Utah Lake Drainage Basin
Water Delivery System
Bonneville Unit, Central Utah Project
Final Environmental Impact Statement

Errata for:

Surface Water Hydrology Technical Report

Aquatic Resources Technical Report

Wildlife Resources and Habitat Technical Report

Threatened, Endangered and Sensitive Species Technical Report

September 2004

CENTRAL UTAH WATER CONSERVANCY DISTRICT

UTAH RECLAMATION MITIGATION AND CONSERVATION COMMISSION

U.S. DEPARTMENT OF THE INTERIOR
MARCH 3, 1849

Errata for Technical Reports
Contents

Errata for Technical Reports
Contents

Tables

Figures

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

Final
Environmental Impact Statement

Technical Report Errata Summary

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Utah Lake Drainage Basin Water Delivery System
Final Environmental Impact Statement
Technical Report Errata Summary

S.1 Introduction

This volume contains all of the errata resulting from comments received on the Utah Lake Basin Water Delivery System (Utah Lake System or ULS) Draft Environmental Impact Statement (DEIS) technical reports. In addition, it contains errata made by the EIS team to correct errors found in the technical reports or to provide additional clarifying information.

The following sections are included in this errata document:

- Errata for All Technical Reports
- Errata for the Surface Water Hydrology Technical Report
- Errata for the Aquatic Resources Technical Report
- Errata for the Wildlife Resources and Habitat Technical Report
- Errata for the Threatened, Endangered and Sensitive Species Technical Report

The errata are incorporated into the technical reports as corrections to the text. Corrections to the text are noted by page number, section number and paragraph number or table number, where appropriate. The first paragraph in a section is identified as paragraph 1, even though it may be only a partial paragraph. Likewise, the first paragraph on a page is identified as paragraph 1, even though it may be only a partial paragraph. A series of bullets are counted as one paragraph. For example, a list of four bullets are all considered as one paragraph. Material that follows and explains a bullet, and is indented the same as the bullet, is considered to be part of the same paragraph as the bullet.

Sufficient text has been duplicated from the technical reports to provide context for the changes made by the errata. Material that has been deleted is shown by a ~~strikeout~~, and the text or data that has been added or revised is shown in **bold**. Section headings excerpted from the technical reports are shown in bold as they appeared in the technical reports.

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

Final
Environmental Impact Statement

Section 1
Errata Common to
Technical Reports

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Section 1

Utah Lake Drainage Basin Water Delivery System
Final Environmental Impact Statement
Errata Common to Technical Reports

1.1 Introduction

This section contains errata that are common to the following Utah Lake Drainage Basin Water Delivery System (Utah Lake System or ULS) technical reports.

- Surface Water Hydrology Technical Report
- Aquatic Resources Technical Report
- Wildlife Resources and Habitat Technical Report
- Threatened, Endangered and Sensitive Species Technical Report

1.2 Replace Description of Preferred Alternative and Other Alternatives

Replace Chapter 1, Introduction, Section 1.2, Description of Preferred Alternative and Other Alternatives with the following:

1.2 Description of Proposed Action and Other Alternatives

1.2.1 Spanish Fork Canyon–Provo Reservoir Canal Alternative (Proposed Action)

Table 1-1 presents the Proposed Action features. This alternative has an average transbasin diversion of 101,900 acre-feet, which consists of the delivery of: 30,000 acre-feet of municipal and industrial (M&I) secondary water to southern Utah County, 30,000 acre-feet of M&I water to Salt Lake County water treatment plants, 1,590 acre-feet of M&I water already contracted to the southern Utah County cities, and 40,310 acre-feet of M&I water to Utah Lake for exchange to Jordanelle Reservoir. It would involve constructing five new pipelines for the delivery of water: 1) from the mouth of Diamond Fork Canyon to the mouth of Spanish Fork Canyon; 2) from the mouth of Spanish Fork Canyon to Santaquin in southern Utah County; 3) from Santaquin to Mona Reservoir; 4) from the mouth of Spanish Fork Canyon to Hobble Creek along the Mapleton-Springville Lateral alignment; and 5) from the mouth of Spanish Fork Canyon to the Provo Reservoir Canal and Jordan Valley Aqueduct. Under this alternative, the Department of the Interior (DOI) would acquire 57,073 acre-feet of the Central Utah Water Conservancy District's (District) secondary water rights in Utah Lake as part of the project water supply. Two new hydropower plants and associated transmission lines would be constructed in the Diamond Fork System under this alternative.

Table 1-1
Construction Features of Utah Lake Drainage Basin Water Delivery System Alternatives

Feature	Spanish Fork Canyon – Provo Reservoir Canal Alternative (Proposed Action)	Bonneville Unit Water Alternative	No Action Alternative
Sixth Water Power Facility and Transmission Line	45 MW generator and 15.5 miles of overhead transmission line upgraded to 138 kV from Sixth Water Power Facility to Highway 6	45 MW generator and 15.5 miles of overhead transmission line upgraded to 138 kV from Sixth Water Power Facility to Highway 6	Not constructed
Upper Diamond Fork Power Facility and Underground Cable	5 MW generator and 1.5 miles of 25 kV underground cable (existing) through Tanner Ridge Tunnel to Sixth Water Transmission Line	5 MW generator and 1.5 miles of 25 kV underground cable (existing) through Tanner Ridge Tunnel to Sixth Water Transmission Line	Not constructed
Spanish Fork Canyon Pipeline	7.0 mile steel pipeline, 84-inches diameter from Spanish Fork Flow Control Structure at mouth of Diamond Fork Creek to Moark Junction	7.0 mile steel pipeline, 72-inches diameter from Spanish Fork Flow Control Structure at mouth of Diamond Fork Creek to Moark Junction	Not constructed
Spanish Fork-Santaquin Pipeline	17.5 mile steel pipeline, ranging from 60- to 36-inches diameter, from terminus of Spanish Fork Canyon Pipeline to Santaquin	17.5 mile steel pipeline, ranging from 48- to 36-inches diameter, from terminus of Spanish Fork Canyon Pipeline to Santaquin (CUPCA Section 207 feature)	Not constructed
Santaquin-Mona Reservoir Pipeline	7.7 mile steel pipeline, 24- to 30-inches diameter, from terminus of Spanish Fork-Santaquin Pipeline to Mona Reservoir	Not constructed	Not constructed
Mapleton-Springville Lateral Pipeline (CUPCA Section 207)	5.7 mile steel pipeline, 48-inches diameter from terminus of Spanish Fork Canyon Pipeline to Hobble Creek	5.7 mile steel pipeline, 48-inches diameter, from terminus of Spanish Fork Canyon Pipeline to Hobble Creek	Not constructed
Spanish Fork – Provo Reservoir Canal Pipeline	19.7 mile steel pipeline, ranging from 60- to 48 inches diameter, from terminus of Spanish Fork Canyon Pipeline to Provo Reservoir Canal and Jordan Valley Aqueduct	Not constructed	Not constructed

The following summarizes the Proposed Action operation.

- 30,000 acre-feet of ULS M&I water would be conveyed through the Spanish Fork – Provo Reservoir Canal Pipeline to the Provo Reservoir Canal (or enclosure) and the Jordan Aqueduct to Salt Lake County water treatment plants as a culinary supply.

- An annual average of 16,273 acre-feet of Bonneville Unit water from Strawberry Reservoir would be released for in-stream flows in Sixth Water Creek and Diamond Fork Creek and flow down the Spanish Fork River to Utah Lake mainly during the winter months, as previously described in the 1990 Diamond Fork System Final Supplement to the Final Environmental Impact Statement (Reclamation 1990). This water is included in the annual average of 40,310 acre-feet that would be exchanged from Utah Lake to Jordanelle Reservoir.

- As the ULS facilities are completed, but not later than 2030, 30,000 acre-feet of ULS M&I water would be delivered through the Spanish Fork–Santaquin Pipeline and the Mapleton-Springville Lateral Pipeline in southern Utah County under a contract with SUVMWA. Of this amount, an estimated 3,000 acre-feet would be conserved under Section 207 projects, assigned to DOI, conveyed through the Mapleton–Springville Lateral Pipeline, and is included in the 12,037 acre-feet delivered to Hobble Creek for June sucker spawning and rearing flows and other in-stream flows as provided by deliveries from Strawberry Reservoir to Utah Lake. This 12,037 acre-feet of water would then be exchanged from Utah Lake to Jordanelle Reservoir.

- Up to 10,200 acre-feet of SVP water shares acquired by SUVMWA cities would be conveyed to these cities in southern Utah County through the new ULS pipelines on a space-available basis. This water is part of the overall 61,000 acre-feet of SVP water stored in Strawberry Reservoir. An additional 8,831 acre-feet of SVP water would be delivered to the Mapleton and Springville irrigation companies through the Mapleton-Springville Lateral Pipeline. The balance of the SVP water supply would be released through the Strawberry Tunnel and Syar Tunnel to the Diamond Fork System and released to the Spanish Fork River.

- Of the 1,590 acre-feet of M&I water already under contract to SUVMWA, 590 acre-feet would be used by SUVMWA member cities as secondary M&I water. This water would be delivered through the Spanish Fork Canyon Pipeline and Spanish Fork–Santaquin Pipeline to the SUVMWA member cities. The remaining 1,000 acre-feet has been assigned to DOI and is part of the 12,037 acre-feet released to Hobble Creek.

- An annual average of 16,000 acre-feet of Bonneville Unit water would be delivered to the lower Provo River to assist in meeting the in-stream flow objectives and would be subsequently exchanged from Utah Lake to Jordanelle Reservoir. This water would be conveyed through the Spanish Fork–Provo Reservoir Canal Pipeline and discharged to the Provo River at the pipeline crossing when needed to make the Utah Lake–Jordanelle Reservoir exchange and when flows in the Provo River are less than 75 cfs. 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.

- As allowed under the Deer Creek Reservoir-Jordanelle Reservoir Operating Agreement, an annual 12,165 acre-feet of water would be provided as flows for June sucker spawning and rearing in the lower Provo River to meet June Sucker Recovery Implementation Program (JSRIP) goals annually.

- An average annual delivery of 12,037 acre-feet of project water would be available through the Mapleton-Springville Lateral Pipeline to Hobble Creek for June sucker spawning and rearing flows (April through July) and to provide other fish and wildlife benefits throughout the year. A portion of this water would be included in the 40,310 acre-feet of Utah Lake inflow from Strawberry Reservoir and would be subsequently exchanged from Utah Lake to Jordanelle Reservoir. Of the 12,037 acre-feet, 4,000 acre-feet would be provided in every year because this is the amount of water saved each year through Section 207. An average of 8,037 acre-feet would be provided when water is being delivered from Strawberry Reservoir to Utah Lake for exchange up to Jordanelle Reservoir. Hobble Creek supplemental water would not be delivered during high runoff years when Utah Lake is above compromise level. The high runoff years correspond with years when natural runoff would be sufficient to attract June sucker spawning.

- Approximately 3,300 acre-feet of lower Provo River water rights purchased by the District for the Mitigation Commission would flow undiverted to Utah Lake, thereby increasing the irrigation season flow in the lower Provo River.

- Hydroelectric power would be generated from the Bonneville Unit and SVP water conveyance and contracted to the Western Area Power Administration (see Table 1-1 for generating capacities).

1.2.2 Bonneville Unit Water Alternative

Table 1-1 presents the features of this alternative. This alternative has a total transbasin diversion of 101,900 acre-feet which consists of: 15,800 acre-feet of M&I secondary water to southern Utah County, 1,590 acre-feet of M&I water already contracted to the southern Utah County cities, and 84,510 acre-feet of M&I water to Utah Lake for exchange to Jordanelle Reservoir. It would involve constructing three of the new pipelines for the delivery of water as described for the Proposed Action: 1) from the mouth of Diamond Fork Canyon to the mouth of Spanish Fork Canyon; 2) from the mouth of Spanish Fork Canyon to Santaquin in southern Utah County; and 3) from the mouth of Spanish Fork Canyon to Hobble Creek along the Mapleton – Springville Lateral alignment. The Spanish Fork Canyon Pipeline would be a federally funded ULS feature; the other two pipelines would be constructed as combined ULS and Section 207 Water Conservation Program features. Under this alternative, two-new hydropower plants and associated transmission lines would be constructed in the Diamond Fork System; the DOI would acquire 15,000 acre-feet of District secondary water rights in Utah Lake as part of the project water supply; and no M&I water would be conveyed to Salt Lake County.

The following summarizes the Bonneville Unit Water Alternative operation:

- As the ULS facilities are completed, 15,800 acre-feet of ULS M&I water would be delivered through the Spanish Fork–Santaquin Pipeline in southern Utah County under a contract with SUVMWA. Of the 15,800 acre-feet, it is anticipated that 3,000 acre-feet would be conserved under 207 projects and returned to DOI for in-stream flows, and would be included in the 23,510 acre-feet conveyed through the Mapleton-Springville Lateral pipeline.

- An annual average of 16,273 acre-feet of Bonneville Unit water from Strawberry Reservoir would be released for in-stream flows in Sixth Water Creek and Diamond Fork Creek and flow down the Spanish Fork River to Utah Lake on a year-round basis. This water would be exchanged from Utah Lake to Jordanelle Reservoir.

- Up to 10,200 acre-feet of SVP water shares acquired by SUVMWA cities would be conveyed to member cities by SUVMUA in southern Utah County through the new ULS pipelines. This water is part of the overall 61,000 acre-feet of SVP water stored in Strawberry Reservoir. The balance of the SVP water would be released through the Strawberry Tunnel and Syar Tunnel to the Diamond Fork System for conveyance to the Spanish Fork River (except for SVP water in the Mapleton-Springville Lateral).

- Of the 1,590 acre-feet already under contract to SUVMWA, 590 acre-feet would be used by SUVMWA member cities as secondary M&I water. This water would be delivered through the ULS pipelines to the SUVMWA member cities. The remaining 1,000 acre-feet has been assigned to DOI and would be part of the 23,510 acre-feet released to Hobble Creek.

- About 84,510 acre-feet of Bonneville Unit water would be conveyed to Utah Lake primarily from October through April (winter months) when the radial gates are up at the five diversion dams on the Spanish Fork River, thus completing the M&I exchange between Strawberry Reservoir and Jordanelle Reservoir. Of this 84,510 acre-feet, about 65,000 acre-feet would be conveyed to Utah Lake via the Spanish Fork River and 19,510 acre-feet would be conveyed to Utah Lake via Hobble Creek.

- Under the Deer Creek Reservoir-Jordanelle Reservoir Operating Agreement, an annual 12,165 acre-feet of water would be provided as flows for June sucker spawning and rearing in the lower Provo River to meet JSRIP goals annually.

- An annual average of 23,510 acre-feet of water would be conveyed through the Mapleton-Springville Lateral pipeline to Hobble Creek for June sucker spawning and rearing flows to meet JSRIP goals and to provide other fish and wildlife benefits throughout the year. This water would be subsequently exchanged from Utah Lake to Jordanelle Reservoir. Of the 23,510 acre-feet, 4,000 acre-feet would be provided in every year that it is needed. About 3,000 acre-feet of this amount is ULS M&I water that would be available for release in the spring and 1,000 acre-feet is conserved Bonneville Unit M&I water that would occur during the summer season. The remaining annual average 19,510 acre-feet only would be brought when water is being delivered from Strawberry Reservoir to Utah Lake for exchange up to Jordanelle Reservoir. Hobble Creek supplemental water would not be delivered during high runoff years when Utah Lake is above compromise level. The high runoff years correspond with years when natural runoff would be sufficient to attract June sucker spawning. An additional 8,831 acre-feet of SVP water would be delivered through the Mapleton-Springville Lateral Pipeline to the Springville and Mapleton irrigation companies.

- Hydroelectric power would be generated from the M&I water conveyance and contracted to the Western Area Power Administration (see Table 1-1 for generating capacities).

1.2.3 No Action Alternative

No new water conveyance features would be constructed under the No Action Alternative. The 86,100 acre-feet of Bonneville Unit M&I water, minus the 1,590 acre-feet of Bonneville Unit water already contracted for by SUVMWA member cities, would be conveyed from Strawberry Reservoir through the existing Diamond Fork System and discharged into the Spanish Fork River at the mouth of Diamond Fork Canyon, as described in the 1999 Diamond Fork FS-FEIS. All of this water would be exchanged from Utah Lake to Jordanelle Reservoir.

The following summarizes the No Action Alternative operation.

- An annual average of 16,273 acre-feet of Bonneville Unit water from Strawberry Reservoir would be released for in-stream flows in Sixth Water Creek and Diamond Fork Creek and flow down the Spanish Fork River to Utah Lake during the non-irrigation season. This water would be exchanged from Utah Lake to Jordanelle Reservoir.

- 590 acre-feet of the total 1,590 acre-feet of existing Bonneville Unit M&I System water already contracted would be used by SUVMWA member cities as M&I water. This water would be made available to SUVMWA member cities by existing wells and through exchanged to Utah Lake. The remaining 1,000 acre-feet already returned to the DOI under the Spanish Fork City Section 207 project would flow down the Spanish Fork River to Utah Lake.

- 86,100 acre-feet of Bonneville Unit water would be conveyed through the Spanish Fork River to Utah Lake on a year-round basis, thus completing the M&I exchange between Strawberry Reservoir and Jordanelle Reservoir.

- Under the Deer Creek Reservoir/Jordanelle Reservoir Operating Agreement, an annual 12,165 acre-feet of water would be provided as flows for June sucker spawning and rearing in the lower Provo River to meet JSRIP goals annually.

- Approximately 3,300 acre-feet of lower Provo River water rights purchased by the District for the Mitigation Commission would flow undiverted to Utah Lake, thereby increasing the irrigation season flow in the lower Provo River.

1.3 All Other Technical Report Chapters

Replace all other occurrences of Preferred Alternative with **Proposed Action**.

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

Final
Environmental Impact Statement

Section 2
Surface Water Hydrology
Technical Report Errata

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Section 2

Utah Lake Drainage Basin Water Delivery System
Final Environmental Impact Statement
Surface Water Hydrology Technical Report
Errata

2.1 Introduction

This section contains all of the errata resulting from comments received on the Utah Lake Drainage Basin Water Delivery System (Utah Lake System or ULS) Draft Environmental Impact Statement (DEIS) Chapter 3, Section 3.2, Surface Water Hydrology and the Draft Surface Water Hydrology Technical Report (TR). In addition, it contains errata made by the EIS team to correct errors found in the TR or to provide additional clarifying information.

2.2 Contents

Volume 1, Page iii, Contents, 4.3.2, change to read:

4.3.2 Summary of **Proposed Action** ~~Alternative~~ Impacts 52

Volume 1, Page iii, Contents, 4.5.2, change to read:

~~4.5.2~~ **4.4.2** Summary of **Bonneville Unit Water** Alternative Impacts 55

Volume 1, Page iii, Contents, 4.5.3, change to read:

~~4.5.3~~ **4.5.2** Summary of **No Action** Alternative Impacts 56

2.3 Chapter 2

Volume 1, page 14, paragraph 2, Section 2.1.1, change to read:

~~The parties to the Reservoir Operating Agreement are the United States, the State of Utah, the Provo River Water Users Association, and the Central Utah Water Conservancy District. This agreement provides accounting procedures to allow PRP and CUP water to be held concurrently in each of the reservoirs to optimize reservoir operations. For example, there is a 125 cfs minimum instream flow between Jordanelle and Deer Creek Reservoirs. At times of the year the rate of release from Jordanelle Reservoir to meet the instream flow exceeds the required downstream CUP deliveries. Pursuant to the operating agreement, CUP water not needed for immediate delivery is stored on a space available basis in Deer Creek Reservoir until needed by the CUP petitioners. Conversely, under certain circumstances PRP water may be stored and accumulated in Jordanelle Reservoir. The PRP water is then released from Jordanelle Reservoir to Deer Creek Reservoir, or exchanged for CUP water that has already been stored in Deer Creek Reservoir.~~ **The parties to the Reservoir Operating Agreement are the United States, the State of Utah, the Provo River Water Users Association (operators of the Provo River Project, which includes Deer Creek Reservoir), and the Central Utah Water Conservancy District. This agreement provides**

accounting procedures to allow Provo River Project (PRP) and Bonneville Unit water to be stored on a space available basis in Deer Creek Reservoir for later exchange to Jordanelle Reservoir. For example, there is a 125 cfs minimum in-stream flow between Jordanelle and Deer Creek reservoirs. At certain times of the year, the rate of release from Jordanelle Reservoir to meet the in-stream flow exceeds the required downstream Bonneville Unit deliveries. Pursuant to the Reservoir Operating Agreement, Bonneville Unit water not needed for immediate delivery is stored on a space available basis in Deer Creek Reservoir until needed by the Bonneville Unit petitioners. If, after final accounting is made at the end of the storage season, any PRP water remains in Jordanelle Reservoir, it shall be released to Deer Creek Reservoir at the request of PRWUA and under the direction of the Utah State Engineer.

Volume 1, page 15, paragraph 1, Section 2.1.1, change to read:

conversion line shown on Figure ~~21~~ **2-1** represents a lower operational level in Utah Lake under which conversion of system storage in Jordanelle and/or Deer Creek Reservoirs would be possible. Under the ~~Preferred Alternative~~ **Proposed Action**, DOI would acquire some of the District's secondary water rights in Utah Lake, which as explained above would be exchanged to Jordanelle Reservoir, thereby reducing the amount of replacement water from Strawberry Reservoir needed for the Jordanelle exchange. As a result, this additional quantity of CUP M&I water from Strawberry Reservoir would now be conveyed and delivered directly through ULS facilities to municipal users.

Volume 1, Section 2.1.1, insert Figure 2-1 to follow page 15:

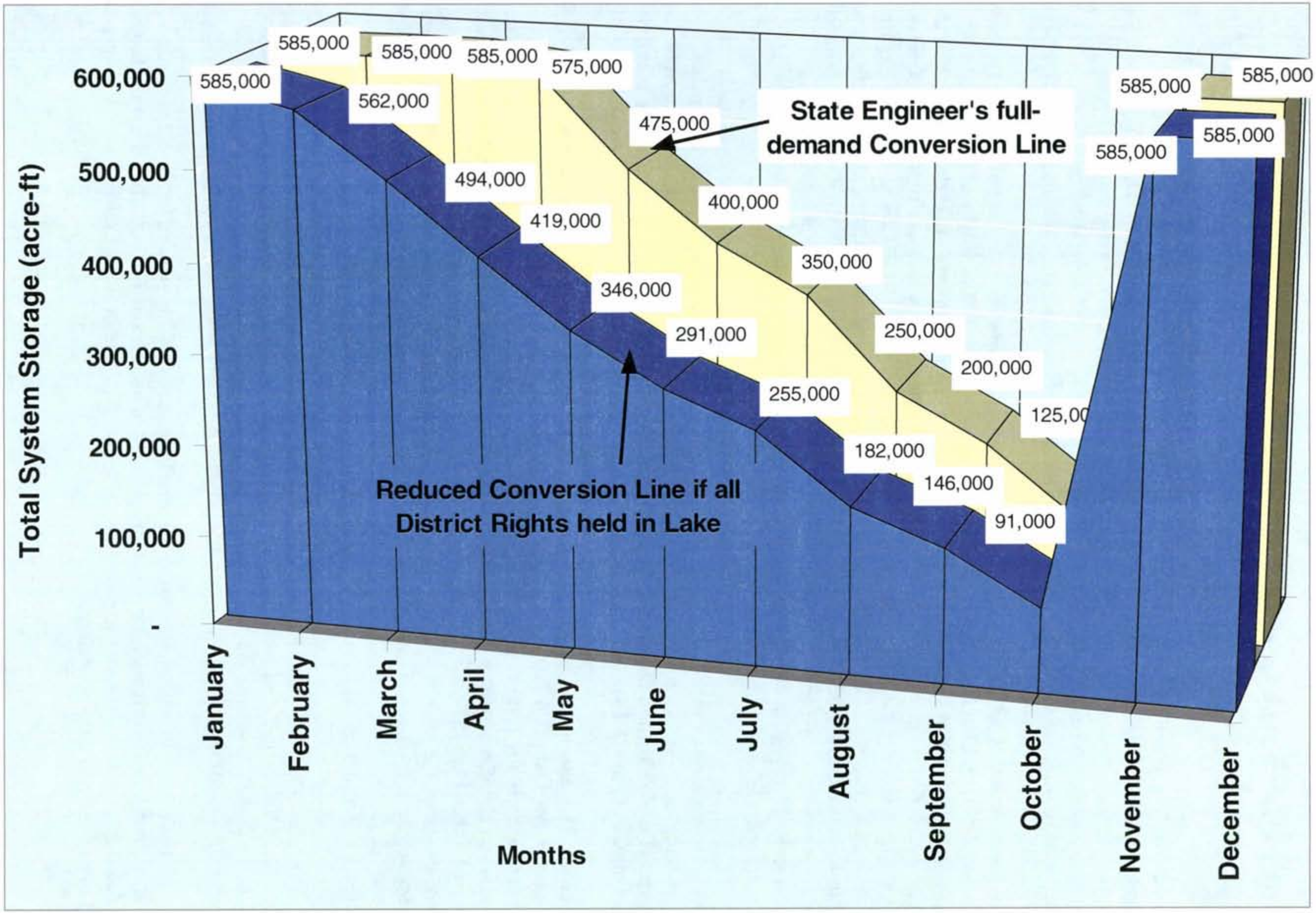

Figure 2-1
Utah Lake Distribution Plan
Monthly System Storage Conversion Line

Volume 1, page 16, paragraph 2, Section 2.2, change to read:

The following assumptions were used in the baseline and alternative analysis modeling and impact analysis.

- **The selected fifty-year data period (1950-1999) is representative of the possible future natural hydrologic cycle, including wet and dry years, that may occur over the life of the ULS.** The use of a 50-year study period is typical for water supply planning projects. This period is representative of hydrologic conditions observed throughout the historic period, includes both extended wet and dry periods, and has more extensive and complete data available on streamflows and diversions than during years prior to 1950.

- **In the development of natural flow hydrology for Utah Lake, it was necessary to differentiate between operational calls on Utah Lake and spills of excess water. In general, State Engineer records for water supply deliveries were utilized to define water called from storage. However, in certain years, the State Engineer recorded water supply deliveries in excess of the total volume of water rights (302,500 acre-feet).** Operational analysis of water supplies from Utah Lake uses historical deliveries as a basis for estimating **future** demands for Utah Lake water. **In defining water right calls and future Utah Lake demands, hHistorical** releases from Utah Lake exceeding the full water right volume of 302,500 acre-feet are assumed to be spills and thus would remain in the Lake in these operations studies, **unless the lake was above Compromise Elevation, in which case water would be spilled in accordance with Utah Lake outlet structure operation.**

- 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. **DOI acquired 7,900 acre-feet of CUWCD Utah Lake water rights in 2001. These water rights will be operated to benefit the water supply of the M&I System.**

- **Under the ULS alternatives, when CUWCD secondary water rights are part of the water supply of the alternative, historical demands associated with the secondary rights are reduced proportionally to the volume of rights being held in the Lake. If Utah Lake is above compromise elevation or significantly above the baseline level, the full, baseline water right deliveries are assumed.** When Utah Lake water rights are being exchanged upstream to Jordanelle Reservoir, they cannot also be used to deliver water downstream. However, if the water rights are not needed to convert system storage in Jordanelle Reservoir, the DOI would have the option of delivering this water to a user downstream, instead of exchanging them upstream. Delivering the water to a downstream user during wet years will tend to avoid Utah Lake levels that are higher than historical.

- **The M&I System is under full operation during the entire hydrologic period. The M&I System delivered 56,000 acre-feet of water in 2003 and is projected to reach full operation level of 107,500 acre-feet by 2009.** Assuming that the M&I System is under full operation will tend to produce the lowest possible streamflow conditions for analysis of potential ULS impacts.

- The Utah Lake Distribution Plan, initiated by the State Engineer in 1992 is modeled for the full hydrologic period. **Although the Distribution Plan was not included in historical operations, its inclusion in future, simulated operations is necessary to show how the Utah Lake/Jordan River Commissioner will operate the Lake under year 2015 conditions.**

2.4 Chapter 4

Page 52, paragraph 3, Section 4.3,2, change to read:

4.3.2 Summary of Proposed Action ~~Alternative~~ Impacts

Page 55, paragraph 3, Section 4.4.2, change to read:

4.4.2 Summary of Bonneville Unit Water Alternative Impacts

Page 56, paragraph 3, Section 4.5.2, change to read:

4.5.2 Summary of No Action Alternative Impacts

2.5 Attachment 1 Background Information and Technical Memoranda

Volume 1, Attachment 1, Memorandum on Hydrologic Evaluation of Diamond Fork and Spanish Fork River System for ULS Baseline Conditions, page 8, paragraph 4, change to read:

Seepage Water

In months when the SVP deliverable calls were greater than 5 cfs, the Strawberry Tunnel seepage water is credited to SVP. In all other months the Strawberry Tunnel seepage was credited to the natural flow **for modeling purposes only.** Under these guidelines, SVP only gets the seepage water when their calls are greater than the volume of the seepage water. Otherwise, SVP may be credited with seepage water for a given month when they may have only been delivering water in a few days or less during that month.

This discussion of seepage water is not intended to define the water rights-based ownership of Strawberry Tunnel seepage water or any other part of the natural flow of the Spanish Fork River. The Spanish Fork River Commissioner administers the natural flows of the Spanish Fork River watershed and the conveyance of imported water through the natural river channels. The River Commissioner files an annual report of water usage with the State Division of Water Rights. The River Commissioner does not report tunnel seepage as SVP water during periods when SVP storage water is not being imported from Strawberry Reservoir or when the natural flow of the river is less than 390 cfs. In the analysis of Spanish Fork River hydrology that is documented in this memorandum, purely for accounting purposes, all non-Bonneville Unit water not delivered to a water user was assumed to be natural flow water. This was done in the modeling so that there would be a check that no SVP water would flow undiverted to Utah Lake. Other water also could be SVP water, but if it was not diverted, it was not accounted as such. Natural flow water is more properly defined as natural flow water and undiverted, non-Bonneville Unit water.

Volume 1, Attachment 1, Memorandum on Hydrologic Evaluation of Diamond Fork and Spanish Fork River System for ULS Baseline Conditions, page 9, paragraph 5, change to read:

Baseline SVP Water in the Stream

The Baseline SVP water calls were used to estimate Baseline SVP diversions for each of the canals delivering Strawberry water. Because the estimated losses associated with the delivery of water under Baseline conditions will be different than historical losses, the amount of water that will be delivered under Baseline will be different, even in years when there is no difference between Historical and Baseline SVP releases from Strawberry. This analysis shows that the average volume of the historical releases that could be delivered under current operating policies is 59,468 acre-feet, which is the baseline calls from Strawberry Reservoir plus Strawberry Tunnel seepage minus losses. **A portion of the 61,000 acre-feet of SVP water is released into Sixth Water and Diamond Fork creeks where the Spanish Fork River Commissioner's conveyance losses are assumed to be applied and where gains associated with seepage from the Strawberry Tunnel are accrued. The net of these losses and gains results in the delivery of an average volume of 59,468 acre-feet.**

The action alternatives were developed to provide SWUA with a firm annual water supply of 61,000 acre-feet per year with carry over storage of up to 50,000 acre-feet. This is documented in detail in Table S-1c, Section 2, Volume 3, Appendix B of the Surface Water Hydrology Technical Report, which indicates that a firm annual water supply of 61,000 acre-feet was provided to SWUA throughout the study period (1950-1999), resulted in an average annual delivery of 61,000 acre-feet, and by utilizing the 50,000 acre-foot pool, the annual deliveries varied from a minimum of 36,225 acre-feet to a maximum of 79,616 acre-feet.

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

Final
Environmental Impact Statement

Section 3
Aquatic Resources
Technical Report Errata

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Section 3

Utah Lake Drainage Basin Water Delivery System
Final Environmental Impact Statement
Aquatic Resources Technical Report
Errata

3.1 Introduction

This section contains all of the errata resulting from comments received on the Utah Lake Drainage Basin Water Delivery System (Utah Lake System or ULS) Draft Environmental Impact Statement (DEIS) Chapter 3, Section 3.6 Aquatic Resources and Draft Aquatic Resources Technical Report (TR). In addition, it contains errata made by the EIS team to correct errors found in the TR or to provide additional clarifying information.

3.2 Contents

Page iv, Contents, 4.3.5, change to read:

4.3.5 Summary of **Proposed Action** ~~Alternative~~ Impacts

Page v, Contents, 4.4.5, change to read:

4.4.5 Summary of **Bonneville Unit Water** Alternative Impacts

3.3 Chapter 2

Page 9, paragraph 1, Section 2.1, change to read:

- Wetted perimeter and macroinvertebrate habitat are directly related; thus, increases in wetted perimeter were assumed to result in increased habitat for macroinvertebrates. **In general, increased flows result in greater amounts of inundated area, or, wetted perimeter of a stream. When new aquatic habitat is inundated for a sufficient duration and habitat quality is sufficient, studies have shown that macroinvertebrates will colonize these new habitats. Hershey and Lamberti (1998) noted that in broad alluviated channels, increased amounts of substrate from inundation led to increased invertebrate production. Macroinvertebrate densities also have been shown to increase with water depth (Brusven and Trihey 1978) below dams. Finally, several studies have noted that the preferred habitat for benthic organisms is within the wetted perimeter of streams (Erman 1996). These studies support the assumption that increased wetted perimeter in ULS streams would result in increased available habitat for macroinvertebrates.**

- Data from river cross sections collected in the Spanish Fork River immediately downstream of the Diamond Fork River confluence were assumed to be representative of the Spanish River sections downstream of the Spanish Fork Diversion Dam. **The Spanish Fork River below the Spanish Fork Diversion Dam has been modified to accommodate human uses. Much of the river channel is confined or channelized in this**

lower reach of the river and the channel is fairly uniform. For these reasons, the existing cross sections are considered to be representative of the lower river.

- ~~Cross-sectional information gathered at USGS gages was assumed to be representative of the entire reach that they are located in, for each analysis.~~
- In the Provo River below Deer Creek Reservoir, the baseline condition was assumed to be the habitat conditions published in the M&I FEIS (Reclamation 1979). While trout biomass in the Provo River was estimated in 1979, more recent habitat surveys from 2000 to 2001 (UDNR 2003) provided slightly different biomass estimates using the Habitat Quality Index (HQI) Model II (Binns 1982). It was assumed that the more recent estimates provided a more accurate description of the trout populations and these data were used to estimate baseline trout standing crop in the Provo River. **The fish biomass estimates from the M&I EIS were projections of how biomass should respond to modeled flow changes. The 2000 and 2001 biomass data were actual measurements of fish biomass and therefore were determined to be the best available data to provide an accurate picture of the game fish community for baseline conditions of this EIS.**
- The Spanish Fork River baseline conditions were updated with modeled flows from 1950 to 1999 and habitat conditions published in the Diamond Fork System FEIS (CUWCD 1999). **The flow changes from the Diamond Fork System Final Supplement to the Final FEIS were minor and were implemented because detailed analysis showed minor inaccuracies in the previous modeled flow data. Thus, the revised flows were determined to be the best available data to represent the baseline condition for this EIS.**

3.4 Chapter 3

Page 34, paragraph 2, Section 3.3.4, change to read:

Water quality at the Jordan Narrows is controlled primarily by the water quality of Utah Lake (CUWCD 1998).~~In 2002, one reach of the upper Jordan River was documented as not supporting the aquatic life beneficial use support designation. The Jordan River from Bluffdale to the Narrows exceeded the temperature for a class 3A water (cold-water game fish). Storm-water runoff was attributed as the cause of low dissolved oxygen concentrations in the lower Jordan River (UDEQ 2003a). Despite water quality problems in these areas, water quality in the Jordan River is adequate to support aquatic resources.~~

3.5 Chapter 4

Page 73, paragraph 6, Section 4.3.5, change to read:

4.3.5 Summary of Proposed Action ~~Alternative~~ Impacts

Page 75, paragraph 2, Section 4.3.5, Sub-section 4.3.5.4, change to read:

4.3.5.4 Macroinvertebrates

Macroinvertebrate populations may experience high potential increases in the Provo River downstream of the I-15 Bridge. Habitat changes in Hobble Creek associated with enhanced flows would have a ~~moderate to~~ high potential to benefit macroinvertebrates. In the Spanish Fork River, macroinvertebrate populations may experience a low negative impact because river flow would be decreased in all months.

Page 90, paragraph 6, Section 4.4.5, change to read:

4.4.5 Summary of Bonneville Unit Water Alternative Impacts

3.6 References Cited

The following references are added to the Aquatic Resources Technical Report references cited section:

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, U.S. Department of the Interior, Washington, D.C. Project No. A-052-IDA.78 p.

Erman, N.A. 1996. Status of Aquatic Invertebrates. In: Sierra Nevada Ecosystem Project: Final Report to Congress, Vol. II, Assessments and Scientific Basis for Management Options. University of California, Davis CA. pp. 987-1008.

Hershey A.E. and G.A. Lamberti. 1998. Stream Macroinvertebrate Communities. In: *River Ecology and Management, Lessons from the Pacific Coastal Ecoregion.* Springer-Verlag, New-York. pp. 169-199.

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

Final
Environmental Impact Statement

Section 4
Wildlife Resources and Habitat
Technical Report Errata

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Section 4

Utah Lake Drainage Basin Water Delivery System Final Environmental Impact Statement Wildlife Resources and Habitat Technical Report Errata

4.1 Introduction

This section contains all of the errata that resulting from comments received on the Utah Lake Drainage Basin Water Delivery System (Utah Lake System or ULS) Draft Environmental Impact Statement (DEIS) Chapter 3, Section 3.8, Wildlife Resources and Habitat and the Draft Wildlife Resources and Habitat Technical Report (TR). In addition, it contains errata made by the EIS team to correct errors found in the TR or to provide additional clarifying information.

4.2 Contents

Page ii, Contents, 4.3.3, change to read:

4.3.3 Summary of **Proposed Action** ~~Alternative~~ Impacts

Page ii, Contents, 4.4, change to read:

4.4 Bonneville Unit Water Alternative
- ~~4.5.1~~ **4.4.1** Construction Phase
- ~~4.5.2~~ **4.4.2** Operations Phase
- ~~4.5.3~~ **4.4.3** Summary of **Bonneville Unit Water** Alternative Impacts
  - ~~4.5.3.1~~ **4.4.3.1** Construction Phase
    - ~~4.5.3.1.1~~ **4.4.3.1.1** Habitat
    - ~~4.5.3.1.2~~ **4.4.3.1.2** Populations
  - ~~4.5.3.2~~ **4.4.3.2** Operations Phase

Page ii, Contents, 4.6, change to read:

~~4.6~~ **4.5** No Action Alternative
- ~~4.6.1~~ **4.5.1** Construction Phase
- ~~4.6.2~~ **4.5.2** Operations Phase
- ~~4.6.3~~ **4.5.3** Summary of **No Action** Alternative Impacts

4.3 Chapter 2

Page 9, paragraph 1, Section 2.1, change to read:

The following assumptions were used in analysis of noise impacts on wildlife habitat:

- Highway and high traffic urban roadways are linear sound sources **(i.e., they occur along a linear area instead of in one place). This is a standard assumption in noise analysis.**

- Construction sites are equivalent to point sound sources **(i.e., they occur in one place instead of moving along a linear area). As a practical matter, construction activity would occur within a relatively limited area and would act more like a point source than a linear source for noise analysis.**

- The noise threshold for possible effects on wildlife is 60 dB, **which is considered by American National Standards Institute guidelines to be compatible with land use for extensive natural wildlife and recreation areas (ANSI 1990). Multiple references were reviewed to evaluate noise effects on wildlife; the most comprehensive reference was Manci, et al. 1988, as cited. As a best professional judgement, 60 decibels was selected as the threshold for wildlife effects (see Wildlife Resources and Habitats Technical Memorandum, Appendix A).**

- Construction noise would not affect areas that are predominantly urban in character ~~and these areas can be eliminated from potential noise impacts on habitat~~ **Wildlife would not be expected to occur in habitats that are predominantly urban and have relatively high (greater than 60 decibels) ambient noise levels.**

4.4 Chapter 3

Page 18, paragraph 3, Section 3.2.2.1, change to read:

Furbearers in the general project area include spotted skunk (Spilogale putorius) in wooded areas, long-tailed weasel (Mustela frenata) and mink (Mustela ~~vision~~ **vison**) in riverine and riparian areas, badger (Taxidea taxus) in open grasslands, beaver (Castor canadensis) in rivers and streams, and bobcat (Lynx rufus) in mixed woodlands with rocky outcrops.

4.5 Chapter 4

Page 27, paragraph 7, Section 4.3.3, change to read:

4.3.3 Summary of Proposed Action ~~Alternative~~ Impacts

Page 27, paragraph 7, Section 4.3.3.1.1, change to read:

4.3.3.1.1 Habitat. Table 4.8 summarizes the area disturbed by construction of the Spanish Fork – Provo Reservoir Canal Alternative **(Proposed Action).**

Page 27, paragraph 7, Section 4.3.3.1.1, Table 4-8, change to read:

Table 4-8
Area Disturbed by Spanish Fork – Provo Reservoir Canal Alternative (Proposed Action) Construction (acres)

Permanent Disturbance	Habitat Revegetated	Vegetation Changed	Temporary Noise Disturbance
2.4	269.7	146.8	21,259

Page 28, paragraph 4, Section 4.4.1, change to read:

The impacts of the following features of this alternative would be the same as described for the Spanish Fork – Provo Reservoir Canal Alternative **(Proposed Action)** and are not repeated in this section:

Page 28, paragraph 10, Section 4.4.3, change to read:

4.4.3 Summary of Bonneville Unit Water Alternative Impacts

Page 30, paragraph 1, Section 4.5.3, change to read:

4.5.3 Summary of No Action Alternative Impacts

4.6 References Cited

The following references are added to the Wildlife Resources and Habitat Technical Report references cited section:

American National Standards Institute (ANSI). 1990. ANSI S12.40-1990 (R1996) *American National Standard sound level descriptors for determination of compatible land use.*

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 p.

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

Final
Environmental Impact Statement

Section 5
Threatened, Endangered and Sensitive Species Technical Report Errata

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Section 5

Utah Lake Drainage Basin Water Delivery System
Final Environmental Impact Statement
Threatened, Endangered, and Sensitive Species Technical Report
Errata

5.1 Introduction

This section contains all of the errata resulting from comments received on the Utah Lake Drainage Basin Water Delivery System (Utah Lake System or ULS) Draft Environmental Impact Statement (DEIS) Chapter 3, Sections 3.9, Threatened and Endangered Species and 3.10, Sensitive Species and the Draft Threatened, Endangered and Sensitive Species Technical Report (TR). In addition, it contains errata made by the EIS team to correct errors found in the TR or to provide additional clarifying information.

5.2 Contents

Page ii, Contents, 4.3.3, change to read:

4.3.3 Summary of **Proposed Action** ~~Alternative~~ Effects

Page ii, Contents, 4.4.3, change to read:

4.4.3 Summary of **Bonneville Unit Water** Alternative Effects

Page ii, Contents, 4.5.2, change to read:

4.5.2 Summary of **No Action** Alternative Effects

Page v, Contents, 4.3.3, change to read:

4.3.3 Summary of **Proposed Action** ~~Alternative~~ Impacts

Page v, Contents, 4.4.3, change to read:

4.4.3 Summary of **Bonneville Unit Water** Alternative Impacts

Page v, Contents, 4.5.2, change to read:

4.5.2 Summary of **No Action** Alternative Impacts

Page v, Contents, 6.1, change to read:

6.1 Spanish Fork Canyon – Provo Reservoir Canal Alternative **(Proposed Action)**

5.3 Part 1, Chapter 3

Page 22, paragraph 3, Section 3.4.1.1, change to read:

This species is endemic to Utah Lake and its tributaries and is closely associated with habitat in braided, slow, meandering channels (USFWS 1999). Rivers with tree-lined banks and slow-water pools provide habitats suitable for larval development (USFWS 1999). Larvae drift downstream to Utah Lake at night after emerging from spawning beds (Modde and Muirhead 1990). ~~June suckers were last observed in the lower Provo River in 2002 and Utah Lake in 1993 (USFWS 1999, UDNR 2003b).~~ **Since the early 1990s, June sucker have been monitored annually in the Provo River during their spawning migration. Because of the limited size of the population and the relatively large size of Utah Lake, in-lake observations of June sucker have been rare; however, using techniques employed by local commercial fishing experts, researchers collected several June sucker in Utah Lake in 2004 (Keleher 2004).** A questionable sighting of June sucker was reported in Hobble Creek in 1980 (USFWS 1999; UDNR 2003b). Cope and Yarrow (1875) reported that the June sucker spawned historically in tributaries to Utah Lake.

Page 27, paragraph 2, Section 3.5.1, change to read:

Ute Ladies'-tresses (ULT) are a perennial orchid found along riparian edges, gravel bars, old oxbows and moist to wet meadows along perennial freshwater streams and springs at elevations ranging from approximately 4,300 to 7,000 feet (USFWS 1992; Stone 1993). The species' common name (ladies'- tresses), in use for over 200 years, refers to the spiral arrangement of the flowers on the inflorescence that resembles braided hair (Cronquist et al. 1977). It is an early successional species that is well adapted to colonizing ~~banks and~~ low floodplains along alluvial streams where scouring and sediment deposition are natural processes. It has been found in irrigated and sub-irrigated pastures that are mowed or moderately grazed. In general, the orchid occurs in relatively open grass and forb-dominated habitats, and seems intolerant of dense shade. The plants bloom from late July through August (sometimes September), setting seed in the early fall (USFWS 1992). A colony is defined as any location where flowering plants have been found in a similarly delineated habitat on that geomorphic surface. Therefore, a colony may be comprised of one or more individuals on a sandbar (large or small) or on a large flood plain delineated by topographical changes in slope or elevation.

5.4 Part 1, Chapter 4

Page 36, paragraph 5, Section 4.3.2.1.1, change to read:

4.3.2.1.1 Provo River From Tanner Race Diversion to Interstate 15. The average monthly flows in the Provo River from Murdock Diversion to Interstate 15 under the ~~Preferred Alternative~~ **Proposed Action** represent a projected increase compared to baseline conditions (Table 4-1). Under the ~~Preferred Alternative~~ **Proposed Action**, the reach of the Provo River between Murdock Diversion and Interstate 15 would receive flow increases in all months. **A portion of these increased flows would be created from conserved water and would be released to benefit June sucker.** Flows in this reach were used to predict habitat availability for June sucker between Tanner Race Diversion and Interstate 15. Increased flow during May, June (spawning) and July (larval/ young-of-year/out migration) in this reach was designed to benefit June sucker spawning and early life history. Instream flows would be targeted during summer months to support incubation and facilitate out-migration of juvenile suckers to Utah Lake.

Page 42, paragraph 2, Section 4.3.3, change to read:

4.3.3 Summary of Proposed Action Impacts

Page 48, paragraph 4, Section 4.4.3, change to read:

4.4.3 Summary of Bonneville Unit Water Alternative Impacts

Page 49, Section 4.5.2, change to read:

4.5.2 Summary of No Action Alternative Impacts

5.5 Part 2, Chapter 3

Page 69, paragraph 6, Section 3.4.3.1, change to read:

Decline of the Wasatch front population of the Columbia spotted frog was attributed to a number of possible factors, primarily related to habitat loss (USFWS 2002e). Currently, ~~seven~~ **eight** sub-populations are known to comprise the Wasatch front population. These occur at Mona Springs/Burraston Ponds, Springville Hatchery/T-Bone Bottom, Holladay Springs, Jordanelle/Francis, Heber Valley, Fairview, ~~and~~ Vernon (USFWS 2002e) **and a recently discovered sub-population in Diamond Fork Canyon (Wilson 2003)**. Of these, the Springville Hatchery (Spanish Fork River) and Heber Valley (Provo River above and below Jordanelle Reservoir) populations are within or near the project area. These sites are monitored yearly by Utah Division of Wildlife Resources.

Page 70, paragraph 2, Section 3.4.3.2, change to read:

The boreal toad (*Bufo boreas boreas)*, a subspecies of the western toad, is listed as a sensitive species in the state of Utah by Utah Division of Wildlife Resources because of rapidly declining populations. The reasons for decline are uncertain but may be attributed increased UV radiation, water pollution, habitat loss, and/or disease (UDNR 1997). The range of the boreal toad subspecies extends from western Canada southeast into Wyoming and parts of Colorado and New Mexico. In Utah, the boreal toad occurs at high elevation in perennially wet spring-fed or riparian wetlands, primarily in the Wasatch Mountains and central Utah High Plateaus (UDNR 1997). A variety of insect species serve as the primary food source for adults of this species, while tadpoles generally feed on algae and plankton (UDNR 2003b). UNHP has ~~recent~~ records of boreal toad occurrences in the Strawberry Reservoir, Provo River below Jordanelle Reservoir, **Provo River below Deer Creek Reservoir** and in ~~the Provo River~~ **Provo City** ~~near the Mapleton lateral~~ (UDNR 2003a).

5.6 Part 2, Chapter 4

Page 74, paragraph 2, Section 4.1.2, change to read:

LOW POTENTIAL

- Low to moderate potential for impact will be based on low magnitude, short-term changes of water quality parameters beyond their natural range (e.g., temp**erature**, pH) in Project waters.

- **Low potential for impacts would be considered if spring discharge was reduced by less than 10 percent.**

MODERATE POTENTIAL

- Moderate to high potential for impact based on moderate-to-high magnitude, short- or long-term changes of water quality parameters beyond their natural range (e.g., temp**erature**, pH) in Project waters.

- Moderate to high impacts would be considered if spring discharge was reduced between 10 **and** 40 percent.

HIGH POTENTIAL

- High potential for impact based on high magnitude, short- or long-term changes of water quality parameters beyond their natural range (e.g., temp**erature**, pH) in Project waters.

- High potential for impacts would be considered if spring discharge was reduced ~~between 10~~ **greater than** 40 percent.

Page 77, paragraph 6, Section 4.3.3, change to read:

4.3.3 Summary of Proposed Action ~~Alternative~~ Impacts

Page 79, paragraph 1, Section 4.4.3, change to read:

4.4.3 Summary of Bonneville Unit Water Alternative Impacts

Page 80, paragraph 2, Section 4.5.2, change to read:

4.5.2 Summary of No Action Alternative Impacts

5.7 References Cited

The following references are added to the Threatened, Endangered and Sensitive Species Technical Report references cited section:

Keleher, C. 2004. Personal communication. Telephone conversation with MaryLouise Keefe.

Wilson, K. W. 2003. Personal communication. Presentation to the Spotted Frog Technical Workgroup, December 2003.