/Utah Geological and Mineral Survey
USC	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
VAC	Visual Absorption Capability
VQO	Visual Quality Objective
WAPA	Western Area Power Administration
WET	Wetland Evaluation Technique
WUA	Weighted Usable Area
WWTP	Wastewater Treatment Plant
1999 FS-FEIS	Diamond Fork System 1999 Final Supplement to the 1984 Diamond Fork Power System Final Environmental Impact Statement

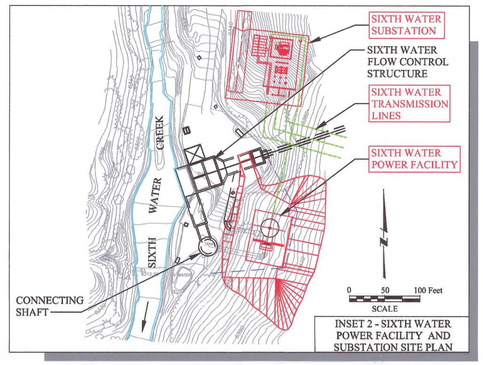
THIS PAGE INTENTIONALLY LEFT BLANK

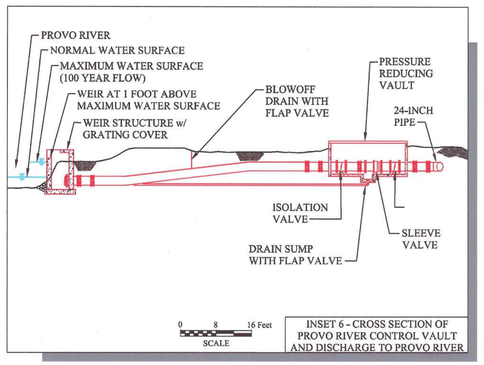
List of Preparers

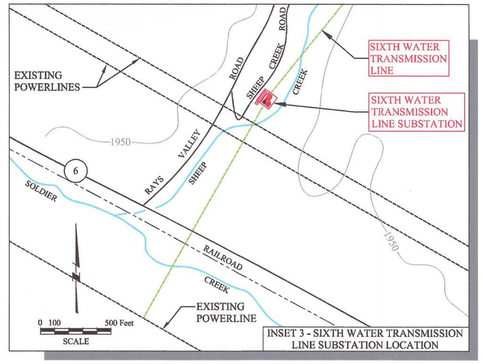
Name	Degree(s)	Role
Central Utah Water Conservancy District		
Mark Breitenbach	B.S. Civil Engineering	ULS Project Manager
Terry Hickman	M.S.- Fish & Wildlife Biology B.S. - Zoology	Assistant Environmental Programs Manager
Chris Keleher	M.S. – Zoology and Physiology B.S. – Biology	Wildlife Special Status Species, Aquatic Resources, Wildlife Resources
Harold Sersland	B.S. – Forestry/Wildlife Management	CUWCD Environmental Programs Manager
Lee Wimmer	M.S. – Civil Engineering B.S. – Civil Engineering	Project Review
U.S. Department of the Interior, CUP Completion Act Office		
Reed Murray	M.S. – Civil Engineering B.S. – Civil Engineering	Project Review
Utah Reclamation, Mitigation and Conservation Commission		
Mark Holden	M.S. – Fisheries and Wildlife B.S. – Biology and Chemistry	Project Review
Montgomery Watson Harza (MWH) Consultant Team		
Troy Baker MWH, Inc.	B.S. Wildlife and Fisheries	Aquatic Resources/TES Fish
Diana Barnes MWH, Inc.	A.A. – Secretarial Science	Word Processing and Formatting
Laurie Barnett MWH, Inc.		Project Coordinator
Rick Black HDR Engineering, Inc.	M.S. – Plant Community Ecology B.S. – Range and Wildlife Biology	Ute ladies'-tresses Analysis/TES Plants
Erich Brandstetter MWH, Inc.	Ph.D. - Ecology M.S. - Mathematics B.S. - Wildlife and Fisheries	Surface Water Quality
Cathy Cooper MWH, Inc.	M.S. – Civil and Environmental Engineering B.S. – Civil Engineering	Transportation, Air Quality, Mineral and Energy Resources, Wildlife Resources, Soils, Overall Document Preparation
Eric Clyde MWH, Inc.	M.S. - Civil Engineering B.S. - Civil Engineering	Surface Water Hydrology, Surface Water Quality
Steve Cox MWH, Inc.	M.S. - Environmental Biology M.B.A.- Business Administration M.D. - Medicine B.A. - Arts	Wildlife/Wetlands/TES Wildlife
David H. Greegor, Jr. MWH, Inc.	Ph.D. - Ecology M.S. - Ecology B.S. - Zoology	EIS Technical Coordinator, Water Quality
Chris Hoffman Norton Arnold/Seattle	M.S. - Resource Recreation & Tourism B.A. - English Literature	Recreation Resources

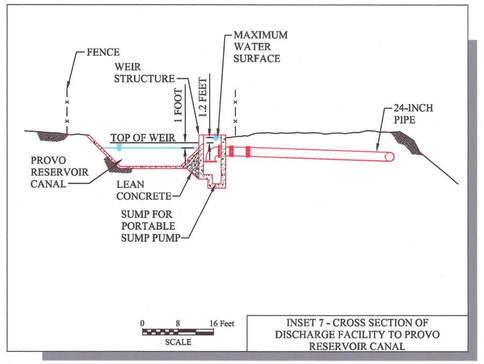
Name	Degree(s)	Role
Cindy Jones MWH, Inc.	M.S. - Environmental Studies B.S. - Biology	Aquatic Resources/TES Fish
MaryLouise Keefe MWH, Inc.	Ph.D. - Biological Sciences B.A. - Biology	Aquatic Resources/TES Fish
Gerry Kitzmiller MWH, Inc.	B.S. - Occupational Health & Safety	Public Health & Safety
Randall Leonard Independent Consultant	M.S. - Wildlife & Range Resources B.S. - Zoology	Land Use Plans and Conflicts
Brian Liming MWH, Inc.	M.S. – Civil and Environmental Engineering B.S. – Ecosystems Analysis	EIS Team Leader, Overall Document Preparation, Surface Water Quality, Aquatic Resources
Tom Menzel Menzel Higgins	B.A. – Journalism	Technical Editor
Pat Naylor MWH, Inc.	M.S. – Civil Engineering B.S. – Engineering Geology	Groundwater Quality
Doug Oliver MWH, Inc.	M.S. - Hydrology M.S. - Civil Engineering B.A. - Environmental Science	Groundwater Hydrology
Darryll Olsen PNW Project/Kennewick	Ph.D. - Applied Energy Studies M.A. - Quantitative History B.A. - History/Philosophy	Socioeconomics
Mike Polk Sagebrush Consultants - Ogden	M.A. - Anthropology B.A. - Anthropology	Cultural Resources, Paleontology
Steve Romney MWH, Inc.	B.S. - Civil Engineering	Civil Engineering
Jim Riley Independent Consultant - Orem	MBA Ph.D.- Civil Engineering M.S.- Civil Engineering B.S.- Civil Engineering	Water Resources Planning
Richard Smith R.B. Smith Consulting Fresno	M.S. - Plant Science B.S. - Agronomy	Agriculture, Soils
Paul Summers MWH, Inc.	B.S. – Civil Engineering	Project Management
Steve Thurin MWH, Inc.	M.S. – Hydrology and Water Resources B.S. – Civil Engineering	Surface Water Hydrology, Surface Water Quality
Dick Traylor NEPA Effects	M.S. – Forestry Management B.S. – Forestry	NEPA Compliance, QA/QC, Overall Document Preparation
M. Russell Waln MWH, Inc.	B.S./B.Sc. – Mathematics	AutoCAD/Graphics Preparation
Christine Whittaker MWH, Inc.	B.L.A. – Landscape Architecture	Wetland Resources, Visual Resources, Noxious Weed Control Plan

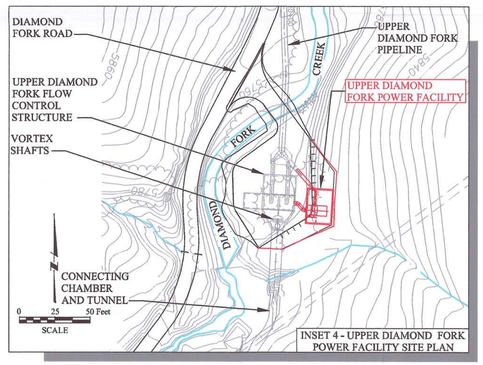


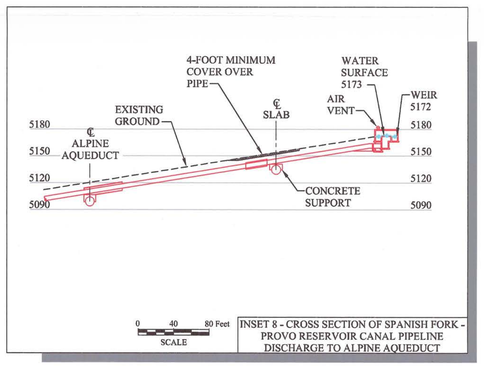


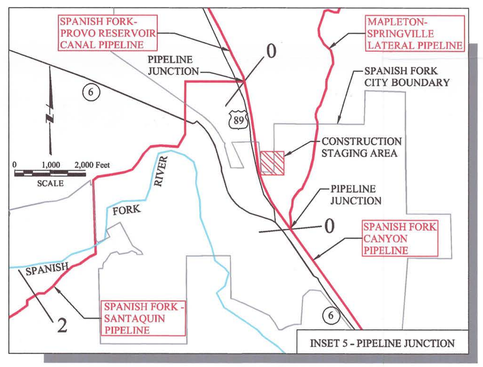


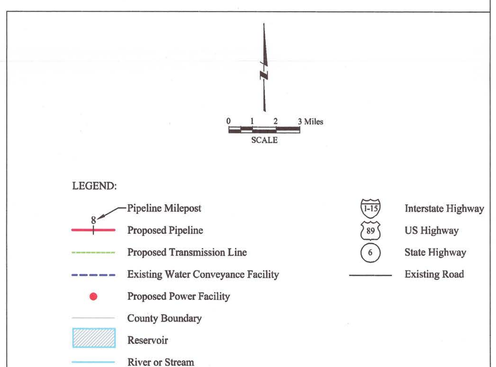












Map A-1
Spanish Fork Canyon - Provo Reservoir Canal Alternative
(Preferred Alternative)

JORDAN VALLEY WATER TREATMENT PLANT

POINT OF THE MOUNTAIN WATER TREATMENT PLANT

JORDAN RIVER

JORDAN AND PROVO RIVER CANAL AQUEDUCT

JORDANELLE RESERVOIR

DEER CREEK RESERVOIR

PROVO RIVER

WASATCH COUNTY

SALT LAKE COUNTY

UTAH COUNTY

SEE INSET 1

UTAH LAKE

HOBBLE CREEK

SPANISH FORK

MAPLETON-SPRINGVILLE LATERAL PIPELINE

SIXTH WATER POWER FACILITY

UPPER DIAMOND FORK POWER FACILITY

SPANISH FORK CANYON PIPELINE

SEE INSET 2

SEE INSET 4

SEE INSET 5

DIAMOND FORK CREEK

SPANISH FORK FLOW CONTROL STRUCTURE

SPANISH FORK - SANTAQUIN PIPELINE

CONSTRUCTION STAGING AREA

DIAMOND FORK SYSTEM CONSTRUCTION STAGING AREA

CONSTRUCTION STAGING AREA

STRAWBERRY RESERVOIR

RAYS VALLEY ROAD

SIXTH WATER TRANSMISSION LINE

SEE INSET 3

WASATCH COUNTY

UTAH COUNTY

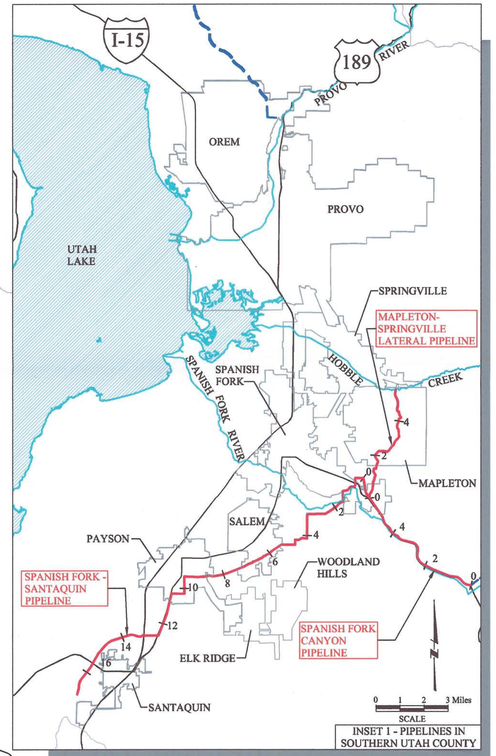
SANPETE COUNTY

JUAB COUNTY

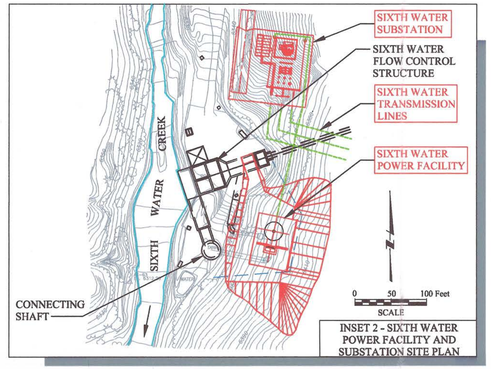
MONA RESERVOIR

CURRANT CREEK

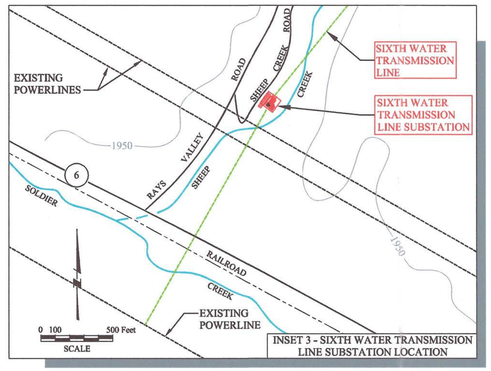
I-15 I-80 40 68 6 189



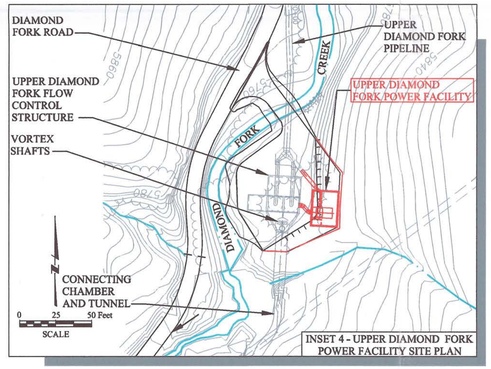
INSET 1 - PIPELINES IN SOUTHERN UTAH COUNTY



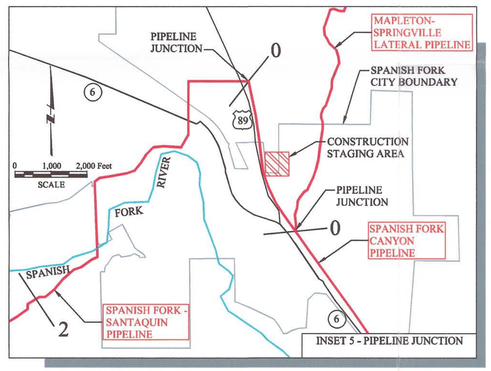
INSET 2 - SIXTH WATER POWER FACILITY AND SUBSTATION SITE PLAN



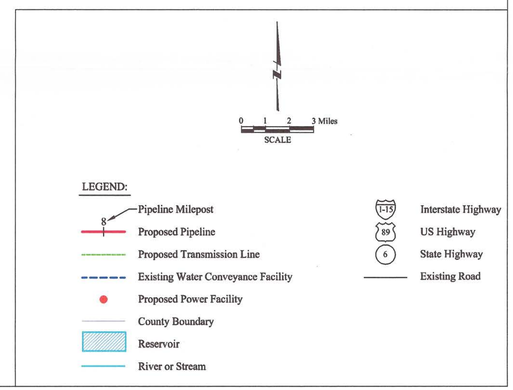
INSET 3 - SIXTH WATER TRANSMISSION LINE SUBSTATION LOCATION



INSET 4 - UPPER DIAMOND FORK POWER FACILITY SITE PLAN



INSET 5 - PIPELINE JUNCTION



Utah Lake System Environmental Impact Statement

Map A-2
Bonneville Unit Water Alternative