



Colorado Springs Utilities

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1041 2008-002

March 18, 2011

Jacklynn Gould
Manager, Resource Division
Bureau of Reclamation
Eastern Colorado Area Office
11056 West County Road 18E
Loveland, CO 80537-9711

Subject: Southern Delivery System (SDS) Integrated Adaptive Management Plan (IAMP),
SDS Environmental Commitments Plan (ECP) and SDS Monitoring Plan

Ms. Gould:

Colorado Springs Utilities, the Southern Delivery System (SDS) Project Manager, is submitting the attached SDS Integrated Adaptive Management Plan, SDS Environmental Commitments Plan and SDS Monitoring Plan. The Record of Decision (ROD), GP-2009-01, approved March 20, 2009, requires submittal of these plans to the Bureau of Reclamation prior to finalization of contracts. The SDS IAMP provide a structured framework for decision making that can adjust SDS Project mitigations if outcomes from the proposed project mitigation measures are different than contemplated in the Final Environmental Impacts Statement. The Monitoring Plan provides a description of the various monitoring efforts that the SDS Project will implement as a part of mitigations for the SDS Project outlines the best management practices that will be used to minimize socioeconomic and land use impacts to properties surrounding the project. The SDS ECP provides a detailed and specific listing of the environmental commitments of the SDS Project for the seven programmatic permits/approvals and the intended actions for compliance of the commitments.

Please contact me at 719-668-8677, or Allison Mosser at 719-668-8667, with any questions regarding the attached document.

Sincerely,

Keith Riley

Southern Delivery System
Planning and Permitting Manager

Enclosures:

Southern Delivery System Integrated Adaptive Management Plan (2)
Southern Delivery System Environmental Commitments Plan (2)
Southern Delivery System Monitoring Plan (2)

Southern Delivery System

Integrated Adaptive Management Plan

Prepared for:

Bureau of Reclamation

Submitted by:

**Colorado Springs Utilities, SDS Project Manager
on behalf of the SDS Participants**

CH2MHILL

March 18, 2011

Contents

Abbreviations.....	iv
Executive Summary.....	ES-1
1.0 Introduction.....	1-1
1.1 Purpose	1-1
1.2 Southern Delivery System Project Overview	1-1
1.3 Southern Delivery System Project Regulatory Review Process.....	1-2
1.4 Regulatory Requirements.....	1-6
1.4.1 Record of Decision and Final Environmental Impact Statement.....	1-6
1.4.2 Other Commitments	1-7
1.5 SDS Participant Information.....	1-8
1.5.1 SDS Participants	1-9
1.5.2 Integrated Adaptive Management Plan Preparer	1-9
2.0 Basis for Structure of the Southern Delivery System Project	
Integrated Adaptive Management Plan	2-1
3.0 Operational Sequence for Adaptive Management – the Nine-Step Process.....	3-1
3.1 Step 1 – Stakeholder Involvement.....	3-1
3.2 Step 2 – Objectives	3-2
3.3 Step 3 – Management Actions	3-2
3.4 Step 4 – Predictive Models	3-2
3.5 Step 5 – Monitoring Plans	3-2
3.6 Step 6 – Decision Making	3-2
3.7 Step 7 – Follow-up Monitoring.....	3-3
3.8 Step 8 – Assessment	3-3
3.9 Step 9 – Iteration	3-3
3.10 Application of the Nine-Step Process to the SDS	
Integrated Adaptive Management Plan.....	3-4
4.0 SDS IAMP Step 1 – Stakeholder Involvement	4-1
5.0 SDS IAMP Step 2 – Objectives	5-1
6.0 SDS IAMP Step 3 – Management Actions.....	6-1
7.0 SDS IAMP Step 4 – Predictive Models	7-1
7.1 Water Quantity	7-1
7.2 Water Quality.....	7-1
7.3 Geomorphology.....	7-2
7.4 Aquatic Life	7-2
7.5 Monitoring Summary	7-2
8.0 SDS IAMP Step 5 – Monitoring	8-1
9.0 SDS IAMP Step 6 – Decision Making.....	9-1
9.1 Water Quantity	9-1
9.1.1 Water Quantity Threshold	9-1
9.1.2 Water Quantity Decision Making	9-3

9.2	Water Quality.....	9-3
9.2.1	Water Quality Threshold.....	9-3
9.2.2	Water Quality Decision Making.....	9-7
9.3	Geomorphology.....	9-7
9.3.1	Geomorphology Threshold.....	9-7
9.3.2	Geomorphology Decision Making.....	9-9
9.4	Aquatic Life.....	9-9
9.4.1	Aquatic Life Threshold.....	9-9
9.4.2	Aquatic Life Decision Making.....	9-11
10.0	SDS IAMP Step 7 – Follow-Up Monitoring.....	10-1
11.0	SDS IAMP Step 8 – Assessment.....	11-1
12.0	SDS IAMP Step 9 – Iteration.....	12-1
13.0	Summary.....	13-1
14.0	Period of the SDS IAMP.....	14-1
15.0	Limitations of the SDS IAMP.....	15-1
Appendices		
References		

Appendices

- 1 Record of Decision for the Southern Delivery System Project
Final Environmental Impact Statement
- 2 Fish and Wildlife Mitigation Plan
- 3 Pueblo County 1041 Permit No. 2008-002 Terms and Conditions

Tables

1-1	Summary of Commitments per the Record of Decision and Other SDS Project Permit Conditions and Mitigation Plans.....	1-4
8-1	Summary of Southern Delivery System Monitoring Plans by Resource Area	8-2
13-1	Summary of Southern Delivery System Project Interactive Adaptive Monitoring Plan by Step and Resource Area	13-1

Figures

ES-1	Basic Logic of the Southern Delivery System Project Integrated Adaptive Management Plan.....	ES-1
1-1	Southern Delivery System Project Plan.....	1-3
2-1	Basic Logic of the Southern Delivery System Project Integrated Adaptive Management Plan.....	2-2
3-1	Summary of the Southern Delivery System Project Integrated Adaptive Management Plan Process.....	3-5
9-1	Table 33 of the Final Environmental Impact Statement.....	9-2

Abbreviations

ARLFP	Arkansas River Low Flow Program
1041 Permit	Pueblo County 1041 Permit No. 2008-002
CDOW	Colorado Division of Wildlife
CDPHE	Colorado Department of Public Health and Environment
cfs	Cubic feet per second
C.R.S.	Colorado Revised Statutes
Fountain Creek District	Fountain Creek Watershed, Flood Control and Greenway District
DOI Guide	U.S. Department of Interior Technical Guide
EIS	Environmental Impact Statement
FCRF	Fountain Creek Restoration Foundation
FEIS	Final Environmental Impact Statement
FWMP	Fish and Wildlife Mitigation Plan
FWPS	Finished water pump station
IAMP	Integrated Adaptive Management Program
IFIM	Instream Flow Incremental Methodology
IHA	Indicators of Hydrologic Alteration
LEDPA	Least Environmentally Damaging Practicable Alternative
mgd	Million gallons per day
NEPA	National Environmental Policy Act
PFMP	Pueblo Flow Management Program
Reclamation	Bureau of Reclamation
ROD	Record of Decision
SDS Participants	City of Colorado Springs, City of Fountain, Security Water District, and Pueblo West Metropolitan District
SDS Project	Southern Delivery System Project
TDS	Total dissolved solids

UAVFMP	Upper Arkansas Voluntary Flow Management Program
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWCR	Upper Williams Creek Reservoir
WTP	Water treatment plant

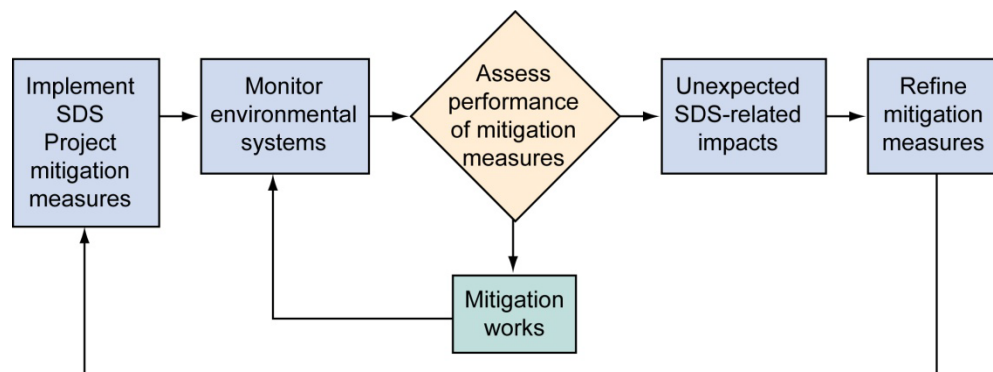
Executive Summary

The Southern Delivery System Project (SDS Project) is a proposed regional water delivery system that will serve the City of Colorado Springs, the City of Fountain, Security Water District, and Pueblo West Metropolitan District (SDS Participants). The SDS Project is designed to serve all or most of the future water needs of the citizens of the SDS Participants through the year 2046. The first phase of the SDS Project is scheduled to be in service in 2016.

This Integrated Adaptive Management Plan (IAMP) has been prepared by Colorado Springs Utilities, the Project Manager, to provide a structured framework for decision making that can adjust SDS Project mitigations if outcomes from the proposed project mitigation measures are different than contemplated in the Final Environmental Impacts Statement (FEIS). This IAMP has been prepared in a manner consistent with the processes described in the report, *Adaptive Management, The U.S. Department of Interior Technical Guide (DOI Guide)* (Williams et al. 2009), which describes a nine-step process for implementing adaptive management. Consistent with the requirements of the U.S. Bureau of Reclamation's (Reclamation) Record of Decision (ROD), the SDS IAMP will be coordinated with the Colorado Springs Utilities' existing monitoring programs and the Environmental Management System discussed in Appendix F of the FEIS. The DOI Guide frames adaptive management within the context of structured decision making, with an emphasis on uncertainty about resource responses to management actions and the value of reducing that uncertainty to improve management.

Also consistent with the processes described in the DOI Guide, this IAMP is being implemented in two phases in a total of nine steps. The first phase (Steps 1 through 5) is used to set up the IAMP's key components that have been, or are being, developed. Steps 1 through 4 have been completed as part of the NEPA process. Step 5 is being developed as part of this IAMP. The second phase (Steps 6 through 9) is an iterative phase in which the components are linked in a sequential decision process. An abbreviated schematic of the process is presented in **Figure ES-1**. The first two boxes represent the first phase with the remaining boxes representing the iterative phase.

FIGURE ES-1
Basic Logic of the Southern Delivery System Integrated Adaptive Management Plan



Step 1 – Stakeholder Involvement: Stakeholder involvement, including both agency and public involvement, has been and continues to be an essential part of the SDS Project. These efforts have included, but are not limited to, participating in extensive agency meetings, holding scoping sessions and numerous open houses, preparing newspaper articles and stakeholder presentations, hosting a project web site, and much more. These efforts identified the four key resource areas that the SDS Project mitigations will address, and that the IAMP will adaptively manage via the four objectives detailed in Step 2 below.

Step 2 – Objectives: The ROD prescribes the objective for the commitments associated with the ROD as being to use “all practicable means to avoid or minimize environmental harm” caused by the SDS Project. Per the requirements of the ROD, this overall objective has been applied to the following four resources areas:

- Surface water quantity
- Water quality
- Geomorphologic impacts
- Aquatic life

Step 3 – Management Actions: The management actions addressed in this IAMP are the SDS Project mitigations committed to by the SDS Participants in the ROD and in other SDS Project permit conditions and mitigation plans. These mitigations have been developed to incorporate the environmental, ecological, and economic values of concern to stakeholders based on input received during Step 1 above and are intended to avoid or minimize environmental harm.

Step 4 – Models: A variety of predictive models were used during the FEIS studies for the SDS Project. The results of the modeling were used to quantify the impacts of the SDS Project, thus helping to define the mitigations (management actions) selected.

Step 5 – Monitoring Plans: The monitoring plan in this IAMP is derived from the commitments by the SDS Participants in the ROD and in other SDS Project permit conditions and mitigation plans. In addition to those commitments, monitoring data will also be collected under an existing U.S. Geological Survey program in partnership with Colorado Springs Utilities and the City of Colorado Springs Engineering Department. Monitoring data will include flow rate measurements, water quality sampling to determine concentrations of key water quality parameters, cross-sectional surveys to establish geomorphic conditions, and various measures to characterize aquatic life.

Step 6 – Decision-Making: Colorado Springs Utilities will evaluate monitoring data to determine:

- Whether the data indicate changes are within the range contemplated in the FEIS
- Whether the data are sufficient to determine the extent and cause of the substantive change

Colorado Springs Utilities will then meet with Reclamation to discuss the findings of this step. Thresholds of change have been defined that represent reasonable variations in the monitored parameters or variations that were predicted in the FEIS. If the findings indicate that changes outside the expected ranges have occurred, Colorado Springs Utilities will coordinate with Reclamation to determine appropriate response actions.

Step 7 – Follow-up Monitoring: Adaptation of the original monitoring program described in Step 5 will be made based on the findings of Step 6. Once Step 6 has reached conclusions on adaptations to the mitigations referenced in Step 3, follow-up monitoring will be implemented if unexpected substantive changes occur and if it is determined that a modified monitoring program is necessary.

Step 8 – Assessment: A core assumption of this IAMP is that the management actions (mitigations) in place for the SDS Project will mitigate the adverse impacts of the SDS Project within predicted ranges. If the data collected in Steps 5 or 7 above indicate that there are changes in any one of the four key resource areas outside of the ranges predicted, Colorado Springs Utilities will perform analyses to determine whether the changes are a result of the operations of the SDS Project.

Step 9 – Iteration: If the data indicate that the changes are a result of the operations of the SDS Project, the Colorado Springs Utilities will coordinate with Reclamation to determine appropriate response actions, including adaptations, if warranted, of the SDS Project mitigation measures.

1.0 Introduction

1.1 Purpose

This Integrated Adaptive Management Plan (IAMP) has been prepared for the Southern Delivery System Project (SDS Project) to provide a structured framework for decision making that can adjust SDS Project mitigations if outcomes from these mitigations and other events are different than contemplated in the Final Environmental Impact Statement (FEIS). This IAMP has been prepared to be consistent with the processes described in the report, *Adaptive Management, The U.S. Department of Interior Technical Guide (DOI Guide)* (Williams, Szaro, and Shapiro 2009), which describes a nine-step process for implementing adaptive management. Consistent with the requirements of the U.S. Bureau of Reclamation's (Reclamation) Record of Decision (ROD), the SDS IAMP will be coordinated with the SDS Participants' existing monitoring programs and the Environmental Management System discussed in Appendix F of the FEIS. The DOI Guide frames adaptive management within the context of structured decision making, with an emphasis on uncertainty about resource responses to management actions and the value of reducing that uncertainty to improve management.

Additionally, this IAMP incorporates relevant permits (as appendices) that have been finalized and that have conditions that impact this IAMP. If subsequent to the date of this IAMP, another permit or permits are issued that include any conditions that impact this IAMP, a revised version of this IAMP will be issued.

The processes defined in the IAMP are intended to provide a systematic approach to assessment of the SDS Project impacts and mitigation measures. The processes also define an equally systematic approach to changing the identified mitigation measures if unexpected impacts are attributed to SDS operations. The structure of the IAMP is intended to provide sufficient flexibility to address the full spectrum of outcomes. However, if Reclamation and the SDS Participants conclude that the IAMP as originally developed requires refinement, changes to the IAMP can be made as appropriate.

1.2 Southern Delivery System Project Overview

The SDS Project is a proposed regional water delivery project designed to serve most or all future water needs (through 2046) of the City of Colorado Springs, City of Fountain, Security Water District, and Pueblo West Metropolitan District (SDS Participants).

The first phase of the SDS Project includes construction of the following facilities, which are scheduled to be in service in 2016:

- A 53-mile raw water pipeline (66- and 72-inch diameter)
- Two 78-mgd raw water pump stations and one 50-mgd raw water pump station (expandable in Phase 2)

- A water treatment plant (WTP) with a capacity of 50 mgd (expandable in Phase 2)
- Nine miles of 24-inch to 54-inch diameter finished water pipelines

Phase 2 of the SDS Project includes the following:

- Addition of 30,500 acre-feet of terminal storage at a new dam site on upper Williams Creek, called Upper Williams Creek Reservoir (UWCR)
- Expansion of the 50-mgd raw water pump station and WTP to 100-mgd capacity
- Expansion of the treated water distribution system
- Addition of a 28,500 acre-foot exchange storage reservoir on Williams Creek and exchange conveyance facilities to transfer exchange water to and from Fountain Creek

Phase 2 is scheduled for completion in the 2020 to 2025 timeframe. The SDS Project facilities are shown on **Figure 1-1**.

1.3 Southern Delivery System Project Regulatory Review Process

The SDS Project has undergone, and continues to undergo, significant regulatory oversight at the federal, state, and local levels. At the federal level, Reclamation has performed extensive and detailed environmental studies as a part of the National Environmental Policy Act (NEPA) process, culminating in the FEIS and the ROD.

The ROD for the SDS Project was issued on March 20, 2009, and is in *Appendix 1*. The ROD identified the SDS Project described above as the Environmentally Preferred Alternative. As such, the SDS Project has been determined to cause “the least damage to the biological and physical environment” (Reclamation 2009). The ROD included extensive commitments by the SDS Participants to significant, long-term mitigation measures.

The SDS Project will cross wetlands and other waters of the United States. Activities that are a part of the SDS Project require a permit from the United States Army Corps of Engineers (USACE) under the dredged and fill material permit program established under Section 404 of the federal Clean Water Act. The SDS Project will result in permanent impacts to 0.23 acres of jurisdictional wetlands. It will also create permanent impacts to another estimated 12.0 acres of non-jurisdictional wetlands. A 404 permit has been obtained from USACE. Mitigation for impacts to non-jurisdictional wetlands will be coordinated with Reclamation.

At the state level, the SDS Project has been reviewed by both the Colorado Department of Public Health and Environment (CDPHE) and Colorado Division of Wildlife (CDOW). The CDPHE certified the SDS Project under Section 401 of the Clean Water Act in conjunction with the USACE 404 permit. The CDOW review resulted in the SDS Fish and Wildlife Mitigation Plan (FWMP), which is in *Appendix 2*.

At the county and city levels, the SDS Project is subject to a variety of regulatory reviews and associated mitigations, including review by the Fountain Creek Watershed, Flood Control and Greenway District (District); the Pueblo County 1041 Permit; El Paso County Location Approval and Site Development Plan Approval; and others. The 1041 Permit conditions, which include comprehensive and extensive mitigation requirements, are

detailed in the SDS 1041 Permit Terms and Conditions approved by the Pueblo Board of County Commissioners on March 18, 2009, which are included in *Appendix 3*.

A summary of the key mitigations committed to by the SDS Participants as a part of the permit processes described above are discussed in several mitigation plans, which are incorporated by reference into this document and are summarized in **Table 1-1**.

FIGURE 1-1
Southern Delivery System Project Plan

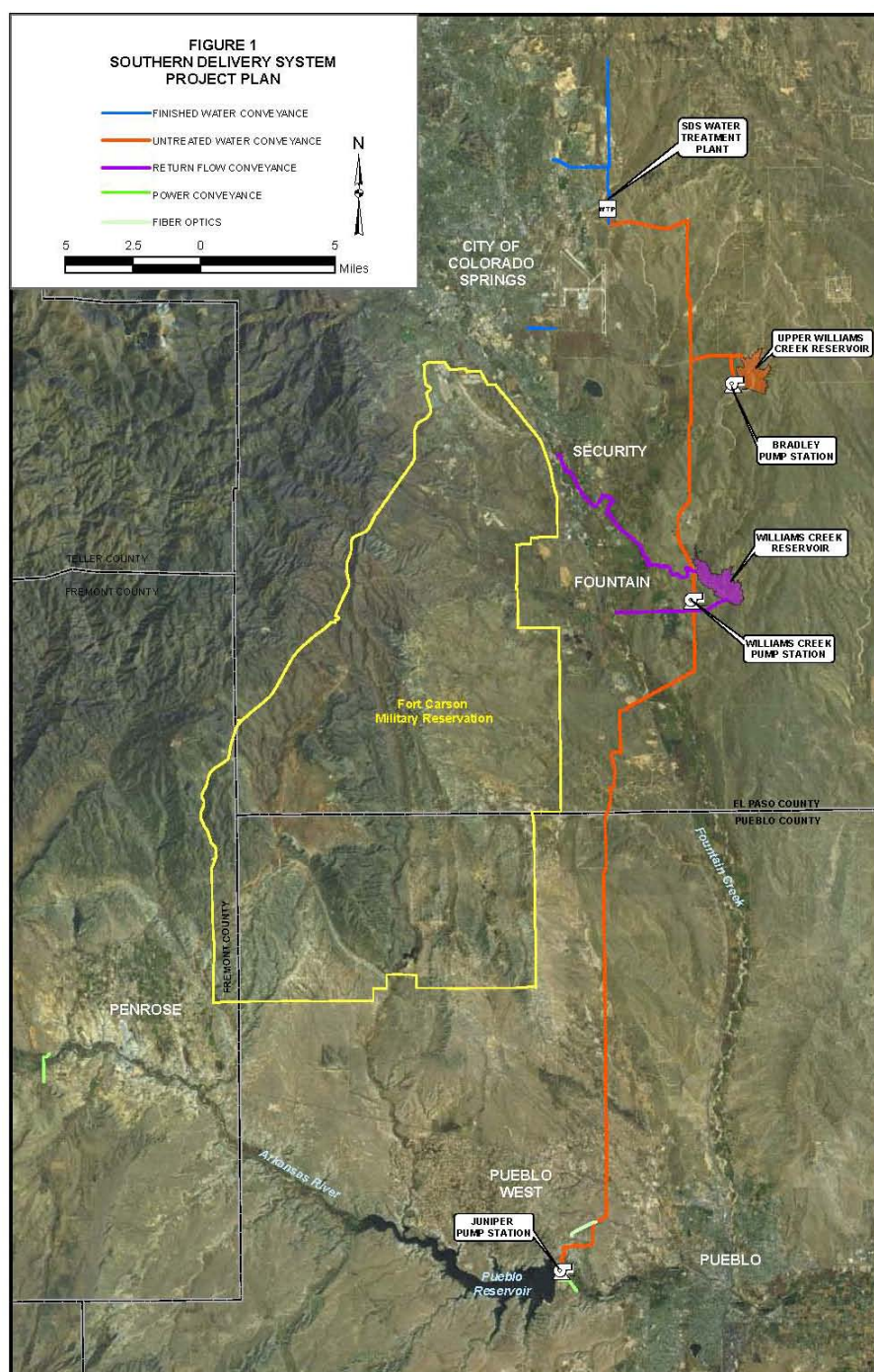


TABLE 1-1
Summary of Commitments Per the Record of Decision and Other SDS Project Permit Conditions and Mitigation Plans

Category	Agency (Reclamation, Pueblo County, USACE, CDPHE, CDOW)	Commitment
Resource Area 1. Water Quantity		
Flow Management Programs		
• Upper Arkansas Voluntary Flow Management Program (UAVFMP)	Reclamation	Participate in the UAVFMP agreement related to flows in the Arkansas River near Wellsville.
• Pueblo Flow Management Program (PFMP)	Reclamation, Pueblo County	Participate in the PFMP agreement related to flows as measured at the Arkansas River above Pueblo Streamgage.
• Arkansas River Low Flow Program (ARLFP)	Pueblo County	Participate in the ARLFP agreement related to storage in Pueblo Reservoir and flow in the Arkansas River below the reservoir.
Fountain Creek Flows		
• Fountain Creek Flows	Reclamation, District	Review the average annual flow in Fountain Creek each year as measured at the Fountain Creek at Pueblo Streamgage. If the average annual stream flow exceeds the scope and range of the flow estimated and analyzed in the FEIS, then Colorado Springs Utilities will coordinate with Reclamation.
• Stormwater Management	Pueblo County, District	Maintain stormwater controls and other regulations intended to ensure that Fountain Creek peak flows resulting from new development served from the SDS Project within the Fountain Creek basin are no greater than existing conditions.
• Fountain Creek Low Flows	Reclamation, CDOW	Review low-flow levels in Fountain Creek each year. If the low-flow levels fall outside the expected range of flow, coordinate with Reclamation and CDOW.
Resource Area 2. Water Quality		
Surface Water Quality		
• Water Quality Monitoring Data	Reclamation, District, CDPHE	Submit water quality monitoring data, including trend analyses, for the preceding calendar year by January 31st of the subsequent year; install groundwater monitoring wells at Upper and Lower Williams Creek Reservoirs.
• SDS Operations	Reclamation, CDPHE	If the CDPHE determines that operation of the SDS Project is causing significant adverse water quality effects, the SDS Participants will coordinate with Reclamation and CDPHE.
Flow Rates Impacting Quality		
• Flow levels	Reclamation	In the event that operation of the SDS Project causes, or threatens to cause, stream flows in the Arkansas River or other waterways to diminish to low levels that will contribute significantly to elevated concentrations/densities of dissolved selenium, E. coli, or sulfate, the SDS Participants will coordinate with Reclamation, CDPHE, and CDOW.
Resource Area 3. Geomorphology		
Geomorphology of Fountain Creek		
• Dredging	Reclamation, Pueblo County	Conduct dredging in vicinity of Pueblo levees and install sediment collection devices in lower Fountain Creek, or implement approved alternative.
• Monitoring	Reclamation, Pueblo County	Conduct geomorphic monitoring of Fountain Creek.
Clear Spring Ranch		
• Clear Spring Ranch	Pueblo County	Construct new wetlands and redirect a portion of the channel of Fountain Creek at the Clear Spring Ranch.

TABLE 1-1
Summary of Commitments Per the Record of Decision and Other SDS Project Permit Conditions and Mitigation Plans

Category	Agency (Reclamation, Pueblo County, USACE, CDPHE, CDOW)	Commitment
Resource Area 4. Aquatic Life		
Flow Management Programs		
<ul style="list-style-type: none">Low Flow	Reclamation, CDOW, CDPHE	Coordinate with Reclamation, CDPHE, and CDOW on low-flow levels in Fountain Creek and the Arkansas River should low flow levels contribute to impairment of aquatic life.
Monitoring and Research		
<ul style="list-style-type: none">Aquatic Monitoring	Reclamation, Pueblo County, CDOW	Monitor and conduct research on the effects of the operation of the project upon aquatic life in Fountain Creek and the Arkansas River as required by the ROD, 1041, and FWMP.
Physical Infrastructure		
<ul style="list-style-type: none">Aquatic Invasive Species Control	CDOW	Implement mussel control facilities at Pueblo Reservoir, if deemed necessary.
<ul style="list-style-type: none">Fish Stocking Programs	CDOW	Provide financial support for expanded fish stocking programs.
<ul style="list-style-type: none">Habitat Enhancements	CDOW	Provide mitigation funding to support infrastructure improvements at Arkansas River reservoirs to enhance fish habitat.
Vegetation		
<ul style="list-style-type: none">Clear Spring Ranch	Reclamation, USACE	Mitigate all unavoidable permanent impacts to jurisdictional and non-jurisdictional wetlands with compensatory wetlands at the Clear Springs Ranch site that replace existing wetland functions and values.
<ul style="list-style-type: none">Noxious Weed Control	Reclamation, CDOW, Pueblo County	Monitor noxious weed in construction areas and coordinate with the Colorado Department of Agriculture's Colorado Noxious Weed Management Team.
General Commitment		
<ul style="list-style-type: none">Fountain Creek Mitigation	Pueblo County	Provide \$50M in monetary mitigation to the District for Fountain Creek Impacts

1.4 Regulatory Requirements

The SDS IAMP fulfills the following regulatory requirements.

1.4.1 Record of Decision and Final Environmental Impact Statement

The ROD for the SDS Project states the following as a commitment by the SDS Participants:

“Develop an integrated adaptive management program for the project that will be coordinated with the Participants’ existing monitoring programs and the Environmental Management System discussed in Appendix F of the FEIS. The integrated adaptive management program will be finalized prior to executing any contracts for the SDS Project.” (Bureau of Reclamation 2009)

Appendix F of the FEIS further details the following relative to adaptive management:

“The final <adaptive management> plan will be prepared in general accordance with Department of the Interior Policy guidance (Order 3270) and the report Adaptive Management, The U.S. Department of Interior Technical Guide (Williams et al. 2007)”. (Bureau of Reclamation 2008a)

The ROD further details that the IAMP will, at a minimum, address the following resource areas:

- Surface Water Section of SDS Participants’ Commitments

“Participants will consult with Reclamation each year on the average annual flow in Fountain Creek. If the average annual stream flow of Fountain Creek as measured at Pueblo (USGS streamgage station number 071056500) exceeds the scope and range of the flow estimated and analyzed in the Final Environmental Impact Statement (see Table 33 of the FEIS), then Participants will coordinate with Reclamation, within their adaptive management plan, to evaluate the cause(s) for the change in flows and determine whether appropriate response actions, such as monitoring and/or mitigation measures, are warranted. Each year, Participants will report to Reclamation the average annual flow in Fountain Creek at Pueblo together with other relevant data.”

- Water Quality Section of SDS Participants’ Commitments

“Include water quality monitoring and adaptive management within the integrated adaptive management program.”

“Development and implementation of a water quality monitoring and adaptive management plan will provide a means of detecting changes in water quality, judging whether they are likely caused by operation of the SDS Project, and addressing actual effects in a systematic manner. Additionally, implementation of the geomorphology mitigation measures...will reduce suspended sediment and total recoverable iron concentrations in Fountain Creek and the lower Arkansas River.”

- Aquatic Life Section of SDS Participants' Commitments

"Monitor the effects of the operation of the SDS Project upon aquatic life in Fountain Creek and the Arkansas River between Pueblo Dam and the Las Animas Gage. Aquatic sampling will be conducted once per year at up to 10 locations. Monitoring methods and locations will be identified in the proposed wildlife mitigation plan that will be submitted to the Colorado Wildlife Commission pursuant to C.R.S. § 37-60-122.2. Use the information from this monitoring in the adaptive management program for the SDS Project." (Bureau of Reclamation 2009)

1.4.2 Other Commitments

In addition to the ROD commitments, the following commitments relative to an IAMP have been made:

- Colorado Division of Wildlife Fish and Wildlife Mitigation Plan

"The effects of the operation of the SDS Project upon aquatic life in Fountain Creek will be monitored. Aquatic sampling will be conducted once per year at up to 13 locations. Information obtained from this monitoring effort will be incorporated into the adaptive management program for the SDS Project." (CDOW 2010)

"The SDS Project will implement an approved Environmental Management System, which will be a condition of the long-term contracts with Reclamation, to establish procedures for compliance with laws, regulations, permit requirements, and mitigation measures (Reclamation 2009). As part of the Environmental Management System, adaptive management principles will be used to address unforeseen conditions. Adaptive management is defined as 'a decision process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood' (Department of the Interior 2008). The mitigation measures implemented for the SDS Project will be monitored and modified as needed to ensure effective environmental stewardship.

"The data generated through monitoring programs for aquatic life, water quality and flow will be used to respond to changes in environmental conditions, adjust to unanticipated impacts of project implementation, or modify mitigation measures to improve effectiveness. If required, additional mitigation responses will be conducted in accordance with the adaptive management plan.

"In the event that operation of the SDS Project causes, or threatens to cause, stream flows in Fountain Creek or the Arkansas River to diminish to low levels that could contribute significantly to the impairment of aquatic life, Springs Utilities will coordinate with Reclamation, CDPHE, CDOW, and other interested parties to evaluate and select measures to mitigate adverse effects. Actions will be conducted in accordance with the SDS Project adaptive management plan approved by Reclamation." (CDOW 2010)

- Pueblo County 1041 Permit

“Applicant shall implement a monitoring program to provide information on the current water quality and geomorphology (including erosion, sediment loading, and channel stability conditions) in Fountain Creek and the Arkansas River, and to track changes over time. The monitoring will assist in the selection of mitigation measures and in the assessment of the effectiveness of SDS mitigation measures on Fountain Creek and the Arkansas River. To collect data that supports the evaluations related to impacts on water quality and geomorphology, Applicant shall implement monitoring activities at defined monitoring locations in the Fountain Creek Basin and the Arkansas River.

“Pursuant to the Environmental Impact Statement process, Applicant has committed to engage in adaptive management, which contemplates that Applicant will undertake modified or different mitigation activities for impacts that have been identified in the EIS. If additional mitigation activities are required in order for Applicant to comply with the requirements of the ROD, any costs associated with that additional mitigation activity shall be the sole responsibility of Applicant.

“To the extent that the monitoring and the adaptive management program causes Pueblo County to request or require that additional mitigation activities occur over and above those required by the Bureau of Reclamation, Applicant’s obligation to conduct those mitigation activities shall be the responsibility of the Fountain Creek District (or FCRF, if the District is not formed) and not directly the responsibility of Applicant. Pueblo County shall be a stakeholder in the Adaptive Management Program, for purposes of this paragraph.” (Pueblo County 2009)

Section E-1 of the Environmental Conditions/Mitigations section of the Mitigation Appendix further details monitoring committed to by the SDS Participants related to water quality and sediment.

- CDPHE 401 Certification

“Based on the foregoing analysis and evaluation, consideration of the short term impacts of construction activities, as well as BMPs and conditions imposed by other agencies including the development of adaptive management practices in response to monitoring and assessed conditions, the Division concludes that the project will comply with all applicable provisions to the Basic Standards for Surface Waters, the Basic Standards for Ground Water, surface and ground water classifications and water quality standards, effluent limitations and control regulations.”

“By reference, the Division incorporates all conditions to protect water quality placed on the SDS project by other applicable regulatory agencies.” (CDPHE 2010)

1.5 SDS Participant Information

Contact details for the SDS Participants and their authorized agent are as follows.

1.5.1 SDS Participants

Colorado Springs Utilities

(Project Manager on behalf of SDS Participants)

Contact: John Fredell, Program Director
Plaza of the Rockies, Third Floor
121 S. Tejon, MC930
Colorado Springs, CO 80947
Phone: (719) 668-8037, Fax: (719) 668-8734
E-mail: jfredell@csu.org

Security Water District (Participant)

Contact: Roy Heald, District Manager
231 Security Blvd.
Security, CO 80911
Phone: (719) 392-3475, Fax: (719) 390-7252
E-mail: r.heald@securitywsd.com

City of Fountain (Participant)

Contact: Larry Patterson, Director of Utilities
116 S. Main Street
Fountain, CO 80817
Phone: (719) 322-2076, Fax: (719) 391-0463
E-mail: lpatterson@fountaincolorado.org

Pueblo West Metropolitan District (Participant)

Contact: Steve Harrison, Utilities Director
109 E. Industrial Blvd.
Pueblo West, CO 80017
Phone: (719) 547-3554, Fax: (719) 547-2833
E-mail: sharrison@pmwd-co.us

1.5.2 Integrated Adaptive Management Plan Preparer

Contact: Bruce Spiller, P.E.
CH2M HILL, Inc.
90 S. Cascade Avenue, Suite 700
Colorado Springs, CO 80903
Phone: (719) 477-4914, Fax: (719) 634-9954
E-mail: bruce.spiller@ch2m.com

2.0 Basis for Structure of the Southern Delivery System Integrated Adaptive Management Plan

In the DOI Guide, the Department of Interior presents the following operational definition of adaptive management and identifies the conditions for which adaptive management should be considered. The DOI Guide is not an exhaustive discussion of adaptive management, nor does it include detailed specifications for individual projects; however, it does provide valuable guidance on how to apply adaptive management and forms the basic framework for the SDS IAMP.

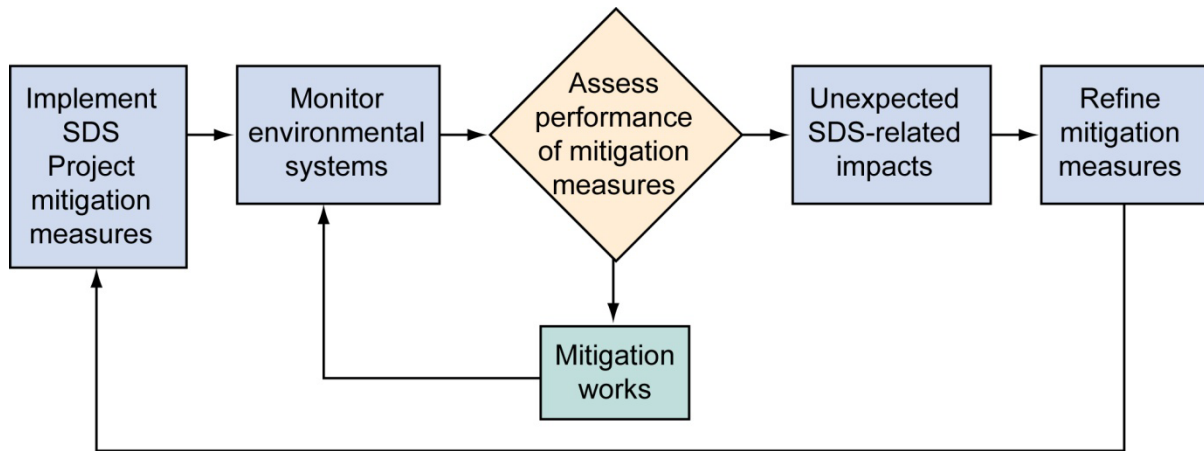
DOI frames adaptive management within the context of structured decision making, with an emphasis on uncertainty about resource responses to management actions and the value of reducing that uncertainty to improve management. The DOI Guide characterizes adaptive management as a decision process that:

Promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a ‘trial and error’ process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. Its true measure is in how well it helps meet environmental, social, and economic goals, increases scientific knowledge, and reduces tensions among stakeholders. (Williams, Szaro, and Shapiro 2009)

Adaptive management, therefore, involves ongoing, real-time learning and knowledge creation, both in a substantive sense and in terms of the adaptive process itself, and includes stakeholder involvement, management objectives, management alternatives, predictive models, monitoring plans, decision making, monitoring responses to management, assessment, and adjustment to management actions. An adaptive approach extends across all phases of a project over its timeframe and reinforces the commitment to learning-based management.

As applied to the SDS Project, the adaptive management process takes on the basic form described in **Figure 2-1**.

FIGURE 2-1
Basic Logic of the Southern Delivery System Integrated Adaptive Management Plan



3.0 Operational Sequence for Adaptive Management – the Nine-Step Process

The DOI Guide defined implementation of adaptive management in two phases comprising nine steps. The first phase is used to set up the IAMP's key components that have been, or are being, developed. The second phase is an iterative phase in which the components are linked in a sequential decision process.

The set-up phase includes the following five steps:

1. Stakeholder involvement
2. Management objectives
3. Potential management actions
4. Predictive models
5. Monitoring plans

The iterative phase, Steps 6 through 9, uses the earlier elements in an ongoing cycle of learning about system structure and function, and managing based on what is learned. At this point in the operational sequence of the IAMP it is assumed that the key elements are in place, and the stage is now set to incorporate these elements into an iterative decision process that will lead to improved understanding and management.

The iterative phase includes the following four steps:

6. Decision making
7. Follow-up monitoring
8. Assessment
9. Iteration

These steps are described in more detail below, and the application of these steps to the SDS Project is detailed in following sections of this IAMP.

3.1 Step 1 – Stakeholder Involvement

In Step 1, Stakeholder Involvement, the IAMP team engages stakeholders in the IAMP process. Of particular importance in adaptive management is the idea that stakeholders understand and assess the resources impacted, and reach agreement about the scope and objectives of potential management actions, recognizing that differences of opinion may exist about how the system may respond even when there is consensus on management actions.

A more detailed discussion of the SDS Project stakeholder involvement process is provided in Section 4.

3.2 Step 2 – Objectives

In Step 2, Objectives, the IAMP team identifies clear, measurable, and agreed-upon management objectives to guide decision making and evaluate SDS Project mitigation effectiveness over time. SDS IAMP objectives are discussed in detail in Section 5.

3.3 Step 3 – Management Actions

In Step 3, Management Actions, the IAMP team identifies a suite of management actions that are to be adaptively managed. In the case of the SDS Project, the management actions are the SDS Project mitigations that are being implemented. SDS IAMP management actions are discussed in detail in Section 6.

3.4 Step 4 – Predictive Models

In Step 4, Predictive Models, the IAMP team models the implementation of the management actions, to predict the impacts of these management action. SDS IAMP modeling is discussed in detail in Section 7.

3.5 Step 5 – Monitoring Plans

Monitoring is used in adaptive management to track resource system behavior and, in particular, the responses to the management actions over time. Monitoring is an ongoing activity, producing new data after each monitoring period to evaluate management actions and ensure that objectives are being met. Monitoring also includes a means to validate resource model confidence and prioritize management actions during follow-up monitoring periods. In general, monitoring provides data in adaptive management for four key purposes:

- Evaluate progress toward achieving management objectives identified in Step 2
- Determine resource status in response to management actions identified in Step 3
- Increase understanding of resource dynamics via the comparison of predictions against data developed in Step 4
- Enhance and develop models of resource dynamics as needed and appropriate as described in (Steps 6 through 8)

The SDS IAMP Monitoring Plan is discussed in detail in Section 8.

3.6 Step 6 – Decision Making

In Step 6, Decision Making, the management objectives identified in Step 2 will be used as a guide to decision making given the following input:

- The state of the natural resource systems at a given point in time based on the collected data from Step 5
- An assessment of how the current data analyses combined with additional data collected over time support the original assumptions and predicted modeling results

- Management actions adjusted over time as resource conditions change and additional information becomes available

The assembled data from Step 5 will be used to determine if impacts beyond those predicted in Step 4 exist. If the outcomes from the proposed project mitigation measures and other events are different than those contemplated in the FEIS, other steps described in the IAMP will be initiated. If the assembled data demonstrate that the performance of the natural systems is consistent with the predicted impact, further actions may not be warranted.

The details of the decision-making process commitments in this IAMP are provided in Section 9.

3.7 Step 7 – Follow-up Monitoring

The same principles apply to Step 7 as to Step 5; however, follow-up monitoring will only be required if unexpected substantive changes occur and if a modified monitoring program is necessary. Follow-up monitoring generates new data for each monitoring period to evaluate management actions, ensuring that the objectives are being met and providing information for decision making. Results of follow-up monitoring also provide a means to validate resource model confidence and prioritize management actions during subsequent monitoring periods. The results of the follow-up monitoring will also be used to better understand the extent and cause of unexpected changes if the unexpected changes are shown to be a result of SDS Project operations. Until the iterative phase of the IAMP is completed (Steps 6 through 9), changes to the monitoring described in Step 5 cannot be defined, as the adaption of the original monitoring program must occur based on the findings of Step 6. SDS Project follow-up monitoring is discussed further in Section 10.

3.8 Step 8 – Assessment

Step 8, Assessment, is where the evaluation of the performance of management actions in meeting the objectives is performed. The focus of the assessment is on the understanding of the extent and cause of unexpected variations from predicted resource impacts based on the newly collected data from Step 5 and, if necessary, Step 7. This assessment is then used to evaluate the effectiveness of the management actions and to determine if these unexpected impacts are related to operations of the SDS Project. The SDS Project assessment step is discussed in more detail in Section 11.

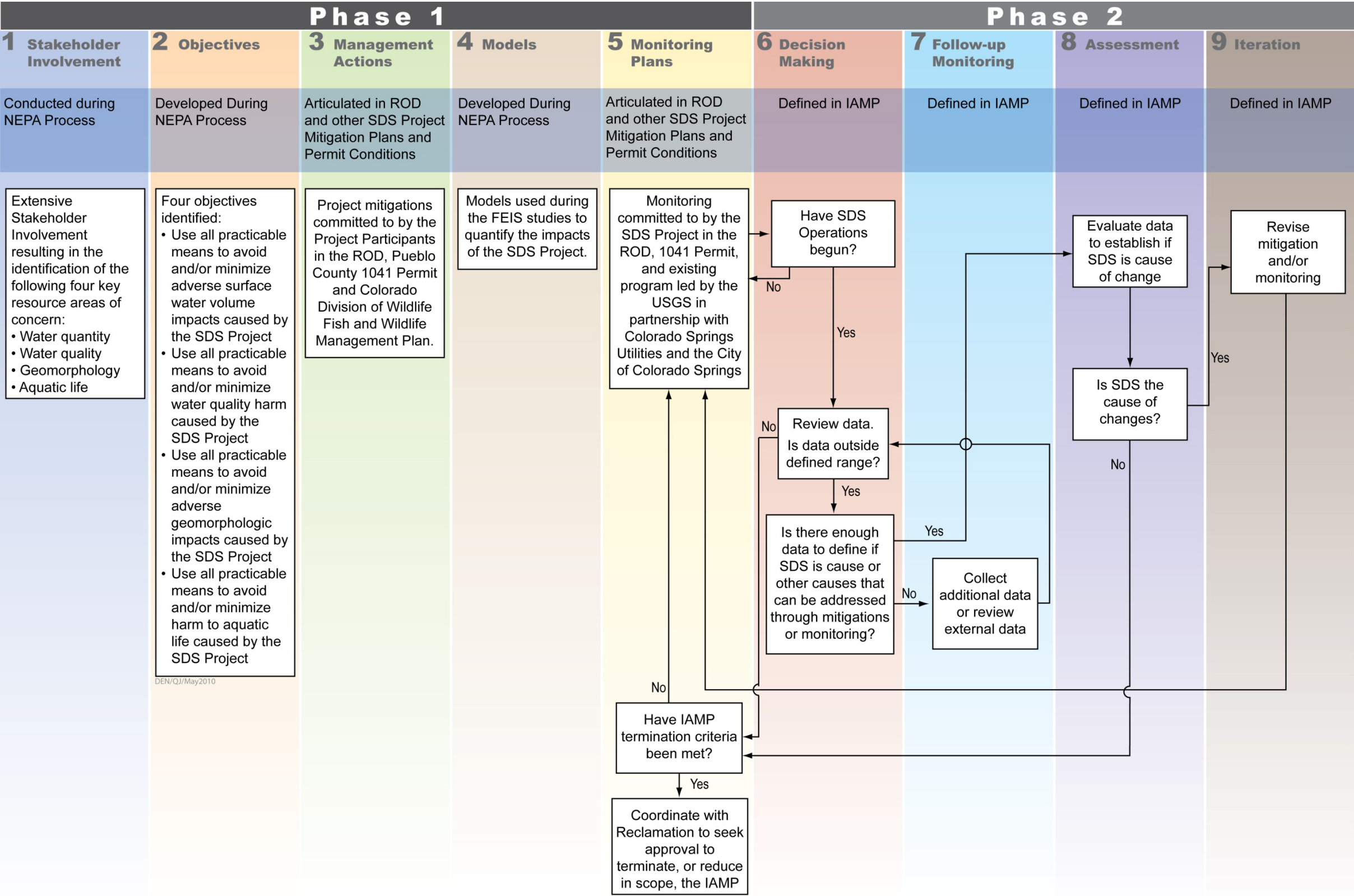
3.9 Step 9 – Iteration

The iterative cycle of decision making (Step 6), Follow-Up Monitoring (Step 7), and Assessment (Step 8) over time leads to revised management actions, when warranted, that better meet SDS Project mitigation objectives articulated in the ROD. The SDS Project iterative process is discussed in more detail in Section 12.

3.10 Application of the Nine-Step Process to the SDS IAMP

A step-by-step discussion of the application of the nine-step process to the SDS IAMP is provided in Sections 4 through 12. The SDS IAMP process is summarized in flow chart format in **Figure 3-1**.

FIGURE 3-1
Summary of the Southern Delivery System Project Integrated Adaptive Management Plan Process



4.0 SDS IAMP Step 1 – Stakeholder Involvement

Consistent with the requirements of the regulatory processes discussed in Section 1.2, public involvement has been, and continues to be, an essential part of the SDS Project. As the lead agency for the EIS, Reclamation's public involvement process met the intention of NEPA by actively seeking and considering public comments, and incorporating the views of stakeholders in its decision making. A summary of the key elements of the public involvement and agency consultation and coordination processes is provided below.

- Reclamation used the scoping process to give the public, organizations, state and local governments, and federal agencies an opportunity to identify issues and concerns. Public scoping outreach activities included publication of a Notice of Intent in the Federal Register on September 8, 2003. This notice informed the public of the intent to begin the EIS process and provided Project information as well as the dates for scoping meetings and for receipt of public comments about the Project. To announce the SDS Project, 75 press releases were distributed to local and national media organizations, as well as other interested parties. Colorado Springs Utilities also placed paid advertisements announcing public scoping meetings and information on the Project in various newspapers.
- Reclamation held five open house-format public scoping meetings (Buena Vista, Fountain, La Junta, Pueblo, and Colorado Springs) in September and October 2003 to solicit issues and concerns about the Project from the public. Reclamation also held an agency scoping meeting on October 27, 2003, and contacted 13 Native American tribes to obtain their input for the scoping process. Newsletters were periodically published and distributed to keep the public informed on the status and findings of the Draft EIS effort. Reclamation solicited public input on the preliminary alternatives following completion of an alternatives analysis and development of the preliminary alternatives that were to be analyzed in detail. Five public workshops (Colorado Springs, La Junta, Pueblo, Cañon City, and Pueblo West) were held in October 2005 to solicit public input. The workshops resulted in realignment of the return flow alternatives analyzed in the Draft EIS. Six notices about the proposed contracts with the SDS Participants were published in the Federal Register.
- Notices of availability of the Draft EIS were sent to area libraries; federal agencies; Native American organizations; state, county, and city agencies; elected officials; and private individuals. Libraries and federal agencies received printed copies or compact disks (CDs) of the Draft EIS. Native American organizations; state, county, and city agencies; elected officials; organizations; and private individuals were sent a written notice of availability with instructions on how to download the Draft EIS from the Internet as well as instructions on how to request a printed copy or CD of the Draft EIS from Reclamation.
- Eight federal agencies, seven state agencies, and eight local agencies were consulted throughout the EIS process.

- Public comments were solicited on the Draft EIS and six public meetings were held to receive public comments. Reclamation also held an additional listening meeting to receive comments. Public comments were received from February 29 through June 13, 2008 (a total of 105 days).
- Reclamation issued the SDS Supplemental information Report (SIR) on October 10, 2008, for a 45-day public comment period. This report presents the results of additional environmental analyses performed since the release of the Draft EIS. The SIR also presents the substantial changes to the SDS Participants' Proposed Action to blend elements of two SDS alternatives (the Proposed Action and the Wetland Alternative) to come up with a hybrid alternative. Reclamation and the Applicants completed additional analyses in response to environmental impacts shown in the Draft EIS, public comment on the Draft EIS, and analyses performed in conjunction with this Section 404 Permit. The SIR also discloses results of additional water quality evaluations, Western Slope impact assessments, and dam failure analyses. The comments received on the SIR are addressed in the FEIS.
- Reclamation employed a number of additional public involvement processes due to the large amount of information contained in the Draft EIS and the technical support documents, thereby exceeding the mandated public involvement requirements associated with the Draft EIS. Supplemental public involvement measures undertaken by Reclamation included:
 - Releasing the Technical Support documents for public review on January 29, 2008, a month before the Draft EIS was released for public review. Reclamation sent e-mail notifications of the early release of the Draft EIS technical documents and start of the public comment period to elected officials, community stakeholders, environmental groups, and other interested parties.
 - Maintaining a comprehensive SDS Project website at www.sdseis.com, which provided electronic copies of the Draft EIS and related technical documents, notice of public meetings, Project information, and Project contacts.
 - Publishing a series of display advertisements in publications reaching communities along the Arkansas Valley that informed the public about the release of the Draft EIS and Draft EIS technical documents as well as the associated public comment period. The advertisements ran 57 times, from January 27 through March 23, 2008. News coverage about the availability of the Draft EIS also ran in local media outlets.
 - Extending the public comment period for the Draft EIS by 45 days from its original 60-day expiration date in response to requests from the public. The extension of the public comment period provided the public with 105 days, or 3.5 months, to review the Draft EIS and an additional 30 days to review the technical reports.
 - Holding six open house-format meetings during the public comment period in communities along the Arkansas Valley (Buena Vista, Pueblo, La Junta, Fountain, Colorado Springs, and Canon City). The public meetings were scheduled from 6 to 9 p.m. to allow attendees the flexibility of attending at a time convenient to their schedules. Meeting attendees were encouraged to submit their comments orally to a court reporter, on comment cards, or by letter at a later date. Reclamation estimates that approximately 400 people attended the meetings. News coverage recapped each of the meetings in the communities in which the meetings were held.

- Presenting the Draft EIS to the Fremont County Commissioners, at its request, to answer questions specific to the Draft EIS and Fremont County.
- Providing an overview of the Draft EIS process for the Pueblo City Council in a televised meeting held March 17, 2008.
- Hosting an additional public meeting as a “listening session.” This meeting was held on May 29, 2008, in Pueblo to hear and record additional public comments. Approximately 75 members of the public attended this session.
- Holding a public hearing on the SIR in Pueblo on October 29, 2008.

The SDS Participants have used a systematic approach for encouraging two-way communication and to disseminate information about the SDS Project, the planning and permit process, and the EIS to interested individuals and community groups, including the following:

- Attended meetings with, and gave presentations to, a variety of organizations:
 - Military organizations: U.S. Air Force Academy, Fort Carson, Peterson Air Force Base
 - Local government groups: Chafee County Commissioners, Colorado Springs City Council, Fremont County Commissioners, Fremont County Managers Group, Fremont County Sanitation District, Security Water and Sanitation District, Penrose Water District, Pueblo West Metropolitan District, Pueblo City Council, Pueblo Chamber of Commerce, El Paso County Commissioners, El Paso County Water Authority, Florence City Council, Florence Chamber of Commerce, Fountain Planning Commission, and Pikes Peak Area Council of Governments
 - Business and service groups: Colorado Springs Business Users Group, Colorado Springs Airport, Canon City Chamber of Commerce, Colorado Springs Chamber of Commerce, Housing and Building Association, Colorado Springs Rotary Club, Sertoma Club, Colorado Springs Council of Neighborhoods and Organizations
 - Homeowners and realtors groups: Fremont County Property Owners, Colorado Centre residents, Peaceful Valley Homeowners Association, Pikes Peak Association of Realtors
 - Regional water resource planning and engineering groups: Colorado Water Congress, Arkansas River Roundtable, American Council of Engineering, Colorado Basin Roundtable, Fountain Creek Vision Task Force, Southeastern Colorado Water Conservancy District, Upper Arkansas Water Conservancy District, representatives of local ditch companies
 - Environmental groups: the Sierra Club, Trout Unlimited, and Water Resource Advocates
- Set up a Project website at www.sdswater.org to provide descriptions and information about the SDS Project with links to Project websites.
- Distributed letters to community members, issued advertisements encouraging public review and comments on the Draft EIS, and distributed the Draft EIS to congressional delegations, regional elected officials, and community leaders along the Arkansas Valley.

- Participated in a televised panel discussion of the Draft EIS and Project issues in Pueblo.
- Distributed a series of public issue papers summarizing key issues and EIS findings, and wrote several issues of the newsletter e-news that focused on various aspects for the SDS program.
- Held a “coffee hour” for Fremont County property owners potentially involved with a possible pipeline for SDS.
- Hosted a public information session in Pueblo on Fountain Creek Issues on October 30, 2008.
- Participated in two open houses hosted by the Fountain Creek Vision Task Force to discuss findings of a 2-year study on the creek. The open houses were held on November 12, 2008 at the Pueblo Convention Center and November 13, 2008 at the Leon Young Service Center in Colorado Springs.

The SDS Project has, to date, included stakeholder and public involvement as required by the Section 404 Permit process, the FWMP development and approval process, the 401 Certification process, the District review process, the Pueblo County 1041 permit process, and the El Paso County Location Approval and Site Development Plan Approval processes, including the required public notices and evaluation of public comments.

The stakeholder input described above was considered at length during the development of the mitigation commitments included in the ROD and 1041 Permit, and therefore form a firm foundation for the selected management actions described in the IAMP.

These public outreach and stakeholder involvement efforts have led to the definition of the IAMP Objectives listed in Section 5. No further public outreach or stakeholder involvement efforts are included in the IAMP, though the SDS Project will continue to perform appropriate public outreach and stakeholder involvement, and will present information on the IAMP to appropriate public meetings or forums as requested and as appropriate.

5.0 SDS IAMP Step 2 – Objectives

Step 2, Objectives, identifies clear and measurable management objectives to guide decision making and evaluate SDS Project mitigation effectiveness over time. Objectives are critical for use in evaluating performance, reducing uncertainty, and improving management through time. It therefore is important to have clear and measurable objectives at the outset, to guide decision making and assess progress in achieving management success.

The ROD prescribes the objective for the commitments associated with the ROD as being to use “all practicable means to avoid or minimize environmental harm” caused by the SDS Project. Per the requirements of the ROD, this overall objective has been applied to the following four resources areas:

1. Surface water quantity
2. Water quality
3. Geomorphologic impacts
4. Aquatic life

6.0 SDS IAMP Step 3 – Management Actions

The management actions addressed in this IAMP are by definition the project mitigations committed to by the SDS Participants in the ROD and other SDS Project permit conditions and mitigation plans. These mitigations have been developed to incorporate the environmental, ecological, and economic values of concern to stakeholders based on input received during Step 1 above.

For the purposes of the IAMP, a core assumption is that the management actions (mitigations) in place for the SDS Project will mitigate the adverse impacts of the SDS Project. The FEIS findings generally concluded that the impacts associated with the SDS Project would be minor and include both favorable and adverse impacts. These impacts were deemed to be acceptable, particularly when mitigated in accordance with the measures identified in the ROD. Subsequent to the issuance of the ROD, the SDS Participants made additional commitments that, in combination with those stipulated in the ROD, presumptively address the identified adverse impacts. The management actions for each of the identified resource areas are listed in **Table 1-1**.

The focus of the management actions are generally in those reaches where impacts might reasonably be expected as a result of SDS operations. The impacts to other stream reaches in the study area are very limited and do not require any new mitigation measures beyond actions that mitigate the temporary impacts of construction.

7.0 SDS IAMP Step 4 – Predictive Models

A variety of predictive models were used during the SDS Project NEPA process. The primary models used for each of the four resources areas addressed by the IAMP are discussed below. The results of the modeling were used to quantify the impacts of the SDS Project and to select the mitigations (management actions). The FEIS modeling was not used to predict the success of the mitigation actions as these models were not intended to support this type of analysis.

7.1 Water Quantity

The impacts of the SDS Project with respect to surface water and ground water flows were modeled using a hydrologic model referred to as the “Daily Model.” Described in Section 3.5.3 of the FEIS (Bureau of Reclamation 2008a), the Daily Model is a daily time-step river, reservoir operations, and water rights model of the Arkansas River Basin upstream of the Las Animas Streamgauge and includes the Fountain Creek Basin.

7.2 Water Quality

The impacts of the SDS Project with respect to water quality and chemical parameters were evaluated using a combination of mass balance, qualitative, and semi-quantitative analyses to estimate the concentrations (using the Daily Model results as appropriate) for each of the parameters. This assessment is discussed in Section 3.7.3 in the FEIS. The FEIS concluded in Section 3.7.5.4 that, “Because most of the water quality effects would be small and because there is some uncertainty regarding future conditions, the most effective mitigation measure is implementation of a water quality monitoring program commensurate with the potential effects of the Preferred Alternative combined with adaptive management.”

In response to inquiries regarding the water quality-related studies of the draft EIS, the SDS Project Supplemental Information Report (Bureau of Reclamation 2008b) provides further assessment of Fountain Creek impacts using alternative approaches as requested by USEPA and CDPHE. These analyses affirmed the conclusions presented in the Draft EIS and are those reported in the FEIS as described above.

SDS Project water quality impacts to Pueblo Reservoir were modeled by the USGS using the U.S. Army Corps of Engineers CEQUAL-W2 model (ver. 3.2). The USGS Pueblo Reservoir model is documented in Galloway et al. (2008). The laterally averaged, two-dimensional model was calibrated using data collected from October 1985 to October 1987 (water years 1986 to 1987) and verified with data from water years 2000 to 2002. Lake operations, water temperature, dissolved oxygen, total dissolved solids (TDS), dissolved ammonia, dissolved nitrate (measured as dissolved nitrite plus nitrate), dissolved orthophosphorus, total phosphorus, algal biomass (measured as chlorophyll a), and total iron were modeled.

7.3 Geomorphology

With respect to geomorphology, a conceptual model of the interaction of the primary controls for “geomorphically sensitive” channels was prepared. A calibrated sediment transport model was not completed because adequate sediment transport data are not available to construct and calibrate such a model and because uncertainty with the model results would still exist due to the complex nature of geomorphic interactions. The results of the analyses indicated that substantive changes to existing conditions would not be expected due to SDS Project operations, and the dynamic nature of the channels would remain. Thus, as stated in Section 3.9.5 in the FEIS, it was concluded that certain specific mitigation measures, in addition to geomorphic monitoring following the start of project operations, should be conducted to manage potential impacts (Bureau of Reclamation 2008a).

7.4 Aquatic Life

With respect to modeling for aquatic life impacts, two separate simulation models were used to evaluate the potential impacts to fish and benthic invertebrates: the Indicators of Hydrologic Alteration (IHA) and the Instream Flow Incremental Methodology (IFIM). The IHA method summarizes changes in hydrology using parameters relevant to habitat conditions for fish and invertebrates. The IFIM method simulates a relationship between fish habitat availability and streamflow. Details on these models and the estimated impacts to aquatic life in streams and reservoir are included in Section 3.10.3.3 and Section 3.10.5, respectively, in the FEIS. As stated in Section 3.10.5 in the FEIS, it was concluded that certain specific mitigation measures, in addition to aquatic life monitoring following the start of project operations, should be conducted to manage potential impacts (Bureau of Reclamation 2008a).

7.5 Monitoring Summary

It is generally concluded that monitoring programs developed for each of the management actions will be adequate to support the collection of additional data that will then be used, as appropriate, to validate the models that were developed as part of the NEPA process.

8.0 SDS IAMP Step 5 – Monitoring

The SDS Project monitoring included in this IAMP is designed to be “coordinated with the Participants’ existing monitoring programs and the Environmental Management System discussed in Appendix F of the FEIS” as required by the ROD (Bureau of Reclamation 2009). The monitoring program commitments currently in place for the SDS Project were designed to focus on the information needed to make management decisions (Step 6) and evaluate their impacts (Step 8). The monitoring program commitments in this IAMP are designed to be:

- Inclusive of the monitoring commitments described in the agreement between the City of Colorado Springs, the U.S. Geological Survey (USGS), CDOW, and Colorado Springs Utilities
- “...coordinated with the Participants’ existing monitoring programs and the Environmental Management System discussed in Appendix F of the FEIS” as required by the ROD (Reclamation 2009)
- Inclusive of the monitoring commitments described in other SDS Project permit conditions and mitigation plans

The details of the monitoring plan commitments included in the various mitigation plans are incorporated by reference into this IAMP and are summarized in **Table 1-1**.

The existing monitoring programs are relatively limited and generally consist of collaborative efforts between the SDS Participants and other agencies or communities within the watershed. In general, the monitoring that serves as the foundation for the IAMP will be unique and will be as defined in the various mitigations plans incorporated into this document by reference.

The monitoring in this IAMP includes the following two components:

- The monitoring commitments described in the ROD and other SDS Project permit conditions and mitigation plans.
- The monitoring commitments described in the agreement between the City of Colorado Springs, USGS, CDOW, and Colorado Springs Utilities.

The monitoring included in this IAMP can be summarized as shown in **Table 8-1**.

TABLE 8-1
Summary of Southern Delivery System Monitoring Plans by Resource Area

Resource Area	Summary of Monitoring
Water Quantity	No SDS Project specific monitoring required. Existing monitoring conducted by USGS on flow rates in streams is assumed to be sufficient to define surface flows and flow measurements of water supply and wastewater effluent by Colorado Springs Utilities and will be used to determine the extent of SDS Project operations.
Water Quality	<p>Monitor dissolved selenium, <i>E. coli</i>, ammonia and salinity at 13 monitoring locations within the Fountain Creek Basin and along the Arkansas River monthly. The locations of the monitoring are described in the 1041 Permit included in Appendix 3. Monitoring will commence at the start of SDS Project construction.</p> <p>Monitor the inlet and outlet of Williams Creek Reservoir for methyl mercury on a quarterly basis following the start of reservoir operations for a period of a year, then annually for 4 years thereafter.</p> <p>Install groundwater monitoring wells up-gradient (minimum of 3) and down-gradient (minimum of 5) of the Upper and Lower Williams Creek Reservoirs to evaluate if elevated selenium concentrations are occurring as the result of the construction and operation of the reservoirs</p> <p>Colorado Springs Utilities will, in the future, conduct additional monitoring at its wastewater treatment plants if and when new monitoring requirements are adopted and participated in by all other regional wastewater treatment agencies (i.e., those in the Fountain Creek basin, Pueblo and Pueblo West wastewater treatment plants) including monitoring programs associated with emerging contaminants or other contaminant analyses.</p> <p>Colorado Springs Utilities will take into consideration and maintain records of other reliable information presented to it by outside sources.</p>
Geomorphic Monitoring	Ten cross-sections, at locations shown in Appendix 1 , will be monitored for degradation, aggradation, and other changes to the geomorphologic surface. Each cross-section will be surveyed once per year during low stream flow; preferably in the winter when leaves and other organic material on the ground is at a minimum. Cross-sections will be accurate to standards for normal transect surveys, with a vertical tolerance of approximately 0.01 foot in measurements of channel elevation.
Aquatic Life	In the fall of each year, macroinvertebrates will be collected and habitat assessment will be done at the 10 mainstem sites and the Pinon Collection gallery (Sutherland Ditch). Macroinvertebrate data will be quality controlled using voucher collection and an independent verification of the taxonomy. In addition, macroinvertebrates and habitat assessment data will be collected at six tributary sites.

Monitoring will begin in accordance with the commitments made by the SDS Participants. In general, monitoring will begin when construction activities related to SDS begin. In some special cases, such as the collaborative monitoring activities being conducted by USGS, monitoring will begin in accordance with the underlying agreements.

9.0 SDS IAMP Step 6 – Decision Making

Steps 1 through 5 of the IAMP were defined as a part of the SDS Project NEPA process and other agreements. However, Step 6, which includes the process of determining whether unexpected changes to the four identified resource areas have occurred, is newly developed for the IAMP. Step 6 is the step in which the collected data are evaluated and compared to expected outcomes defined during the NEPA process. Step 6 includes definition of a “threshold” level above which the impacts defined in the FEIS could reasonably be expected, and decision making associated with this IAMP once thresholds are exceeded.

These decisions will not be made unilaterally. Rather, an annual consultation with Reclamation, in addition to meetings and reports required as part of the other mitigation commitments, will be the foundation upon which decisions will be made.

9.1 Water Quantity

The amount of water used by the SDS Project and the way in which it moves through the basin has been the subject of considerable study in the FEIS. The FEIS analyzed how much water would be used, how it would be diverted to provide a reliable supply for the SDS Participants, and how return flows would be conveyed into the natural waterways of the basin.

The FEIS estimated the impacts of the SDS Project based on projected 2046 SDS Project operations, and it found the impacts of the SDS Project relative to change in surface water flows to be generally minor. Nevertheless, certain commitments were made to manage flows in a way that minimized related impacts, particularly in those reaches of the Arkansas River between Pueblo Reservoir and the Colorado Canal structure that returns flow to the Arkansas River, and Fountain Creek below Colorado Springs Utilities’ JD Phillips Wastewater Treatment Plant. Impacts that are related to SDS operations, or unexpected impacts within the four identified resource areas that might be observed, are generally related to changes in flow.

As such, one of the first determinations to be made as part of Step 6 is that of SDS Project related flow. Impacts, whether predicted or unexpected, can only be attributed to SDS Project operations if certain flow thresholds have been exceeded. Prior to those flows being reached, impacts are presumed to be the result of native conditions or anthropogenic factors that are not related to SDS operations. For the purposes of this IAMP, the flow threshold is assumed to have been reached when construction of Phase 1 facilities is complete and SDS operations begin. Therefore, the IAMP will take effect when SDS operations begin.

9.1.1 Water Quantity Threshold

Most of the impacts identified with the SDS Project are the result of changes in surface water flows. The FEIS estimated the impacts of the SDS Project based on projected 2046 SDS Project operations, and found the impacts of the SDS Project relative to change in surface water flows to be generally minor. Furthermore, it follows that the impacts of the SDS Project in the early years of operations where SDS Project operations are significantly

smaller than those expected in the year 2046 will be substantially smaller than those predicted for 2046.

The monitoring component of this IAMP has been formulated to identify changes in the watershed and to provide information that will allow mitigation measures to be adapted based on unforeseen SDS Project impacts. The IAMP will only consider effects to the streams in the watershed after the SDS Project water deliveries begin. Only after this threshold is met will the other elements of the decision-making process described herein be initiated.

Flow in Fountain Creek

Colorado Springs Utilities will consult with Reclamation annually to review the mean daily flow in Fountain Creek and determine if it exceeds the range of expected flows reported in the FEIS. Colorado Springs Utilities will evaluate the average annual stream flow of Fountain Creek as measured at Pueblo (USGS streamgage station number 07106500) to determine whether the flows at this location exceed the scope and range of the flow estimated and analyzed in the FEIS. Alternative 2 as reported in Table 33 of the FEIS (Bureau of Reclamation 2008a) (provided below as Figure 9-1) identifies the scope and range of expected flows.

If the flows evaluated at the Pueblo Streamgage exceed the scope and range of the flow estimated and analyzed in the FEIS, the Colorado Springs Utilities will coordinate with Reclamation to begin a process to determine whether the SDS Project is the likely cause of this increase, and what, if any, response is appropriate, including adaptations to the SDS Project mitigation measures as described in this IAMP.

FIGURE 9-1

Table 33 of the Final Environmental Impact Statement

Table 33. Average Annual Simulated Streamflow Direct Effects – Arkansas River Basin.

Location	Existing Conditions	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Simulated Streamflow (cfs)								
Lake Creek Below Twin Lakes Reservoir (LAKBTLCO)	172	235	172	169	169	172	171	241
Arkansas River At Granite (07086000)	352	417	354	349	349	354	353	424
Arkansas River Near Wellsville (07093700)	677	685	678	674	674	678	677	682
Arkansas River At Portland (07097000)	766	703	769	858	858	768	767	692
Arkansas River Above Pueblo (07099400)	631	562	547	635	717	547	627	552
Arkansas River Near Avondale (07109500)	971	961	951	953	953	956	949	955
Arkansas River At Las Animas (07124000)	321	310	310	313	314	312	309	309
Fountain Creek At Security (07105800)	170	234	235	141	141	235	236	235
Fountain Creek At Pueblo (07106500)	188	249	253	168	168	171	256	254
Jimmy Camp Creek At Fountain (07105900)	2	8	8	8	8	8	8	8
Williams Creek at Mouth (ungaged)	0	0	0	0	0	0	0	0

Compliance with Flow Management Programs

The SDS Participants have agreed to comply with several flow management programs. Conformance with these plans is an important mitigation measure that addresses the limited impacts that were identified in the FEIS. Each year, in its report to Reclamation, the Colorado Springs Utilities will report on the status of conformance with the requirements of programs. In the event that flows were not maintained in accordance with the terms of the various flow management programs, Reclamation and Colorado Springs Utilities will coordinate to determine appropriate actions.

Summary of Water Quantity Thresholds

- Fountain Creek Flow Threshold: Exceeding the 253 cfs average annual flow rate at the Pueblo Streamgage
- Flow Management Program: Violation of flow management programs conditions

9.1.2 Water Quantity Decision Making

The above-listed thresholds were identified to separate SDS Project impacts from impacts that might result from other potential changes within the watershed. The use of streamgage data on its own is considered to be too broad a measure of impacts, as it reflects changes due to SDS and other natural and anthropogenic factors that are outside the control of the SDS Participants. Increases in water demand from areas outside the SDS Participants service area, changes in watershed characteristics that might influence storm runoff patterns, annual climatic changes such as droughts or flood cycles that would impact water flow rates in the streams, or other changes in water supply and treatment operations all could impact streamgage flow rates.

By comparison, water delivered through the SDS Project pipeline is the most reasonable indicator of SDS impacts on the Arkansas River and Fountain Creek. Only when SDS operations begin will SDS have the potential to impact flow or other parameters along the identified streams. At that time, the assessment process described in the IAMP will begin.

9.2 Water Quality

9.2.1 Water Quality Threshold

As described in Section 8.0, this IAMP includes a water quality monitoring program. Using the information from these monitoring activities, supplemented by relevant data collected by other sources, reviews will be conducted to determine if changes from the pre-project operation conditions occurred. Changes in the data will be evaluated as to whether the variations reflect valid statistically based changes in water quality parameters and not random variability associated with the normal distribution of environmental data and analyses.

Only when SDS operations begin will the water quality parameters be reviewed and assessed for variability that may be associated with SDS Project impacts. Until the point where SDS water deliveries begin, unexpected changes in condition would not be associated with SDS operations. However, monitoring data will continue to be collected in accordance with the monitoring commitments. Data collected by others and not by this IAMP will

provide a useful source of data but will not be used to make the initial determinations of unexpected changes.

All data collected, whether as part of the SDS Project commitments or the other monitoring efforts, are likely to reflect considerable variation typically present in environmental data sets. Not only are the concentrations of particular constituents likely to vary considerably between sampling periods, but it is likely that other processes such as natural assimilation, hydrologic variability, and spatial variability may also impact the results. Variations in sample data are common, and data are often presented in ways that reflect this variability. In general, any collected data set is likely to have a log-normal distribution with the shape of the distribution a function of the extent of the variation. Care needs to be taken to ensure that any collected data being used for determination of impacts acknowledge this distribution and accurately captures “real” and statistically valid changes in water quality constituents. In this way, the focus of the assessment and adaptive measures identified in the IAMP will be on those impacts that are reasonably attributed to SDS operations.

The following sections describe the thresholds of changes that will be used to measure possible SDS Project impacts. They reflect the likely variability of the data collected and define change parameters that will represent unexpected levels of change.

Selenium

Selenium data will be collected in accordance with the monitoring programs identified in Section 8.0. It is expected that these data will show the same trends that are noted in the currently available data: concentrations generally increase in a downstream direction, and concentrations are inversely proportional to streamflow.

However, it is also expected that there will be considerable variability in the collected selenium concentration data. These newly collected data are expected to have the normal variability discussed above. As such, any single sample of selenium concentration data may vary across a wide range of values but still represent the same stream conditions. If not carefully considered, this normal variation might be misinterpreted as a change in the underlying condition.

To address this normal variability, the data will be reviewed annually and a threshold of change in selenium concentrations will be applied. This threshold will be developed using normal statistical parameters for the collected data. These will include mean, median, and the standard deviation of the data. The selenium threshold will be defined as follows:

- Each new selenium concentration data point collected for the IAMP will be compared against the data previously collected as part of the SDS Project commitments.
- Only if the point falls outside the 90 percent confidence limit (defined as a point 1.6σ or 1.6 standard deviations from the mean) will the new data be presumed to represent a real change in conditions. Any value less than this threshold has a 90 percent chance of representing the baseline condition. Any point outside this threshold would have a 60 percent probability of representing a change in conditions rather than merely being related to the variability of the data.
- A change in data outside the 90 percent confidence limit for 2 consecutive years will constitute exceedance of the threshold, and the subsequent steps identified in the IAMP will be initiated.

E. coli

E. coli data will be collected in accordance with the monitoring programs identified in Section 8.0. It is expected that these data will show the same trends that are noted in the currently available data: that concentrations vary greatly across the watershed, that there is no specific trend of increase or decrease associated with location in the watershed, and that concentrations are generally proportional to streamflow. Unfortunately, the existing data are so variable that few trends are evident, other than the correlation between increased concentrations and stormflow, and a similar correlation with changes in concentration associated with seasonal variations in base flow.

The considerable variability in the data makes an assessment of change particularly difficult. It is expected that newly collected data will have a very high level of variability, but will generally follow the same normal distribution discussed above. As such, any single data point is likely to fall within a very broad range of values, each of which could represent the same overall population. If not carefully considered, this normal variation might be misinterpreted as a change in the underlying condition.

To address this variability, the data will be reviewed annually and an *E. coli* trend line will be developed. The data collected for the IAMP will be used to establish a 5-year rolling average trend line. This line will be built from the data collected prior to SDS operations and will continue as additional data are collected. Each year after SDS operations begin, the most recent 5-year trend will be compared to the underlying data and a determination made regarding change. If the trend line indicates an increase in *E. coli* concentrations, a review of reported effluent concentrations from wastewater treatment plants will be conducted. Only if there are violations of the approved discharge permit limits would the subsequent steps described in the IAMP be invoked.

Ammonia

Ammonia data will be collected in accordance with the monitoring programs identified in Section 8.0. It is expected that these data will show the same trends that are noted in the currently available data and that concentrations of ammonia are generally well below stream standards, reflecting the high level of treatment from the wastewater treatment plants within the watershed. It is expected that there will be variability of the data consistent with normal variability in natural data sets, some of which is complicated by the natural assimilative capacity of the stream system. These make the conditions at the time of data collection very important and complicate the evaluation of impact.

The recognition that the only material source of ammonia is wastewater treatment plant effluent makes a determination of potential impacts more straightforward than with other constituents. In this case, if wastewater treatment plants discharge at the regulatory ammonia standard, no material increases in ammonia would be expected.

It is expected that ammonia concentrations in the stream will mirror the ammonia discharged from wastewater treatment plants. To address this constituent, the focus of this IAMP will be on wastewater treatment plant effluent data. Changes will be reviewed along with the ammonia data collected from the stream. Effluent concentrations from wastewater treatment plants will be reviewed annually, and only if there are violations of the approved discharge permit limits would the subsequent steps described in the IAMP be invoked.

Salinity

Salinity data will be collected at locations along the streams in accordance with the monitoring programs identified in Section 8.0. It is expected that these data will show the same trends that are noted in the currently available data: concentrations generally increase in a downstream direction, and concentrations are inversely proportional to streamflow.

It is also expected that there will be considerable variability in the collected salinity concentration data. These newly collected data are expected to have the normal variability discussed above. As such, any single sample of salinity concentration data may vary across a wide range of values but still represent the same stream conditions. If not carefully considered, this normal variation might be misinterpreted as a change in the underlying condition.

To address this normal variability, the data will be reviewed annually and a threshold of change in salinity concentrations will be applied. This threshold will be developed using normal statistical parameters for the collected data. These will include mean, median, and the standard deviation of the data. The salinity threshold will be defined as follows:

- Each new salinity concentration data point collected for the IAMP will be compared against data previously collected as part of the SDS Project commitment.
- Only if the point falls outside the 90 percent confidence limit (defined as a point 1.6σ or 1.6 standard deviations from the mean), will the new data be presumed to represent a real change in conditions. Any value less than this threshold has a 90 percent chance of representing the baseline condition. Any point outside this threshold would have a 60 percent probability of representing a change in conditions rather than merely being related to the variability of the data.
- A change in data outside the 90 percent confidence limit for 2 consecutive years will constitute exceedance of the threshold, and the subsequent steps identified in the IAMP will be initiated.

Methyl Mercury

Methyl mercury data will be collected at locations above and below Williams Creek Reservoir in accordance with the monitoring programs identified in Section 8.0. It is expected that these data will establish a baseline for ambient levels in the stream until the reservoir is in place, at which time it is expected these data will identify potential impacts associated with reservoir operations.

It is expected there will be considerable variability in the collected methyl mercury data but that it will follow the normal variability of data discussed above. As such, any single sample of methyl mercury may vary across a wide range of values but still represent the same stream conditions. If not carefully considered, this normal variation might be misinterpreted as a change in the underlying condition.

To address this normal variability, the data will be reviewed annually and a threshold of change to methyl mercury concentrations will be applied. This threshold will be developed using normal statistical parameters for the collected data. These will include mean, median, and the standard deviation of the data. The methyl mercury threshold will be defined as follows:

- Each new methyl mercury concentration data point collected for the IAMP will be compared against data previously collected as part of the SDS Project commitment.
- Only if the point falls outside the 90 percent confidence limits (defined as a point 1.6σ or 1.6 standard deviations from the mean), will the new data be presumed to represent a real change in conditions. Any value less than this threshold has a 90 percent chance of representing the baseline condition. Any point outside this threshold would have a 60 percent probability of representing a change in conditions rather than merely being related to the variability of the data.
- A change in data outside 90 percent confidence limits for 2 consecutive years will constitute exceedance of the threshold, and the subsequent steps identified in the IAMP will be initiated.

Summary of Water Quality Thresholds

- Selenium Threshold: A change in data outside the 90 percent confidence limit for 2 consecutive years
- E. coli Threshold: An increase in *E. coli* concentrations as measured by the most recent 5-year trend line
- Ammonia Threshold: A violation of the approved discharge permit limits from wastewater treatment plants during any year
- Salinity Threshold: A change in data outside the 90 percent confidence limit for 2 consecutive years
- Methyl Mercury Threshold: A change in data outside the 90 percent confidence limit for 2 consecutive years

9.2.2 Water Quality Decision Making

For water quality parameters, if the measured concentration is above the identified thresholds for 2 consecutive sampling periods and SDS operations have been initiated, the subsequent steps identified in the IAMP will be initiated to determine if the changes are related to SDS activities.

9.3 Geomorphology

9.3.1 Geomorphology Threshold

The Arkansas River and Fountain Creek below the Colorado Springs city limits are generally in their natural condition with only limited areas of significant channel improvements. Because the banks and bottom of these streams have generally not been artificially stabilized, these streams tend to display the natural variability typical of dynamic natural channel systems. In their natural state, streams change their shape and location as they respond to natural changes in the hydrologic cycle. Such variations are normal, in fact, they are essential to maintain a healthy ecosystem that is capable of long-term sustainability. When these natural variations are constrained or exacerbated by anthropogenic changes, the long-term stability and health of the system is compromised.

The Arkansas River and Fountain Creek are natural systems that display areas of good health as well as severely degraded segments. Even in the healthiest segments, the stream cross-section is highly variable, and the low-flow channel meanders in such a way that areas of overbank erosion and deposition, and varying degrees of overbank vegetation, are expected. Unhealthy segments often display similar variability, but tend to trend consistently in one direction instead of random variation. That is, an unhealthy segment may display a trend toward significant sediment accumulations in the overbanks, burying healthy vegetation without a commensurate area of growth along the cross-section. This imbalance is not sustainable and creates impacts to the health of the entire system.

Because natural changes are expected in a healthy or unhealthy system and can occur regardless of any SDS Project-related impacts, establishing a baseline against which to measure impacts is difficult. The EIS correctly noted that an exhaustive mathematical representation of the sediment transport is data and time intensive and would continue to be filled with uncertainty. The EIS investigated the impacts of SDS using a more pragmatic approach that focused on long-term trends rather than instantaneous geomorphic impacts. Several of the methods used involve the estimation of sediment transport trends. While these are useful, they do not lend themselves to easy verification at a single location; rather, they would require an exhaustive assessment of long reaches of the channel.

The natural variability of the cross-section makes a definitive determination of impacts related to SDS challenging. The dynamic system is likely to have lateral meanders of the low-flow channel, periodic changes in the channel banks on the flood fringe, and changes in channel invert associated with long-term aggradation or degradation. Each of these changes may have a computational impact on the sediment transport at a particular cross-section but, in the context of a longer reach or the entire stream, may be inconsequential.

Because of the dynamic nature of the stream and the difficulties in providing a precise quantitative representation of the natural processes, the IAMP will use a more qualitative approach to establish unexpected impacts. The channel cross-sectional surveys collected as part of the monitoring obligations will be overlain each year. This will allow a visual inspection of changes. Normal variability suggests that such an inspection will show the lateral meanders of the low-flow channel, periodic changes in the channel banks on the flood fringe, and changes in channel invert associated with long-term aggradation or degradation. However, when viewed as a whole data set over a period of years, trends may begin to emerge.

As described in Appendix 3, cross-sectional surveys will be collected at various locations along the Arkansas River and Fountain Creek. These surveys are intended to define changes in cross-section along the floodplain from year to year. Changes are expected due to the dynamic nature of the stream systems, but these sections can be used to help identify changes that might be associated with SDS. The channel cross-section data collected during these annual surveys will be superimposed and trends will be investigated. If the data show an unexpected trend beyond normal variability or outside the trends that exist prior to the initiation of SDS operations, then it would be determined that sufficient evidence exists that conditions may have changed, and the assessment process described in the IAMP would begin.

Summary of Geomorphology Thresholds

- Cross-Section Change Threshold: Superimposed data at each cross-section that show an unexpected trend beyond normal variability or outside the trends that exist prior to the initiation of SDS operations

9.3.2 Geomorphology Decision Making

The results of the geomorphic survey will be reviewed when either of the proposed water quantity thresholds are reached. At that time, any unexpected trend will be assumed to reflect a change in geomorphic conditions that may be related to SDS activities. When this occurs, Colorado Springs Utilities will coordinate with Reclamation to begin a process to determine whether the change was caused by the SDS Project, and if so, appropriate response actions.

9.4 Aquatic Life

9.4.1 Aquatic Life Threshold

As with geomorphology, the Arkansas River and Fountain Creek below Colorado Springs are generally in their natural condition with respect to aquatic species and habitat. The FEIS noted some impacts are anticipated to aquatic life, primarily as a result of changes in flow, geomorphology, and water quality, and therefore these are the elements monitored in this IAMP. The EIS identified a range of impacts both favorable and unfavorable, but in most cases found no significant impacts.

Several commitments were made to mitigate the potential impacts (Section 6.0) or to provide data that could be used to better understand conditions and determine if impacts were realized (Section 8.0). While the intent of the monitoring is to better understand existing conditions, the data will also serve to establish if any unexpected impacts result from SDS operations.

Flow Management

Aquatic life impacts may be seen if flow changes occur beyond the thresholds predicted in the FEIS. SDS Participant compliance with the flow management programs described in the FEIS is an important mitigation measure. As is the case with the flow management thresholds described in the Section 9.1, Water Quantity, compliance with these plans will be monitored and reported to Reclamation.

The FEIS focused considerable attention on flow rates. The impacts of increases in flow are described earlier in Section 9.1, Water Quantity, of this IAMP. However, some potential impacts to aquatic life were identified if flows drop below certain levels. The ROD requires that the SDS Participants implement measures to mitigate adverse effects of diminished low flow levels that contribute significantly to the impairment of aquatic life (Bureau of Reclamation 2009). The FEIS has reviewed the range of flows that are expected and determined that they should not cause a significant impairment (Bureau of Reclamation 2008a). Even changes outside this range may not create a significant impairment. The impacts of low-flow levels will be considered in two ways: based on the Aquatic Life Monitoring and Research program, and by a review of the actual flow rates.

The ROD also requires an annual consultation between the SDS Participants and Reclamation to review the mean flow in Fountain Creek (Bureau of Reclamation 2009). During these consultations, the low-flow levels will also be reviewed and, if changes fall outside the range and character of the flows described in the FEIS, the assessment process described in the IAMP will begin.

Monitoring and Research

This IAMP includes monitoring to characterize benthic macroinvertebrates and biohabitat within the Monument and Fountain Creek Watershed. These data are likely to reflect the considerable variation typically present in environmental data sets. Not only is the presence of particular indicators likely to vary considerably between sampling periods, but it is likely that other processes such as natural assimilation, hydrologic variability, and spatial variability may also impact the results. Variations in sample data are common, and data are often presented in ways that reflect this variability. Care needs to be taken to ensure that any collected data being used for determination of impacts acknowledge this distribution and accurately captures “real” and statistically valid changes in water quality constituents and other indicators of aquatic health. If collected data indicate that unexpected changes are being seen in the watershed, the assessment process described in Step 8, Assessment, of this IAMP will begin.

In addition to the above monitoring, a commitment to fund a research effort is part of the SDS specific mitigation measures required in the Fish and Wildlife Mitigation Plan. The Aquatic Life Monitoring and Research program evaluates a number of aquatic factors and correlates their relationship to a variety of factors along Fountain Creek. If the reported results of this study identify unexpected changes to aquatic life, then the assessment process described in Step 8, Assessment, of this IAMP will begin.

Physical Infrastructure

Several commitments have been made to support infrastructure improvements that are intended to benefit aquatic life. These include support for expanded fish stocking programs, a fish retention screen and other habitat improvements in several existing reservoirs, and the ability to add mussel control facilities at Pueblo Reservoir, if determined to be necessary. These prescriptive commitments have clear mitigation benefit, and therefore no follow-up monitoring has been identified, and no refinement or adaptation of these physical structures is included in this IAMP.

Vegetation

The FEIS identified project impacts related to vegetation in several locations along the project corridor. The ROD and Pueblo County 1041 Permit conditions provide detailed commitments to revegetation, and remedies should this revegetation not meet levels required. Because these commitments have defined remedies, no refinement or adaptation of these revegetation commitments are included in this IAMP.

The SDS Project will take steps to control the spread of noxious weeds and to support the efforts of the Colorado Department of Agriculture’s Colorado Noxious Weed Management Team. To determine if impacts associated with the SDS Project are unexpected, a consultation with Reclamation and Colorado Department of Agriculture’s Colorado Noxious Weed Management Team will be conducted each year through 5 years after the

completion of construction of each phase of the SDS Project. The focus will be on high-priority tamarisk infestation areas in the Arkansas Valley. If the consultation indicates the change in tamarisk coverage exceeds the scope and range that can reasonably be expected to occur along a dynamic stream system, Colorado Springs Utilities will coordinate with Reclamation and Colorado Department of Agriculture's Colorado Noxious Weed Management Team, within the adaptive management plan, to evaluate the cause(s) for the change and determine whether appropriate response actions are warranted.

Wetland impacts will be mitigated in accordance with the requirements of the EIS and the USACE. The efforts to avoid and minimize the wetland impacts were considerable and limited the impacts for the SDS Project to 0.23 acres of jurisdictional wetlands and approximately 12.0 acres of non-jurisdictional wetlands. Mitigation for impacts to non-jurisdictional wetlands will be coordinated with Reclamation. A 404 provisional permit has been received from USACE. In the permit, measures are defined that determine what is acceptable mitigation and how satisfactory compliance will be determined. Actions defined by the USACE as part of any 404 Permit action are defined through the 404 Permit process and not as part of this IAMP. As such, no separate assessment associated with wetlands used as compensatory mitigation will be conducted as part of this IAMP.

Water Quality and Geomorphology

Several commitments have been made related to aquatic life that repeat the commitments made under the water quality and geomorphic sections. The elements being evaluated as part of the Water Quality and Geomorphology programs described in Sections 9.2 and 9.3 will capture changes that have the potential to create aquatic life impacts. To repeat these decision-making thresholds and conduct further evaluations for these items would be redundant, and these items are therefore not proposed in this section of the IAMP.

Summary of Aquatic Life Thresholds

- Flow Management Threshold: Low-flow level changes that fall outside the range and character of the flows described in the FEIS
- Aquatic Research Change Threshold: Changes in water quality constituents and other indicators of aquatic health that fall outside the range of expected changes
- Noxious Weed Threshold: Change in tamarisk coverage over the first five years after construction activities that exceeds the scope and range that can reasonably be expected to occur along a dynamic stream system

9.4.2 Aquatic Life Decision Making

The results of the aquatic life assessments will be reviewed after SDS operations begin. At that time, any unexpected changes beyond the thresholds defined above will be assumed to reflect a change in aquatic habitat that may be related to SDS activities. When this occurs, Colorado Springs Utilities will coordinate with Reclamation to determine if the changes are related to the SDS Project, and if so, begin the assessment process described in the IAMP.

10.0 SDS IAMP Step 7 – Follow-Up Monitoring

The same principles apply to Step 7, Follow-Up Monitoring, as to Step 5, Monitoring; however, follow-up monitoring will be used if the assembled data are insufficient to establish whether unexpected changes have occurred or if the observed changes are not sufficiently understood to determine if they are related to SDS operations. Follow-up monitoring generates new data for each monitoring period to evaluate management actions, ensuring that the objectives are being met and providing information for decision making. Results of follow-up monitoring also provide a means to validate resource model confidence and prioritize management actions during subsequent monitoring periods. The results of the follow-up monitoring will also be used to better understand the extent and cause of unexpected changes.

Until the iterative phase of the IAMP is reached (Steps 6 through 9) changes to the monitoring described for Step 5, Monitoring, cannot be defined, as the adaption of the original monitoring program must occur based on either changes to the mitigation measures or unexpected changes that are not captured by the existing monitoring plans. If the results of the iterative phase of the IAMP indicate that changes in the mitigation measures are required or if there are unexpected changes that are not captured by the established monitoring, then the monitoring described in Step 5 will be reassessed. At that time, Reclamation and Colorado Springs Utilities will make a determination on necessary changes to the previously developed monitoring plan.

11.0 SDS IAMP Step 8 – Assessment

Once the data provided by the IAMP monitoring have been assembled and a particular Decision Making threshold has been exceeded, the Assessment process will be initiated. In some cases, additional data collection efforts will have been undertaken, and those data sets added to the baseline data collected. The assembled data are assumed to be of sufficient detail to help determine the extent and cause of any unidentified unexpected impacts.

Using the data that identified the unexpected impact, an assessment will be conducted that establishes if data changes are related to SDS activities using interpretations as necessary.

In many cases, unexpected changes will not relate directly to SDS operations. The first assessment to be conducted is one that will determine if SDS operations can expressly be excluded as a possible cause of the impact. In this case, specific evidence that demonstrates that no SDS operation caused the impact will be presented. The SDS Project will not perform analyses to determine the cause of any identified problems beyond those analyses necessary to establish whether SDS Project operations were the cause of the impact.

If the data indicate that these changes are a result of the operations of the SDS Project, Colorado Springs Utilities will coordinate with Reclamation to begin a process to determine appropriate response actions, including adaptations of the SDS Project mitigation measures if appropriate. If the data indicate that these changes are not related to the SDS Project, data collection efforts will continue per the IAMP monitoring program until the identified termination thresholds described in Section 13.0 have been reached.

The assessment process within the IAMP will be a collaborative effort. The SDS Participants are required to coordinate annually with Reclamation, CDPHE, and CDOW to review operations and other information. It is during these coordination efforts that the collected data will be reviewed and discussions related to impacts will be conducted.

12.0 SDS IAMP Step 9 – Iteration

The iterative cycle of decision making (Step 6), follow-up monitoring (Step 7), and assessment (Step 8) over time leads to a clearer understanding of SDS Project impacts and revised management actions that better meet the SDS Project mitigation objectives articulated in the ROD.

13.0 Summary

Table 13-1 summarizes the IAMP by step and resource area.

TABLE 13-1
Summary of the Southern Delivery System Project Integrated Adaptive Management Plan by Step and Resource Area

1 Resource Area (Stakeholder Identified)	2 Management Objectives	3 Management Actions	4 Models	5 Monitoring	6 Decision Making	7 Follow-Up Monitoring	8 Assessment	9 Iteration	
Water Quantity	Avoid or minimize adverse surface water quantity impacts.	Participate in Pueblo Flow Management Program (PFMP) to assure reasonable level of protection for streamflows between Pueblo Reservoir and Fountain Creek.	The FEIS developed models to establish the potential impacts of the project alternatives, including the SDS Project Preferred Alternative. No models were developed to confirm the benefits of the mitigation measures.	Consult with Reclamation annually on the average flow in Fountain Creek at Pueblo Streamgagage.	If average annual flow in Fountain Creek at Pueblo exceeds the scope and range of expected flows as reported in Table 33 of the FEIS, then an evaluation of the cause will be initiated.	The frequency and nature of the follow-up monitoring will be determined based on the nature of the variations and the availability of data. In addition to conducting new monitoring specifically targeting the parameters in question, a search for other existing data sources will be conducted and evaluated as appropriate.	Determine if data collected support the decision making and management actions, as appropriate, for the monitoring conducted. If there are unexpected impacts requiring evaluation, determine if impacts are related to SDS activities using data investigations and interpretations as necessary.	Reassess Decision Making and Management Actions, if necessary, and identify modifications or new actions that may be necessary to mitigate unforeseen impacts identified through the monitoring process.	
		Accept and comply with the Pueblo Recreational In-channel Diversion Decree (Arkansas River Low Flow Program [ARLFP]).							
		Comply with Upper Arkansas Voluntary Flow Management Program (UAVFMP) except during emergency conditions.		Monitor compliance with UAVFMP, PFMP and ARLFP and report annually	If stream flows are not maintained in accordance with the terms of the various flow management programs, then program modifications will be implemented in accordance with agreed upon terms.				
		Limit maximum release rate from the Williams Creek Reservoir to 300 cfs.							
		Continue to maintain stormwater controls and other regulations intended to ensure that Fountain Creek peak flows resulting from new development are no greater than existing conditions.		Monitor low flow levels in Fountain Creek.	If low flow levels in the Arkansas River or Fountain Creek fall outside the range of expected flow, coordinate with Reclamation and CDOW to evaluate cause.				
		Limit the release rate of pipeline drains to the equivalent of less than a 2-year storm event in the drainageway of release.							
		Provide \$50M in monetary mitigation to support efforts of the Fountain Creek District with a variety of potential flow, water quality, stream stabilization, and ecosystem management projects.							

TABLE 13-1
Summary of the Southern Delivery System Project Integrated Adaptive Management Plan by Step and Resource Area

1 Resource Area (Stakeholder Identified)	2 Management Objectives	3 Management Actions	4 Models	5 Monitoring	6 Decision Making	7 Follow-Up Monitoring	8 Assessment	9 Iteration
Water Quality	Avoid or minimize water quality harm	Comply with all applicable local, State and federal regulatory requirements and permits associated with water quality.	The FEIS developed models to establish the potential impacts of the project alternatives including the SDS Project Preferred Alternative. No models were developed to confirm the benefits of the mitigation measures.	Monitor dissolved selenium and salinity at 13 locations in the Arkansas River basin in accordance with the mitigation commitments; monitor groundwater selenium at Upper and Williams Creek Reservoirs.	If changes in observed concentrations of selenium or salinity over two consecutive monitoring periods result in concentrations outside the 90% confidence limits of the full data set, then an evaluation of the cause will be initiated.	The frequency and nature of the follow-up monitoring will be determined based on the nature of the variations and the availability of data. In addition to conducting new monitoring specifically targeting the parameters in question, a search for other existing data sources will be conducted and evaluated as appropriate.	Determine if data collected support the decision making and management actions, as appropriate, for the monitoring conducted. If there are unexpected impacts requiring evaluation, determine if impacts are related to SDS activities using data investigations and interpretations as necessary.	Reassess Decision Making and Management Actions, if necessary, and identify modifications or new actions that may be necessary to mitigate unforeseen impacts identified through the monitoring process.
		Continue to maintain stormwater controls and other regulations intended to ensure that Fountain Creek peak flows resulting from new development are no greater than existing conditions.		Monitor <i>E. coli</i> concentrations at 13 locations in the Arkansas River basin in accordance with the mitigation commitments.	If the 5-year rolling average trend indicates an increase in <i>E. coli</i> , then an evaluation of the cause will be initiated.			
		Coordinate with Reclamation and other parties when operations cause streamflows in the Arkansas River and Fountain Creek to drop to levels that contribute significantly to elevated concentrations of key pollutants.		Monitor ammonia concentrations at 13 locations in the Arkansas River basin in accordance with the mitigation commitments.	If ammonia concentrations in wastewater treatment plant effluent exceed approved discharge permit limits, then the assessment process in the IAMP will be initiated.			
		Commit to invest an additional \$75M in wastewater collection system rehabilitation programs or wastewater reuse systems.		Monitor methyl mercury quarterly at the inlet and outlet to Williams Creek Reservoir.	If changes in observed methyl mercury concentrations over two consecutive monitoring periods result in concentrations outside the 90% confidence limits of the full data set, then iterative elements of the adaptive management plan will be invoked.			
		Provide a total of \$50M in monetary mitigation to support efforts of the Fountain Creek District with a variety of potential flow, water quality, stream stabilization, and ecosystem management projects.		Review effluent monitoring data at wastewater treatment plants.	If changes in observed effluent concentrations exceed permitted levels, then actions as required in the facility's NPDES permits will be initiated in accordance with permit conditions.			

TABLE 13-1
Summary of the Southern Delivery System Project Integrated Adaptive Management Plan by Step and Resource Area

1 Resource Area (Stakeholder Identified)	2 Management Objectives	3 Management Actions	4 Models	5 Monitoring	6 Decision Making	7 Follow-Up Monitoring	8 Assessment	9 Iteration
Geomorphology	Avoid or minimize adverse geomorphic impacts.	Dredge lower Fountain Creek in the areas of the Fountain Creek levees to assist in preserving the flood protection at or above the 100-year level.	The FEIS developed models to establish the potential impacts of the project alternatives including the SDS Project Preferred Alternative. No models were developed to confirm the benefits of the mitigation measures.	Monitor geomorphic conditions by annually surveying ten cross-sections along Fountain Creek.	If a superimposed plot of the cumulative annual data shows an unexpected trend beyond normal variability or historic trends, an evaluation of cause will be initiated.	The frequency and nature of the follow-up monitoring will be determined based on the nature of the variations and the availability of data. In addition to conducting new monitoring specifically targeting the parameters in question, a search for other existing data sources will be conducted and evaluated as appropriate.	Determine if data collected support the decision making and management actions, as appropriate, for the monitoring conducted. If there are unexpected impacts requiring evaluation, determine if impacts are related to SDS activities using data investigations and interpretations as necessary.	Reassess Decision Making and Management Actions, if necessary, and identify modifications or new actions that may be necessary to mitigate unforeseen impacts identified through the monitoring process.
		Install sediment collection devices in lower Fountain Creek.						
		Construct new wetlands and redirect a portion of the channel of Fountain Creek at Clear Spring Ranch to reduce erosion and improve channel stability.						
		Design and construct an energy dissipation structure at the outlet of the Williams Creek Reservoir exchange flow pipeline.						
		Complete pre-project assessment of channel stabilization and non-structural options.						
		Provide a total of \$50M in monetary mitigation to support efforts of the Fountain Creek District with a variety of potential flow, water quality, stream stabilization, and ecosystem management projects.						

TABLE 13-1
Summary of the Southern Delivery System Project Integrated Adaptive Management Plan by Step and Resource Area

1 Resource Area (Stakeholder Identified)	2 Management Objectives	3 Management Actions	4 Models	5 Monitoring	6 Decision Making	7 Follow-Up Monitoring	8 Assessment	9 Iteration
Aquatic Life	Avoid or minimize harm to aquatic life.	Coordinate with Reclamation and other parties when operations cause streamflows in the Arkansas River or Fountain Creek to drop to levels that contribute significantly to impairment of aquatic life.	The FEIS developed models to establish the potential impacts of the project alternatives, including the SDS Project Preferred Alternative. No models were developed to confirm the benefits of the mitigation measures.	Monitor low flow levels.	If decreases in low flow levels fall outside the range of flows specified in the FEIS, initiate the assessment process.	The frequency and nature of the follow up monitoring will be determined based on the nature of the variations and the availability of data. In addition to conducting new monitoring specifically targeting the parameters in question, a search for other existing data sources will be conducted and evaluated as appropriate.	Determine if data collected support the decision making and management actions, as appropriate, for the monitoring conducted. If there are unexpected impacts requiring evaluation, determine if impacts are related to SDS activities using data investigations and interpretations as necessary.	Reassess Decision Making and Management Actions, if necessary, and identify modifications or new actions that may be necessary to mitigate unforeseen impacts identified through the monitoring process.
		Participate in and fund a water quality and biological monitoring program conducted by USGS in accordance with approved mitigation plans.		Monitor benthic organisms, fish, and biohabitat in accordance with the USGS monitoring program.	If collected data establish unexpected changes in aquatic life, then initiate the assessment process.			
		Participate in aquatic research to determine life history factors and the relationship to water flow, water quality, and habitat parameters in accordance with approved mitigation plans.		Monitor extent of high-priority tamarisk infestation in the Arkansas Valley along areas disturbed by SDS Project activities	If changes in tamarisk coverage exceed the scope and range of reasonably expected occurrences, then coordinate with Reclamation and the Colorado Noxious Weed Management Team to determine when appropriate response actions are warranted.			
		Participate in CDOW fish hatchery programs in accordance with approved mitigation plans.		Monitor the effects of operations on aquatic life by collecting annual aquatic samples at ten locations between Pueblo Dam and the Las Animas Streamgage.	Incorporate response provisions of the 404 Permit if violations of 404 permit conditions are observed.			
		Install fish screens at the outlet works at Lake Henry to minimize fish passage out of the lake.						
		Provide funding support for placement of habitat structures in Arkansas River reservoirs.						
		Adopt management strategies to control the spread of mussels through the SDS pipeline.						
		Construct new wetlands and redirect a portion of the channel of Fountain Creek at Clear Spring Ranch to reduce erosion and improve channel stability.						

14.0 Period of the SDS IAMP

This IAMP will terminate no later than the end of the SDS Project 40-year contract with Reclamation and sooner if determined to no longer be necessary. Forty years is also the end of the period of evaluation of the SDS Project impacts modeled in the FEIS.

Periodic reviews of the data and the results of the annual monitoring data will be conducted. The purpose of this review will be to establish whether the mitigations implemented were appropriate and effective. If the data validate the FEIS modeling and conclusions and no unexpected impacts are identified, the IAMP may no longer be necessary.

To allow sufficient time to gather data, these periodic reviews to determine if the FEIS has correctly projected impacts will begin a minimum of 10 years following the initiation of the SDS Project operations. At that time, the SDS Project will establish the trend of the 5-year rolling average of data points in each of the four key resource areas addressed in this IAMP. If this analysis indicates that the impacts associated with the SDS Project continue to be within the scope and range of the impacts estimated and analyzed in the FEIS, then the Colorado Springs Utilities will coordinate with Reclamation to terminate, or, if appropriate, reduce in scope the SDS IAMP.

15.0 Limitations of the SDS IAMP

Reclamation's view expressed in the ROD is that population growth is not a direct or indirect effect of the proposed SDS Project (Bureau of Reclamation 2009). In the FEIS, the effects associated with growth were disclosed within the cumulative effects analysis. As a result, impacts associated with growth will not be considered as SDS Project impacts within this IAMP. However, this limitation in no way modifies the commitment of the 1041 Permit to maintain stormwater controls and other regulations intended to control stormwater peak flows resulting from new development served from the SDS Project within the Fountain Creek basin to no greater than existing conditions.

APPENDIX 1

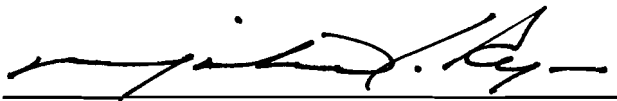
**Record of Decision
for the Southern Delivery System
Final Environmental Impact Statement**

RECLAMATION

Managing Water in the West

Record of Decision For the Southern Delivery System Final Environmental Impact Statement

Record of Decision Reference No.: GP-2009-01

Approved: 

Date: MAR 20, 2009

Michael J. Ryan, Regional Director
Great Plains Region
Bureau of Reclamation



U.S. Department of the Interior
Bureau of Reclamation
Great Plains Region
Billings, Montana

March 2009

Contents

Introduction.....	1
The NEPA Process.....	2
Alternatives Considered in Detail.....	3
No Action Alternative (Alternative 1).....	3
Participants' Proposed Action (Alternative 2).....	5
Wetland Alternative (Alternative 3).....	5
Arkansas River Alternative (Alternative 4).....	5
Fountain Creek Alternative (Alternative 5).....	5
Downstream Intake Alternative (Alternative 6).....	6
Highway 115 Alternative (Alternative 7).....	6
The Decision.....	6
Basis for Selection of the Agency Preferred Alternative for Implementation	7
Summary of Comments on the FEIS	7
Environmental Commitments	11
Reclamation's Commitments	11
Participants' Commitments	12
Implementation	22

Tables

Table 1. Summary of Alternatives Components.....	4
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Introduction

The U.S. Department of the Interior, Bureau of Reclamation, (Reclamation), has published a Final Environmental Impact Statement (FEIS) for the Southern Delivery System. The Southern Delivery System (SDS) Project is a proposed regional water delivery project designed to serve most or all future water needs through 2046 of the City of Colorado Springs, City of Fountain, Security Water District, and Pueblo West Metropolitan District (the "Participants"). As proposed, the SDS Project would deliver Fryingpan-Arkansas (Fry-Ark) Project water and non-Fry-Ark Project water from Pueblo Reservoir to the Participants for storage, treatment, and distribution to customers.

Three major federal actions by Reclamation were analyzed in the FEIS: (1) entering into excess capacity contracts with the Participants for use of Fry-Ark facilities, (2) issuance of a special use permit to connect to Fry-Ark facilities, (3) and an "administrative swap" of Fountain Valley Authority (FVA) water associated with SDS Project deliveries. Reclamation is responsible for managing Fry-Ark facilities, and is the lead agency for the purposes of compliance with the National Environmental Policy Act of 1969 (NEPA). The U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, U.S. Bureau of Land Management, and the U.S. Fish and Wildlife Service are cooperating agencies.

The Fry-Ark Project is an existing water supply project in Colorado, owned by the United States, operated by Reclamation, and authorized in 1962 to serve both agricultural and municipal entities. The Fry-Ark Project

transfers, stores, and delivers water from both the Western and Eastern Slopes of the Rocky Mountains to water users in the Arkansas River Basin.

The primary federal action analyzed in the FEIS involves Reclamation entering into up-to-40-year contracts with the Project Participants for use of the Eastern Slope System of the Fry-Ark Project in Colorado. The contracts would be for use of existing storage capacity in Pueblo Reservoir when this space is not filled with Fry-Ark Project water or water stored under the Winter Water Storage

Program, conveyance of water through facilities associated with Pueblo Reservoir, and for exchange of water between Pueblo Reservoir and Reclamation reservoirs in the upper Arkansas River Basin including Twin Lakes and Turquoise Lake. The use of

Fry-Ark facilities by entities other than Reclamation for water storage or conveyance requires a contract with Reclamation.

Pueblo West would participate in the proposed SDS Project infrastructure only if Reclamation selects an alternative that includes diverting water from facilities associated with Pueblo Reservoir. Pueblo West would construct its new water intake and pump station at its approved location on the Arkansas River downstream of Pueblo Dam if Reclamation selects an alternative that does not divert water from facilities associated with Pueblo Reservoir. Pueblo West has also requested excess capacity storage in Pueblo Reservoir in all Action Alternatives (SDS Project alternatives that require one or more of the major federal actions analyzed in the FEIS).

The second federal action analyzed in the FEIS is issuance of a special use permit or other agreement from Reclamation to connect the

Major Federal Actions Approved in this ROD

1. Excess Capacity Contracts for Water Storage, Conveyance, and Exchange
2. Special Use Permit
3. Fountain Valley Authority Administrative "Swap"

SDS Project pipeline to Reclamation facilities. Pueblo West would continue to maintain its existing conveyance contract with Reclamation to use the joint use manifold from Pueblo Reservoir.

The third federal action analyzed in the FEIS is the approval of an administrative trade (“swap”) of an equal amount of capacity in the Fountain Valley Authority (FVA) pipeline for capacity in the SDS Project untreated water pipeline and water treatment plant. This trade would allow Fountain to use a portion of Colorado Springs’ FVA capacity in trade for Colorado Springs’ use of an equal amount of Fountain’s capacity in the proposed SDS Project.

In the FEIS, Reclamation identified the Participants’ Proposed Action as the Agency Preferred Alternative. This Record of Decision (ROD) describes the alternative selected for implementation and the rationale for that decision. It also describes the alternatives considered in reaching the decision, and identifies those measures that will be taken to minimize environmental harm from implementation of the selected alternative in accordance with 40 CFR § 1502.2.

The NEPA Process

The FEIS and this ROD have been prepared in accordance with the Council on Environmental Quality’s (CEQ) NEPA regulations (40 CFR 1500-1508) and Department of the Interior policies. The Draft Environmental Impact Statement (DEIS) analyzing the environmental

consequences of the alternatives was released for public review on February 29, 2008. Public comments were received until June 13, 2008. Nearly 400 public comments raised a variety of topics. Comments related to water quality, dam safety, and the Western Slope, as

well as changes to the alternatives prompted Reclamation to release a Supplemental Information Report after publication of the DEIS. The Supplemental Information Report was released for public review from October 3, 2008 through November 24, 2008. A total of 40 public comments were received on the Supplemental Information Report. An

FEIS, which addressed public comment on both the DEIS and the SIR, was filed with the Environmental Protection Agency (EPA) (filing number FES 08-63) on December 12, 2008 and noticed by the EPA and Reclamation in the *Federal Register* on December 19, 2008. The decision documented in this ROD is based on the FEIS and public comment received on the FEIS.

In addition to NEPA, the Participants will need to obtain several permits or approvals from federal, state, and local agencies before implementing the SDS Project. Major permitting elements and consultation requirements for the alternatives may include but are not limited to:

- A Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers
- A Clean Water Act Section 401 certification and a Colorado Discharge permit from the Colorado Department of Public Health and Environment

Firm yield is the highest water demand that can be continuously fulfilled based on historical hydrologic conditions. The firm yield is the water demand fulfilled just prior to the level that produces system shortages.

SMAPD is the average annual increase in demand met for a project (such as SDS) at a specified annual demand level. For the purposes of this FEIS, SMAPD is always evaluated at a demand level equal to the 2046 demand from the Participants’ Planning Demand Forecast.

- A National Historic Preservation Act Section 106 review from the Advisory Council on Historic Preservation
- A Section 7 consultation by the Fish and Wildlife Service
- A 1041 land use change permit from Pueblo or Chaffee county
- Land use approval from El Paso and/or Fremont county
- Special use permit or similar authorization from Fort Carson and/or Bureau of Land Management
- A Coordination Act Report pursuant to the Fish and Wildlife Coordination Act of 1958

Alternatives Considered in Detail

The alternatives considered in detail are briefly summarized as follows (see Table 1).

No Action Alternative (Alternative 1)

NEPA requires No Action to be considered in an EIS and represents the most likely future in the absence of a major federal action by Reclamation. It serves as a benchmark against which effects of the other alternatives are compared.

This alternative would not incorporate regional sharing of facilities. Each Project Participant would meet projected demands by independently developing other water supplies that would not require long-term contracts with Reclamation. Colorado Springs, Fountain, and

Security would expand ground water use. Colorado Springs would use Denver Basin ground water, Fountain would expand its Fountain Creek alluvial well field, and Security would acquire additional water rights in the Widefield Aquifer. No Action would not require a major federal action by Reclamation; therefore, the Participants would not use excess capacity storage contracts. Colorado Springs would construct a new untreated water intake from the Arkansas River at the Colorado 115 crossing near Florence. Due to requirements in existing water rights decrees, exchanges would be made from Fountain Creek to the upper Arkansas River Basin. Exchanges would be primarily diverted by the existing Ark-Otero untreated water intake near Buena Vista, which would be upgraded as part of the alternative. The Highway 115 untreated water intake would be supplied through releases from upper Arkansas River Basin storage reservoirs. An extension pipeline would be constructed from the existing FVA pipeline permitting both the SDS Project and

FVA water to be delivered to the proposed Jimmy Camp Creek Reservoir through the new untreated water pipeline. From the reservoir, water would be treated and distributed to customers. A portion of Colorado Springs' reusable return flows would be stored in the proposed Williams Creek Reservoir prior to

exchange down Fountain Creek. Pueblo West would meet projected future water demand by implementing the 18-mgd (million gallons per day) intake on the Arkansas River near Pueblo Reservoir, which was previously approved by Reclamation in 2003.

The seven alternatives are:

- No Action Alternative (Alternative 1)
- Participants' Proposed Action (Alternative 2)
- Wetland Alternative (Alternative 3)
- Arkansas River Alternative (Alternative 4)
- Fountain Creek Alternative (Alternative 5)
- Downstream Intake Alternative (Alternative 6)
- Highway 115 Alternative (Alternative 7)

Alternatives 2 through 7 are referred to as the "Action Alternatives"

Table 1. Summary of Alternatives Components.

Alternative		Regulating Storage	Untreated Water Intake	Untreated Water Alignment	Terminal Storage and Water Treatment Plant [†]	Return Flow Storage and Conveyance
Alternative 1: No Action	Colorado Springs	None	Arkansas River at Lester & Attebery Ditch, FVA supply, Denver Basin Ground Water, and Ark-Otero Improvements	Ground Water Collection System Colorado 115 Alignment FVA Extension Pipeline	Jimmy Camp Creek Reservoir, Conventional Water Treatment Plant	Williams Creek Reservoir, Chilcotte Ditch In and Williams Creek Return Flow Conveyance Pipeline Out
	Fountain	None	Fountain Creek Alluvial Well field Expansion	Ground water Collection System Expansion	No Storage, Expansion of Existing (planned) Water Treatment Plant	None
	Security	None	Widefield Aquifer Wells (agricultural to municipal transfer)	Existing	Existing (disinfection only)	None
	Pueblo West	None	Arkansas River Downstream of Pueblo Reservoir	Pipeline to Existing River Pump Station	Existing	None
Alternative 2: Participants' Proposed Action		Pueblo Reservoir	Joint Use Manifold and/or Pueblo Dam North Outlet Works	Western Alignment, Including Conveyance to Pueblo West	Upper Williams Creek Reservoir, Conventional Water Treatment Plant	Williams Creek Reservoir, Chilcotte Ditch In and Williams Creek Return Flow Conveyance Pipeline Out
Alternative 3: Wetland Alternative		Pueblo Reservoir	Joint Use Manifold and/or Pueblo Dam North Outlet Works	Western Alignment, Including Conveyance to Pueblo West	Upper Williams Creek Reservoir, Conventional Water Treatment Plant	No Reservoir, Return Flow Pipeline to Arkansas River Near Highway 115
Alternative 4: Arkansas River Alternative		Pueblo Reservoir	Arkansas River Upstream of Fountain Creek	Eastern Alignment, excluding Conveyance to Pueblo West	Jimmy Camp Creek Reservoir, Conventional Water Treatment Plant	No Reservoir, Return Flow Pipeline to Arkansas River Near Highway 115
Alternative 5: Fountain Creek Alternative		Pueblo Reservoir	Joint Use Manifold and/or Pueblo Dam North Outlet Works	Western Alignment, Including Conveyance to Pueblo West	Jimmy Camp Creek Reservoir, Conventional Water Treatment Plant	Williams Creek Reservoir, Chilcotte Ditch and Pipeline In and Return Flow Pipeline to the confluence of Fountain Creek and the Arkansas River Out
Alternative 6: Downstream Intake Alternative		Pueblo Reservoir	Arkansas River Downstream of Fountain Creek	Eastern Alignment, Excluding Conveyance to Pueblo West	Jimmy Camp Creek Reservoir, Conventional and Advanced [‡] Water Treatment Plant	Williams Creek Reservoir, Chilcotte Ditch In and Williams Creek Return Flow Conveyance Pipeline Out
Alternative 7: Highway 115 Alternative		Pueblo Reservoir	Arkansas River at Lester & Attebery Ditch , FVA Supply, and Ark-Otero Improvements	Colorado 115 Alignment, Excluding Conveyance to Pueblo West FVA Extension Pipeline	Jimmy Camp Creek Reservoir, Conventional Water Treatment Plant	Williams Creek Reservoir, Chilcotte Ditch In and Williams Creek Return Flow Conveyance Pipeline Out

[†] Treated water alignments are not included in this table and would be constructed as proposed by the Participants.

[‡] Advanced treatment in this alternative includes a reverse osmosis process.

Participants' Proposed Action (Alternative 2)

The Participants' Proposed Action is the Participants' proposal to construct and operate the SDS Project. Untreated water would be stored in Pueblo Reservoir and diverted from Pueblo Dam. This water would be conveyed through a new pipeline and pump stations to the proposed Upper Williams Creek Reservoir, treated, and distributed to the Participants' customers. A portion of Colorado Springs' reusable return flows would be stored in the proposed Williams Creek Reservoir prior to exchange down Fountain Creek. Regulating storage in Pueblo Reservoir would be through one or more long-term excess capacity storage contracts with Reclamation. These contracts would allow the Participants to store non Fry-Ark Project water in existing Fry-Ark storage space when excess space is available. Water stored in this excess space would be subject to spill from the reservoir according to existing spill priorities. All Action Alternatives include one or more long-term excess capacity contracts.

Wetland Alternative (Alternative 3)

The Wetland Alternative would address scoping issues about minimizing wetland impacts. The Wetland Alternative would disturb the least amount of wetlands by using the terminal storage reservoir site with the fewest wetlands and eliminating the need for the return flow reservoir by using a return flow pipeline. Untreated water would be stored in Pueblo Reservoir and diverted from Pueblo Dam. This water would be conveyed through a new pipeline and pump stations to the proposed Upper Williams Creek Reservoir, treated, and distributed to the Participants' customers. Colorado Springs' reusable return flows would be piped from its existing wastewater treatment plants to the Arkansas

River near Colorado 115. By conveying Colorado Springs' reusable return flows to a location upstream of Pueblo Reservoir, this alternative avoids the need for a new return flow reservoir such as the proposed Williams Creek Reservoir.

Arkansas River Alternative (Alternative 4)

The Arkansas River Alternative would address scoping issues about maximizing low flows in the Arkansas River through the City of Pueblo, minimizing water quality effects on the lower Arkansas River, and minimizing the total surface acres disturbed. Stream flow in the Arkansas River through Pueblo would be maximized by diverting water from the Arkansas River downstream of Pueblo, and returning treated return flows to the Arkansas River upstream of Pueblo. Untreated water would be stored in Pueblo Reservoir, released to the Arkansas River from the dam, and diverted from the Arkansas River upstream of Fountain Creek. This water would be conveyed through a new pipeline and pump stations to the proposed Jimmy Camp Creek Reservoir, treated, and distributed to the Participants' customers. Colorado Springs' reusable return flows would be piped from its existing wastewater treatment plants to the Arkansas River near Colorado 115. Pueblo West would not participate in SDS Project infrastructure if this alternative were chosen.

Fountain Creek Alternative (Alternative 5)

The Fountain Creek Alternative is designed to address significant issues concerning potential effects of return flows on Fountain Creek erosion, sedimentation, and water quality. Untreated water would be stored in Pueblo Reservoir and diverted from Pueblo Dam. This water would be conveyed to the proposed

Jimmy Camp Creek Reservoir, treated, and distributed to the Participants' customers. Colorado Springs' reusable return flows would be stored in the proposed Williams Creek Reservoir. Water delivered to the Arkansas River for exchanges would be conveyed in a new pipeline to the mouth of Fountain Creek, instead of in Fountain Creek.

Downstream Intake Alternative (Alternative 6)

The Downstream Intake Alternative addresses public interest in an alternative that uses an untreated water intake downstream of Fountain Creek. Untreated water would be stored in Pueblo Reservoir, released from the dam, and then diverted from the Arkansas River downstream of Fountain Creek. This water would be conveyed through a new pipeline and pump stations to the proposed Jimmy Camp Creek Reservoir, treated, and distributed to the Participants' customers. The water treatment plant would include advanced treatment and would require partial (50 percent) reverse osmosis to provide acceptable water quality to the Participants' customers. Colorado Springs' reusable return flows would be stored in the proposed Williams Creek Reservoir prior to exchange down Fountain Creek. Pueblo West would not participate in SDS Project infrastructure if this alternative were chosen.

Highway 115 Alternative (Alternative 7)

The Highway 115 Alternative would address public and Participant interest in an alternative that uses the Colorado 115 corridor for water conveyance and includes an excess capacity storage contract. As with the No Action Alternative, a new untreated water intake from the Arkansas River would be constructed at the Colorado 115 crossing near Florence. Colorado Springs' reusable return flows would be stored in the proposed Williams Creek

Reservoir prior to exchange releases down Fountain Creek. Exchanges would be made from Fountain Creek and Pueblo Reservoir to the upper Arkansas River Basin, and would be primarily diverted by the Ark-Otero untreated water intake. Excess exchanges would be stored in the upper Arkansas River Basin storage facilities or in Pueblo Reservoir regulating storage. The Highway 115 untreated water intake would be supplied by releases from upper Arkansas River Basin storage. An extension pipeline would be constructed from the existing Fountain Valley Authority pipeline, and would help increase system flexibility for Colorado Springs by permitting FVA water to be delivered to Jimmy Camp Creek Reservoir through the new untreated water pipeline. Pueblo West would not participate in SDS Project infrastructure if this alternative were chosen.

The Decision

Based on the analyses contained in the FEIS including the information summarized in Table 24 (Summary of direct and indirect effects) in the FEIS, public comments received on the DEIS and Supplemental Information Report, and consideration of comments received on the FEIS, the Great Plains Regional Director has decided to select the Participants' Proposed Action for implementation.

This decision allows the following Federal actions to be approved by Reclamation to implement construction and operation of the Participants' Proposed Action:

- Execution of up-to-40-year contracts between Reclamation and the Project Participants for use of the Eastern Slope System of the Fry-Ark Project in Colorado for storage, conveyance and exchange

- Issuance of a special use permit or other agreement from Reclamation to the Participants allowing connection of the SDS Project pipeline to Reclamation facilities
- Approval of an administrative trade (“swap”) between Colorado Springs and Fountain of an equal amount of capacity in the FVA pipeline for capacity in the SDS Project untreated water pipeline and water treatment plant

Approval of these Federal actions by Reclamation will allow the Project Participants to proceed with construction and operation of the selected alternative in a manner that is consistent with those actions as described and evaluated in the FEIS.

Basis for Selection of the Agency Preferred Alternative for Implementation

The FEIS describes the environmental effects of the alternatives analyzed in detail. This ROD selects the Agency Preferred Alternative for implementation. That decision is based on how well the alternatives addressed the significant issues identified during scoping, the environmental effects of the alternatives, and other technical factors, including economic and engineering considerations.

The environmental and technical evaluations performed as part of the FEIS indicate that all six of the Action Alternatives considered in detail are reasonable. Reclamation compared all of the alternatives in terms of how well they addressed the ten public scoping issues and other relevant environmental and non-environmental issues identified by Reclamation during the FEIS process, including energy use and estimated costs. Based upon these considerations, Reclamation

identified the Participants’ Proposed Action as the Agency Preferred Alternative in the FEIS.

All alternatives would have adverse environmental effects. The Participants’ Proposed Action would result in similar or fewer environmental effects when compared to the other alternatives. Additionally, this alternative would have the lowest total project cost and lowest energy use requirements, resulting in the lowest greenhouse gas emissions, of any Action Alternative. All of the Action Alternatives were developed to address specific environmental issues or meet public interest objectives. However, the other alternatives would have adverse environmental effects on other resources, would have a higher total cost, and would require at least as much or substantially more energy than the Participants’ Proposed Action. There would be no impacts to Indian trust assets (ITA) and no unresolved ITA issues.

Environmentally Preferred Alternative

The CEQ regulations require the ROD to identify one or more environmentally preferred alternative. The environmentally preferred alternative is the alternative(s) that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources. Because it will cause the least damage to the biological and physical environment, Reclamation has determined that the Participants’ Proposed Action is the environmentally preferred alternative.

Summary of Comments on the FEIS

Two letters containing comments on the FEIS were received during the 30-day waiting period. Comments were considered substantive if they:

- Question, with reasonable basis, the accuracy of the information in the document
- Question, with reasonable basis, the adequacy of the environmental analysis
- Present reasonable alternatives other than those presented in the EIS
- Cause changes or revisions in the alternatives
- Provide new or additional information relevant to the analysis

The first comment letter was from Mr. Dave Miller, President of the Natural Energy Resources Company. His comments are briefly summarized with Reclamation's responses as follows:

1. Mr. Miller was concerned that transmountain diversion alternatives that would convey water from the Gunnison River Basin and Aspinall Unit reservoirs to the Arkansas River or South Platte River basins, including the proposed Central Colorado Project, were not considered in the FEIS. He suggested two options for delivering the Gunnison River transmountain water to Colorado Springs and provided a citation to additional information on the internet. Both options included construction of an up-to-1.2 million acre-foot reservoir in the Gunnison River Basin and a 42-mile-long pipeline from the Gunnison River Basin to the South Platte River Basin. Pipelines to other river basins as well as power generation facilities were also included. The first option included construction of a new pipeline originating in the upper South Platte River Basin and traversing South Park, Colorado to Colorado Springs. The second option was construction of a new diversion upstream of Cheeseman Reservoir in the South Platte River Basin and a pipeline to the divide between the

South Platte and Arkansas River basins near Monument, Colorado. In the second option water would presumably be conveyed in the South Platte River toward Cheeseman Reservoir, diverted, and then delivered to Colorado Springs by conveying it in Monument Creek.

Reclamation did consider potential alternatives involving a transmountain diversion from the Gunnison River Basin, including the proposed Central Colorado Project, in its alternatives analysis and the FEIS (please refer to page 92 of the FEIS and comment responses 2300 and 3181 in Appendix B of the FEIS). These alternatives were dismissed from detailed evaluation due to substantial logistical, technical, or environmental deficiencies, less favorable environmental characteristics, and purpose and need criteria, with cost issues also identified (refer to page 87 of Reclamation's 2006 Alternatives Analysis for additional details).

2. Mr. Miller suggested that Reclamation did not consider and respond its prior comments, which included descriptions of benefits of the proposed Central Colorado Project.

Reclamation reviewed all comments on the DEIS and Supplemental Information Report, including those submitted by the commenter, and provided a response to each substantive comment (please refer to FEIS Appendix B and C). The commenter's previous comments contained eight substantive issues (refer to FEIS Appendix B, page B-241), all of which were addressed in the FEIS.

3. Mr. Miller requested investigations of alleged state and federal policy violations and oversights that lead to the seven

alternatives that were retained for detailed evaluation in the EIS.

Reclamation prepared the EIS and supporting documents in compliance with applicable laws, regulations, and policies (refer to comment responses 3020, 5000, and 5200 in FEIS Appendix B and 5000 in FEIS Appendix C).

4. Mr. Miller suggested that the process for determining the scope of the SDS Project (presumably meaning the range of alternatives) used by Colorado Springs prior to and during preparation of the EIS was fatally flawed and should have been challenged by Reclamation.

Reclamation was not directly involved in alternatives evaluations that Colorado Springs performed prior to Reclamation's preparation of the EIS. During preparation of the EIS, Reclamation used the purpose and need for the proposed SDS Project and an array of logistical, technical, and environmental screening criteria to define a full range of reasonable alternatives for detailed evaluation in the EIS (refer to Reclamation's 2006 Alternatives Analysis report, Section 2.3 of the FEIS, and responses to comments 31-1, 1002, 1010, 1011, 1012, 2001, and 2003 in FEIS Appendix B).

5. Mr. Miller suggested that the FEIS did not include a long-term analysis of carbon footprint and pumping costs for the life of the project.

Estimated carbon emissions at 2046 water demand (highest emission scenario) were provided in Section 3.24.5 of the FEIS. Operational costs associated with pumping requirements of each alternative were considered in Reclamation's alternatives screening process (refer to Chapter 2 of the FEIS and comment response 2001 in FEIS

Appendix B) and in the alternatives effects analyses (refer to Sections 3.15 and 3.16 of the FEIS and comment response 2011 in FEIS Appendix B). Operational costs, including pumping, for all seven alternatives were evaluated for the 40-year life of the contracts requested by the Project Participants.

6. Mr. Miller suggested that stabilization of Pueblo Dam and enlargement of Pueblo Reservoir should be included in the cost of the SDS Project alternatives.

Pueblo Dam (or Pueblo Reservoir) is identified as an existing facility in the FEIS and Action Alternatives for the SDS Project would use only existing storage space in the existing conservation pool of this facility. Moreover, Reclamation's facilities must be operated and maintained safely, in order to protect our nation's security, economy, and environment. Reclamation ensures safety through inspections for safety deficiencies, analyses that use current technologies and designs, and corrective actions if needed based on current engineering practices. Costs to fund Reclamation's Dam Safety Program are provided by appropriations from Congress, and are not directly passed onto Project Participants (refer to comment responses 2011 and 3326 in FEIS Appendix B).

None of the SDS Project alternatives include enlargement of Pueblo Reservoir as a project component. Enlargement of Pueblo Reservoir is not needed to fulfill the project's purpose or needs (refer to comment response 2004 in FEIS Appendix B).

7. Mr. Miller requested a stay of the SDS Record of Decision pending analysis of the

alternatives and completion of the policy investigations described above.

Reclamation considered this request and determined that the alternatives suggested by the commenter were given appropriate consideration in the FEIS and supporting documents and that the suggested investigations are not warranted. Consequently, a stay of the Record of Decision is not necessary.

The second comments letter was received from the Environmental Protection Agency (EPA)-Region 8 and is summarized as follows:

The EPA commented that in general the FEIS was largely responsive to the issues it raised in its comments on the DEIS and SIR. EPA believes SDS is more environmentally protective as a result and commends Reclamation for addressing EPA's comments and concerns. EPA commends Reclamation for conducting additional water quality analysis for the FEIS and working to resolve differences on a range of other issues. EPA is very pleased to see that the "Modified Proposed Action" is the Agency-Preferred Alternative. EPA believes the FEIS is largely responsive to the issues it raised in its comments on the DEIS and SIR.

EPA expressed two areas of continuing concern. First, it has some remaining concerns about the project's impact on water quality; however, EPA is pleased with the addition of Section 5.0 in the FEIS Environmental Commitments. EPA supports implementation of water quality monitoring when construction begins to allow three years of baseline data to be collected before SDS becomes operational. EPA believes the water quality monitoring program is appropriate and will help ensure that any potential problems that SDS causes would be addressed in an effective and timely manner.

Second, EPA remains concerned about indirect impacts from induced growth on increased flows to Fountain Creek resulting from SDS have not been sufficiently addressed in the FEIS. EPA believes there should be a commitment that stormwater Best Management Practices be implemented for future growth in Colorado Springs.

Reclamation's view is that growth is not a direct or indirect effect of the proposed SDS Project, and effects associated with growth are disclosed within the cumulative effects Section of the FEIS. As disclosed in the FEIS, there will be minor increases in peak flows and floodplains for Fountain Creek. Average simulated stream flows on Fountain Creek at Pueblo change from 249 cubic feet per second (cfs) for the No Action Alternative to 253 cfs with the Participants Proposed Action. That is an increase of 4 cfs, and represents an increase of 2%. As a result, no commitments are proposed in the ROD to mitigate the effects on peak flows or floodplains on Fountain Creek.

The City of Colorado Springs Stormwater Enterprise is described as a reasonably foreseeable action on page 125 of the DEIS. As part of their stormwater discharge permit, the City of Colorado Springs is responsible for constructing capital stormwater projects and regulating stormwater infrastructure on private property necessary for managing water quantity and quality. These activities will occur no matter what alternative is constructed for the SDS project, and are not considered as mitigation for SDS.

Public comments on the FEIS were considered but did not result in changes to the proposed action or in the selection of the Preferred Alternative.

Environmental Commitments

This section summarizes the environmental commitments that will be incorporated into the selected alternative. These commitments will be fully incorporated into all final design and project implementation activities. Reclamation will ensure that these measures are implemented through terms and conditions of any long-term contract between Reclamation and the Participants. Such contracts will, at a minimum, include a requirement for the Project Participants to submit to Reclamation an annual compliance report that certifies progress in successfully implementing these commitments in a timely manner as prescribed in this ROD and any contracts. All practicable means to avoid or minimize environmental harm from the selected alternative have been considered and adopted. The environmental commitments and mitigation measures in this section of the ROD are intended to avoid and/or minimize any environmental harm.

The Participants must obtain other significant Federal, State and local permits, approvals, and agreements for the SDS Project. These permits, approvals, and agreements may include, as examples, a Section 404 permit under the Clean Water Act, a 1041 permit from Pueblo County, and consultation with the Colorado Division of Wildlife (CDOW) and the Colorado Water Conservation Board. These permits, approvals, and agreements may trigger other environmental compliance requirements by Federal agencies which would also include significant environmental commitments (mitigation) to be undertaken by Participants as part of the SDS Project.

Comprehensive monitoring of the implementation of Participants' environmental commitments for the SDS Project will be coordinated between Reclamation, the Project Participants, and the authorities responsible for

these additional, separate permits, approvals, and agreements. This monitoring and coordination is intended to avoid redundant, inconsistent, or ineffective environmental commitments for the SDS Project. Reclamation will participate fully in this process of coordinating environmental commitments. A detailed and specific list of environmental commitments and plan for their implementation will emerge from this coordination process.

The timing of this process is important. Coordination of implementation of the environmental commitment plan will occur prior to executing any contracts for the SDS Project. Any long-term contract between Reclamation and the Participants will contain all specific environmental commitments and obligations by Participants that are determined by Reclamation to be required for the SDS Project. In the discussion below, significant environmental commitments by Participants and Reclamation are described in two forms. First, there are environmental commitments that Reclamation is responsible for implementing. Second, there are environmental commitments that will be required by Reclamation that the project Participants are responsible for implementing and that will be conducted during the broader coordination process with other permitting and approving authorities.

Reclamation's Commitments

The following mitigation measures will be implemented:

- If Reclamation receives credible information that operations under the contract are causing a violation of the Arkansas River Compact, Reclamation will immediately initiate discussions among the parties, including the party alleging the Compact violation, to

develop a solution and remedy the violation.

- Reclamation will complete its coordination with the U.S. Fish and Wildlife Service under the Fish and Wildlife Coordination Act (FWCA) prior to implementation of the selected alternative. The U.S. Fish and Wildlife Service was a cooperating agency with Reclamation during preparation of the Final EIS and was consulted throughout the NEPA process for the SDS Project. A draft FWCA Report is on-file with Reclamation. Fish and wildlife conservation measures recommended in the final FWCA Report will be considered by Reclamation and those found to be appropriate will be implemented by Reclamation and/or the Project Sponsors through construction requirements, contract provisions, and terms and conditions of any long-term water-related contract between Reclamation and the Participants.

Participants' Commitments

General Commitments

The following mitigation measures will be implemented:

- Comply with all applicable permits, regulations, and laws including but not limited to CDPHE, USCOE 404, and local land use permits obtained for the SDS project.
- Construct and operate the SDS Project in a manner that does not differ substantially from that evaluated in this FEIS, except under emergency conditions, and unless additional and appropriate environmental investigations are completed by

Reclamation and approval is then given to Participants to alter construction or operation of the SDS Project

- Develop and implement a head pressure monitoring program on the Joint Use Manifold to isolate effects attributable to the SDS Project and to mitigate those effects if they were to occur. This program will be developed over a 3-year period from the date that water is first delivered from the Joint Use Manifold for the SDS Project. Development of the monitoring program will include involvement of all other Joint Use Manifold users. This commitment will not be necessary if the intake for SDS is at the North River Outlet Works, and the Joint Use Manifold is not used for SDS.
- Develop an integrated adaptive management program for the project that will be coordinated with the Participants' existing monitoring programs and the Environmental Management System discussed in Appendix F of the FEIS. The integrated adaptive management program will be finalized prior to executing any contracts for the SDS Project.

Surface Water

The following mitigation measures will be implemented:

- Comply with the Upper Arkansas Voluntary Flow Management Program except during emergency conditions as defined in Section 2.b. of the Memorandum Of Understanding for Settlement of Case No. 04CW129, Water Division 2 (Chaffee County Recreational In-Channel Diversion)

- Comply with the Pueblo Flow Management Program pursuant to existing intergovernmental agreements. If Reclamation and the Participants receive credible information that project operations are impairing physical diversion of a senior water right, contrary to Colorado water law, the Participants will immediately initiate discussions among the parties, including the party alleging the impairment and Reclamation, to develop a solution and remedy the impairment in compliance with Colorado water law.
- Participants will consult with Reclamation each year on the average annual flow in Fountain Creek. If the average annual stream flow of Fountain Creek as measured at Pueblo (USGS gauge station number 071056500) exceeds the scope and range of the flow estimated and analyzed in the Final Environmental Impact Statement (see Table 33 of the FEIS), then Participants will coordinate with Reclamation, within their adaptive management plan, to evaluate the cause(s) for the change in flows and determine whether appropriate response actions, such as monitoring and/or mitigation measures, are warranted. Each year, Participants will report to Reclamation the average annual flow in Fountain Creek at Pueblo together with other relevant data.

Surface water mitigation measures will resolve adverse effects to physical diversions of senior water rights.

Water Quality

The following mitigation measures will be implemented:

- Include water quality monitoring and adaptive management within the integrated adaptive management program (see Participants' General Commitments)
- Begin implementing water quality monitoring when construction of the project begins. This will allow about three years of baseline data to be collected before project operations begin.
- Submit water quality monitoring data, including trend analyses, for the preceding calendar year to Reclamation by January 31st of the subsequent year
- If the Colorado Department of Public Health and Environment (CDPHE) determines that operation of the SDS Project is causing significant adverse water quality effects, the Participants will coordinate with Reclamation, CDPHE, and other interested parties to evaluate and select measures to mitigate adverse effects
- In the event that operation of the SDS Project causes, or threatens to cause, stream flows in the Arkansas River or other waterways to diminish to low levels that will contribute significantly to elevated concentrations/densities of dissolved selenium, *E. coli*, or sulfate, the Participants will coordinate with Reclamation, CDPHE, CDOW, and other interested parties to evaluate and select measures to mitigate adverse effects.

Development and implementation of a water quality monitoring and adaptive management plan will provide a means of detecting changes

in water quality, judging whether they are likely caused by operation of the SDS Project, and addressing actual effects in a systematic manner. Additionally, implementation of the geomorphology mitigation measures (below) will reduce suspended sediment and total recoverable iron concentrations in Fountain Creek and the lower Arkansas River.

Geomorphology

The following mitigation measures will be implemented:

- Prepare a geomorphic mitigation plan and secure Reclamation approval prior to executing any contracts for the SDS Project. This plan could include, but is not limited to:
 - Evaluate and consider strategies to remove sediments that reduce the effectiveness of Corps levees located near Fountain Creek at its confluence with the Arkansas River
 - Evaluate and consider strategies to increase the sinuosity of Fountain Creek at appropriate locations in order to reduce undesirable erosion and sedimentation
 - Evaluate and consider strategies at appropriate locations along Fountain Creek to reduce undesirable erosion and sedimentation
 - Select geomorphic mitigation measures for SDS Project effects that are, to the extent practicable, consistent with priority projects identified in the Corps of Engineers' Fountain Creek Watershed Study and the Fountain Creek Corridor Master Plan. Locations where geomorphic mitigation projects

could occur include, but are not limited to:

- Fountain Creek at the Clear Spring Ranch site, directly upstream and downstream of the confluence of Little Fountain Creek and Fountain Creek (approximately 4 miles)
- Fountain Creek from upstream of Fountain Boulevard to upstream of Colorado 85/87 at the Sand Creek confluence (approximately 3 miles)
- Complete pre-project geomorphic mitigation, including channel stabilization projects and non-structural options such as conservation easements, before the project is operational. Channel stabilization could include, but is not limited to, increasing stream sinuosity, flattening of steep side slopes, installation of grade control structures, and use of buried riprap, erosion blankets, and/or vegetative cover for channel stabilization in areas of high and/or erosive velocities.
- Design and construct an energy dissipation structure that will protect against erosion at the outlet of the pipeline from Williams Creek Reservoir to Fountain Creek
- Evaluate and implement appropriate future geomorphic stabilization projects, if such future projects are determined to be necessary after the project is operational.

When implemented, these recommendations will mitigate potential adverse effects on geomorphology by avoiding or minimizing effects of return flow discharges through an energy dissipation structure, compensating for anticipated effects, and responding to effects identified after project operations begin.

Aquatic Life

The following mitigation measures will be implemented:

- Submit a proposed wildlife mitigation plan to the Colorado Wildlife Commission (Wildlife Commission) pursuant to C.R.S. § 37-60-122.2. This proposal will include actions the Participants propose to mitigate impacts that the SDS Project may have on fish and wildlife. As required by that statute, the Wildlife Commission will evaluate the probable impact of the project on fish and wildlife and, if the Participants and Wildlife Commission cannot agree upon reasonable mitigation, the Wildlife Commission will make recommendations to the Colorado Water Conservation Board (CWCB) regarding what it believes to be reasonable mitigation actions. If the Participants and the Wildlife Commission agree on a mitigation plan, the Wildlife Commission will submit that agreement to the CWCB, which must adopt the agreement as the state's official position. If the Participants and the Wildlife Commission do not reach agreement on a mitigation plan, the CWCB will consider the plan submitted by the Participants and the recommendations of the Wildlife Commission and either affirm the recommendations of the Wildlife Commission, which then becomes the State's official position, or submit its own recommendations to the Governor, who will ultimately determine the state's official position on the proposed wildlife mitigation plan.
- In the event that operation of the SDS Project causes, or threatens to cause, stream flows in Fountain Creek or the Arkansas River to diminish to low levels that could contribute significantly to impairment of aquatic life, coordinate with Reclamation, CDPHE, CDOW and other interested parties to evaluate and select measures to mitigate adverse effects
- Evaluate and consider participation in CDOW fish hatchery programs
- Monitor the effects of the operation of the SDS Project upon aquatic life in Fountain Creek and the Arkansas River between Pueblo Dam and the Las Animas Gage. Aquatic sampling will be conducted once per year at up to 10 locations. Monitoring methods and locations will be identified in the proposed wildlife mitigation plan that will be submitted to the Colorado Wildlife Commission pursuant to C.R.S. § 37-60-122.2. Use the information from this monitoring in the adaptive management program for the SDS Project.

When implemented, these recommendations will mitigate potential adverse effects on aquatic life by avoiding or minimizing effects, compensating for anticipated effects, and detecting and responding to effects identified after project operations begin.

Wetlands, Waters, and Riparian Vegetation

The following mitigation measures will be implemented:

- Design final alignments and facilities to avoid and minimize wetland impacts
- Assess alternative construction methods for pipeline crossings (i.e., directional drilling v. open cut) to minimize wetland and stream impacts

- Mitigate impacts to jurisdictional and non-jurisdictional wetlands in areas of temporary, short-term effects such as pipeline crossings, on-site at the place of disturbance with similar wetlands and soils to replace existing wetland functions and values
- Mitigate all unavoidable, permanent impacts to jurisdictional and non-jurisdictional wetlands with compensatory wetlands that replace existing wetland functions and values. Compensatory wetland mitigation will likely occur at the Clear Spring Ranch site on Fountain Creek downstream of the city of Fountain.
- Control tamarisk that may establish around newly constructed reservoirs
- Evaluate and consider a strategy to increase the sinuosity of Fountain Creek at appropriate locations in order to create wetlands areas
- Evaluate and consider the construction and maintenance of new areas of wetlands along Fountain Creek in order to participate in wetlands banking programs. Evaluate and consider cooperation with Colorado agencies to expand such a wetlands creation process

Mitigation plans for jurisdictional and non-jurisdictional wetlands will be submitted for approval by the Corps of Engineers and Reclamation, respectively. All design and planning measures for wetlands, waters, and riparian vegetation will be completed before any contracts for the SDS Project.

By reviewing the location of wetlands during final design, effects on wetlands can be avoided and minimized. Specifically, the pipeline construction corridors through wetlands will be reduced to the minimum

width practicable. Similarly, construction methods that do not involve trenching through a wetland will avoid impacts. Wetlands mitigated in place and off-site will replace affected wetlands on a 1:1 ratio and will provide similar functions and values. The 404 permitting process is ongoing and the final off-site mitigation ration for jurisdictional wetlands for the 404 permit has not yet been determined.

Vegetation

The following mitigation measures will be implemented:

- Prior to final design, review locations of Needle and Threadgrass – Blue Grama Grasslands, high quality shrublands and woodlands, and other areas with desirable vegetation to determine design changes within the current study area that will avoid and minimize impacts
- Replace mature trees (diameter at breast height of 12 inches or greater) within construction areas at a 1:1 ratio with the same or similar native species with available nursery container stock or pole plantings as soon as practicable after construction activities have ended
- For 1 year after construction, monitor the construction areas to determine if appropriate native vegetation is establishing. If native vegetation is not establishing, the site will be reseeded with appropriate species
- In the appropriate season prior to construction, survey potential construction areas with known populations of dwarf milkweed and other plant species of concern, to locate areas where impacts can be avoided and minimized to the extent practicable

with design changes within the current study area. After identifying populations to avoid, mark populations within or nearby the construction easement as environmentally sensitive so that workers avoid inadvertent impacts.

- During construction, wash major construction equipment before it enters the site so that noxious weeds are not spread from other construction sites
- Use certified weed-free mulch after seeding construction areas
- Reseed construction areas with comparable native vegetation as soon as practicable after disturbance, using seed that does not contain any noxious weed seed
- Monitor construction areas for 3 years after construction to assess if noxious weeds have invaded the site. If noxious weeds are present, weed control plans will be formulated and completed.
- Because the project may indirectly increase the spread of tamarisk, the Participants will work with the Colorado Department of Agriculture's Colorado Noxious Weed Management Team on tamarisk issues in the Arkansas Valley including submitting a request for partnership evaluation.

Impacts to plant species and communities of concern and other sensitive vegetation areas can be avoided and minimized during final design and implementation. Because mitigation measures such as transplanting of individuals are often unsuccessful, avoidance and minimization will ensure survival, especially of plant species of concern. Seeding disturbed areas, replacing mature trees, and controlling noxious weeds will replace existing

vegetation types and structural diversity and will ensure that high quality habitat remained.

Wildlife

The following mitigation measures will be implemented:

- Submit a proposed wildlife mitigation plan to the Colorado Wildlife Commission pursuant to C.R.S. § 37-60-122.2 as described above.
- Promptly revegetate all disturbed areas with native species that provide species diversity and food and cover for large game and wildlife habitat
- Conduct clearance surveys in suitable habitat for state-listed species following standard protocols, as available, prior to construction (e.g., CDOW undated)
- Conduct raptor nest surveys prior to construction and impose seasonal restrictions to surface activity within recommended buffers (generally ¼ to ½ mile) around active raptor nest sites and heron rookeries during construction
- Consult with CDOW and U.S. Fish and Wildlife Services' Migratory Permit Bird Office to develop mitigation for unavoidable loss of raptor nests. Options may include constructing artificial nests in suitable habitat or enhancing prey habitat
- Develop construction schedules to avoid impacts to nesting migratory birds. If construction is scheduled to occur during the nesting season (April 1 through August 31) in areas where migratory birds may nest, a qualified biologist will conduct a nesting bird survey prior to the commencement of construction activities to determine the presence of migratory birds and their nests. If an active nest is detected, a

buffer zone between the nest and the limit of construction will be flagged and avoided during the nesting season, or construction will be scheduled outside of the nesting season.

- Conduct pre-construction surveys for swift fox den sites within appropriate habitat along the pipeline corridor and proposed reservoir sites. Avoid surface disturbance within ¼ mile of active den sites while young are den-dependent (March 15 - June 15)
- Restrict pesticides for rodent control within swift fox overall range
- Mitigate impacts to state-listed amphibian species by avoiding, minimizing, and mitigating wetland effects as described above
- Impose seasonal restrictions on construction to avoid sensitive large game winter habitat (from first large snowfall to summer green-up)
- Install wildlife crossovers (trench plugs) during pipeline construction with ramps on each side at a maximum of ¼ mile intervals and at well-defined game trails
- Create additional nesting habitat or nest boxes in nearby trees for the Lewis' woodpecker when nest trees are destroyed.

By replacing vegetation including structural diversity, the long-term effects on wildlife will be reduced by allowing wildlife to return to disturbed areas. Pre-construction surveys will identify wildlife use at the time of construction and allow for planning for avoidance and minimization. Imposing seasonal and/or daily restrictions on construction will enable wildlife to use important habitat, especially during breeding and other critical periods. Wildlife crossovers installed within the pipeline trench

will facilitate wildlife passage and provide escape routes for wildlife trapped within the trench, thereby reducing mortality.

Recreation

The following mitigation measures will be implemented:

- During short-term construction activities that require trail closures of developed recreational trails, designate a safe and reasonable detour around the project site. Post signs directing trail users.
- Work with the local municipality to establish alternate trails with consistent width, surfacing, and signage
- Within developed parks with temporary effects, commit to full reclamation of the impact area by replacing turf, irrigation systems, and other facilities that could be affected. Provide follow-up monitoring and maintenance for 1 year to ensure that reclamation efforts are successful.
- In developed park areas with permanent, above ground SDS Project facilities, reconfigure park facilities that will be directly affected and visually screen SDS Project facilities from other park uses with vegetation, berming, or attractive fencing
- Seek opportunities to enhance angling, boating, or other recreation opportunities at Lake Henry, Lake Meredith, and Holbrook Reservoir so that they are less vulnerable to water level fluctuations. Work with the CDOW to identify priority projects and include them in a proposed wildlife mitigation plan to the Colorado Wildlife Commission pursuant to C.R.S. § 37-60-122.2 as above.

The proposed mitigation measures will reduce the impact of project facility construction on trail users. They will also reduce the short- and long-term impacts of project facilities on park infrastructure, vegetation, aesthetics, and recreation experiences. Collaboration with the CDOW to enhance fishing and boating opportunities may result in such improvements to recreation at Lake Henry, Lake Meredith, and Holbrook Reservoir.

Socioeconomics and Land Use

The following mitigation measures will be implemented:

- Acquire properties and easements through voluntary, willing participant agreements to the maximum extent practicable
- Develop a construction management plan to outline best management practices to minimize impacts to surrounding properties and submit plan to Reclamation for approval prior to construction.

Adverse short-term effects on landowners with parcels that will contain SDS features will be offset through mutually agreed upon compensation. The land use mitigation measures will minimize disturbances to properties near the project during construction or minimize land use changes and conflicts.

Cultural Resources

The following mitigation measures will be implemented:

- Comply with the requirements of the Programmatic Agreement between Reclamation, the ACHP, Colorado Springs, and the Colorado SHPO (Appendix I of the FEIS)

Development of the project alternatives will result in impacts to non-renewable historic properties. As a result, it will be necessary to implement a mitigation plan in an effort to resolve any adverse effects. Mitigation may be accomplished through avoidance, implementation of protective measures, or data recovery. If avoidance and preservation are not possible, a data recovery plan may be used to collect and analyze significant information, thus preserving that information. Data collection as a mitigation measure should only be implemented when other means to protect or preserve historic properties have been exhausted or are not feasible. Within the data recovery plan, specific research problems concerning scientific, humanistic, and cultural concerns will be developed. Research also will focus on problems in prehistoric and historic archaeological methods and theory. Ultimately, the data collected likely will provide information regarding the cultures that have occupied the area in the past.

Indian Trust Assets

Continue consultation with Native American Tribes in accordance with the Programmatic Agreement. Under the Agreement, Reclamation and the Project Participants will coordinate with the tribes to identify and mitigate impacts to any traditional cultural properties or resources.

Noise and Vibration

The following mitigation measures will be implemented:

- Construction equipment used by contractors shall function as designed and shall conform to applicable noise emission standards
- Generally adhere to project work hour restrictions (7 a.m. to 7 p.m.) within

500 feet of residences, hospitals, schools, churches, and libraries. Work hours may need to be extended from time to time in order to expeditiously restore traffic flow or public access.

- Restrict access to construction areas so that the public could not be in close proximity to loud equipment or blasting
- House project operating equipment (e.g., pump stations) in structures designed to minimize radiated noise outside the structure, and will meet local noise ordinance requirements.

By following existing standards, restricting work hours and access to construction areas, and insulating new noise within structures, noise effects will be minimized by maintaining acceptable noise levels and limiting the number of people exposed to increased noise levels.

Visual Resources

The following mitigation measures will be implemented:

- Vegetate earthen dam faces with native herbaceous plants to match the adjacent undisturbed prairie plant communities
- Revegetate and/or landscape with plants, all disturbances associated with the construction of all facilities
- Restore as many existing grades as practicable following pipeline excavations
- Enclose pump stations and well equipment in structures matching the architectural characteristics of the surrounding structures
- Construct powerlines with non-specular (not shiny) wire, non-reflective and opaque insulators, and light-colored, non-reflective finished poles

- Reclaim construction access roads and staging areas by restoring existing grade and revegetating the area of disturbance
- Apply water with standard construction practices to control airborne fugitive dust within construction areas
- Install baffles on construction lighting fixtures to direct light onto the construction activity only in locations where safety is a concern, scenic quality will be affected, or near occupied homes and businesses.

Restoring existing grades, revegetating disturbed areas, using architectural styles consistent with the area, and designing powerlines to have low visibility will minimize the visual contrast between the surrounding areas and will reduce the visibility of disturbance or new structures from observation points. Reducing airborne fugitive dust and construction lighting will reduce the area affected during construction.

Traffic

The following mitigation measures will be implemented:

- Use trenchless construction to the extent practicable when construction features cross railroad lines, state highways, county roadways in densely populated areas, and major city roadways in densely populated areas.
- Prepare traffic control plans for approval by state and local traffic authorities and followed by contractors during construction
- Construct traffic signage, signals, acceleration, and deceleration lanes as directed by state and local traffic authorities for access to reservoir sites, treatment plants, and pump stations

- Construct improvements to existing access roads or construction of temporary alternate access roads to reservoir sites, treatment plants, and pump stations as directed by state and local traffic officials
- Modify or reconstruct bridges when the load limits are not adequate for construction of the SDS Project and other access routes are not reasonable.

When implemented, these recommendations will mitigate potential adverse effects on traffic by minimizing delays and promoting traffic safety.

Soils

The following mitigation measures will be implemented:

- Minimize the area of disturbance to defined construction limits and limit the time bare soil is exposed
- Contain soils within the construction area through temporary sediment control measures such as silt fences, sediment logs, trenches, and sediment traps
- Remove woody vegetation prior to topsoil salvage and, to the extent possible, salvage topsoil within tree stump roots
- Use topsoil salvage methods including windrowing topsoil at the limits of construction and pulling the soil back on slopes during reclamation
- Apply topsoil, soil amendments, fertilizers, and mulches as appropriate, and seed selectively during favorable plant establishment climate conditions to match site conditions and revegetation goals

- To the extent practicable, avoid irrigated lands during final design
- To the extent practicable, allow continued use of lands crossed by project facilities after construction
- Where the proposed pipeline crosses prime farmland soils, develop a soils handling plan that separates the top 6 inches and the soils between 6 and 36 inches for subsequent reclamation

Proposed mitigation measures will reduce short-term and long-term losses of soil and soil productivity. Redistribution of topsoil to soil-deficient areas will increase soil productivity in those areas. Topsoil, soil amendments, fertilizers, and mulches will increase productivity and help establish cultivated vegetation and crops. A soils handling plan for prime farmland soils will ensure high quality topsoil is preserved and distributed properly.

Air Quality

The following mitigation measures will be implemented:

- Develop and implement standard control practices, such as watering, to minimize particulate and dust emissions from construction work sites as specified in the fugitive dust control plan
- Ensure construction equipment (especially diesel equipment) meets opacity standards for operating emissions
- Promptly revegetate disturbed areas

The proposed mitigation measures will reduce both short-term and long-term effects on air quality by following standards on construction equipment and minimizing fugitive dust.

Hazardous Materials

The following mitigation measures will be implemented:

- Remove solid waste and properly dispose of at a permitted solid waste disposal facility prior to construction of project facilities at the site
- Inspect the ground surface beneath the solid waste for evidence of hazardous material or petroleum product spills such as soil staining and unusual odors or colors
- If evidence of a spill or spills is noted, delineate the extent of the spill by laboratory analysis and excavate any contaminated soils and properly dispose of at a permitted waste disposal facility
- If soil and/or ground water contamination is encountered during construction of project facilities, implement mitigation procedures to minimize the risk to construction workers and to the future operation of the project.

The proposed mitigation measures will identify areas of potential contamination from hazardous materials and will remediate the soil and ground water if any contamination was identified.

connect to Fry-Ark facilities, and; (3) approve an “administrative swap” of FVA water associated with SDS Project deliveries.

Implementation

The decision to implement the Federal actions needed by Reclamation for the selected alternative will be effective immediately upon approval of this Record of Decision. Reclamation staff will proceed with all activities needed to commence negotiations with the Project Participants to: (1) enter into excess capacity contracts for use of Fry-Ark facilities; (2) issue a special use permit to

APPENDIX 2

Fish and Wildlife Mitigation Plan

Southern Delivery System

Fish and Wildlife Mitigation Plan

Prepared for:

**The Colorado Wildlife Commission
in accordance with C.R.S. 37-60-122.2**

In Partnership:

**Colorado Springs Utilities
City of Fountain
Security Water District
Pueblo West Metropolitan District
Colorado Division of Wildlife**

March 11, 2010

Contents

Abbreviations.....	iii
Executive Summary.....	1
1.0 Introduction.....	1-1
1.1 Southern Delivery System Project Overview	1-1
1.2 Purpose of Document.....	1-1
1.3 Regulatory Process	1-1
1.4 History of Partnership.....	1-2
1.4.1 Greenback Cutthroat Trout Recovery Program	1-3
1.4.2 Reservoirs and Recreation Areas	1-3
1.5 Fish and Wildlife Mitigation Plan Partnership Goals.....	1-3
2.0 Avoidance and Minimization	2-1
3.0 Fish and Wildlife Mitigation.....	3-1
3.1 Fisheries and Aquatic Habitat	3-1
3.1.1 Aquatic Life in Streams and Rivers	3-1
3.1.2 Reservoir Fisheries	3-3
3.1.3 Invasive Species.....	3-5
3.2 Wildlife Habitat.....	3-5
3.2.1 Vegetation	3-5
3.2.2 Wildlife	3-6
3.3 Wetlands and Riparian Habitat	3-7
3.4 Water Quality and Geomorphology	3-8
3.4.1 Water Quality	3-8
3.4.2 Geomorphology of Fountain Creek.....	3-9
3.5 Adaptive Management Plan	3-10
4.0 Benefits and Enhancements	4-1
4.1 Clear Spring Ranch.....	4-1
4.2 Upper Williams Creek Reservoir.....	4-1
4.3 Williams Creek Reservoir	4-2
4.4 Additional Reservoir Benefits.....	4-2
5.0 Cost and Schedule of Mitigation Components.....	5-1
6.0 Conclusions	6-1
7.0 References	7-1

Tables

- 1 CDOW Summary of Proposed Mitigation Components
- 2 Summary of Proposed Mitigation Components

Figures

- 1 Southern Delivery System Project Plan
- 2 Southern Delivery System Vicinity Map

Abbreviations

ac-ft	acre-feet
ARLFP	Arkansas River Low Flow Program
1041 Permit	Pueblo County 1041 Permit No. 2008-002
CDOW	Colorado Division of Wildlife
CDPHE	Colorado Department of Public Health and Environment
cfs	Cubic feet per second
CMP	Compensatory Mitigation Plan
C.R.S.	Colorado Revised Statute
CSR	Clear Spring Ranch
CWC	Colorado Wildlife Commission
CWCB	Colorado Water Conservation Board
District	Fountain Creek Watershed, Flood Control, and Greenway District
EIS	Environmental Impact Statement
FWMP	Fish and Wildlife Management Plan
FEIS	Final Environmental Impact Statement
Fry-Ark	Fryingpan-Arkansas
NEPA	National Environmental Policy Act
PFMP	Pueblo Flow Management Program
Project Participants	City of Colorado Springs, City of Fountain, Security Water District, and Pueblo West Metropolitan District
Reclamation	United States Bureau of Reclamation
ROD	Record of Decision
SDS	Southern Delivery System
Springs Utilities	Colorado Springs Utilities
UAVFMP	Upper Arkansas Voluntary Flow Management Program
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWCR	Upper Williams Creek Reservoir
WCR	Williams Creek Reservoir
WTP	Water Treatment Plant

Executive Summary

The Southern Delivery System Project (SDS Project) is a proposed regional water delivery system that will serve the City of Colorado Springs, the City of Fountain, Security Water District, and Pueblo West Metropolitan District (Project Participants). The SDS Project is designed to serve all or most of the future water needs of the citizens of Project Participants through the year 2046.

Project Participants have prepared this Fish and Wildlife Mitigation Plan (FWMP) in collaboration with staff of the Colorado Division of Wildlife (CDOW). This draft FWMP summarizes the SDS Project's impacts on fish and wildlife, the Project Participants' plans to mitigate these impacts, and the benefits of the SDS Project to fish and wildlife. This draft FWMP also describes the timing of the impacts, mitigation activities, and benefits; presents initial cost estimates for mitigation; and explains the extensive avoidance and minimization actions taken by the Project Participants. This information is summarized using the following three specific mitigation categories:

- Fisheries and aquatic habitat mitigation
- Wetlands and riparian habitat mitigation
- Vegetation and wildlife mitigation

A Final Environmental Impact Statement (FEIS) was developed for the SDS Project by the U.S. Bureau of Reclamation (Reclamation). The FEIS identified the potential environmental impacts of the SDS Project, including those to fish and wildlife. Mitigations by the Project Participants for these impacts were identified as requirements in Reclamation's Record of Decision (ROD). The Project Participants have committed to other mitigation activities as requirements of both the United States Army Corps of Engineers' (USACE) Section 404 Individual Permit Application and the Pueblo County 1041 Permit No. 2008-002. This draft FWMP addresses the CDOW requested mitigations (summarized in **Table ES1** below, and in **Table 1**), potential benefits to fish and wildlife related recreation from the SDS Project (summarized in **Table ES2** below), and the mitigation activities required of the SDS Project by other agencies (see **Table 2**).

TABLE ES1
Mitigation Measures Requested by CDOW

Mitigation	Commitment
Fish Stocking	Offset potential losses of fishery stocks in Pueblo Reservoir, Lake Henry, and Lake Meredith due to SDS Project operations by stocking these and SDS Project reservoirs through cooperative funding for increased CDOW warm water fish production capability for fry and advanced fingerling fish.
Fish Habitat Improvement	Provide funding and/or materials to construct fish habitat improvement structures in Lake Henry, Lake Meredith, and Pueblo Reservoir.
Fish Retention Structures	Install fish screens at Lake Henry to support and maintain fish populations, and install walkways at existing Lake Meredith outlet screens to improve efficiency of screen cleaning and maintenance.

TABLE ES1
Mitigation Measures Requested by CDOW

Mitigation	Commitment
Aquatic Research	Research will be conducted on selected representative fish species to determine life history factors and the relationship to water flow, water quality, and habitat parameters most likely to be influenced by SDS Project operations.

In addition to the avoidance and minimization actions and mitigations described, this draft FWMP describes benefits included in the SDS Project through Project Participant s' commitments to enhance certain fish and wildlife, habitat, and recreational opportunities at several locations as presented in **Table ES2**.

TABLE ES2
Potential Benefits to Fish and Wildlife, Habitat, and Recreation from the SDS Project

Benefit	Description
Clear Spring Ranch	Develop small game hunting opportunities and trails/wildlife viewing.
Upper Williams Creek Reservoir	Develop angling (shore and boat) and other wildlife recreation opportunities, including construction of fish spawning habitat and two jetties.
Williams Creek Reservoir	Develop small game hunting opportunities and trails/wildlife viewing.
Improve Native Fish Habitat	Seek opportunities to preserve or develop Arkansas darter habitat along lower Fountain Creek and its tributaries.

This draft FWMP presents a summary of each of the SDS Project mitigation commitments and the habitat and recreation benefits, including the estimated cost and proposed schedule for each.

The Project Participants request that CDOW staff:

1. Approve this FWMP under Colorado Revised Statute (C.R.S.) 37-60-122.2.
2. Submit this FWMP on behalf of the Project Participants to the Colorado Wildlife Commission (CWC) for its review and acceptance.
3. Upon acceptance from the CWC, submit this FWMP on behalf of the Project Participants, along with a supporting letter of transmittal, to the Colorado Water Conservation Board (CWCB) for adoption.

1.0 Introduction

1.1 Southern Delivery System Project Overview

The SDS Project is a proposed regional water delivery project designed to serve most or all future water needs (through 2046) of the Project Participants. The first phase of the SDS Project has a projected cost of approximately \$880 million and includes construction of the following facilities, which are scheduled for completion by 2016:

- A 53-mile raw water pipeline (66- and 72-inch diameter)
- Two 78-mgd raw water pump stations and one 50-mgd raw water pump station
- A water treatment plant (WTP) and finished water pump station with a capacity of 50 mgd (expandable in Phase 2)
- Ten miles of 30-inch to 96-inch diameter finished water pipelines

Phase 2 of the SDS Project includes the following:

- Addition of Upper Williams Creek Reservoir (UWCR), a 30,500 acre-feet (760 surface acres) terminal storage reservoir at a new dam site on upper Williams Creek.
- Expansion of the 50-mgd raw water pump station and WTP to 100-mgd capacity
- Expansion of the treated water system
- Addition of Williams Creek Reservoir (WCR), a 28,000 acre-feet (980 surface acres) exchange storage reservoir on lower Williams Creek, and exchange flow conveyance facilities to transfer exchange flow to and from Fountain Creek

UWCR is scheduled for completion in 2021, and the remainder of Phase 2 is scheduled for completion in 2025. The SDS Project facilities are shown on **Figure 1**.

1.2 Purpose of Document

This draft FWMP has been prepared in response to the requirements of C.R.S. 37-60-122.2 and outlines actions that the Project Participants will implement to mitigate impacts that the SDS Project may have on fish and wildlife.

1.3 Regulatory Process

The SDS Project has undergone, and continues to undergo, significant regulatory scrutiny at the federal, state, and local levels. At the federal level, Reclamation performed extensive and detailed environmental studies as a part of the National Environmental Policy Act (NEPA) process, the culmination of which was an FEIS and ROD.

The ROD was issued on March 20, 2009. It identified the SDS Project described in this draft FWMP as the Preferred Alternative. The SDS Project has been determined to cause “the least damage to the biological and physical environment” (Reclamation 2009).

The SDS Project will cross wetlands and other waters of the United States. The SDS Project requires a Clean Water Act Section 404 – Discharge of Dredged or Fill Material Permit from the USACE.

The SDS Project will result in permanent impacts to approximately 0.2 acres of jurisdictional wetlands, and permanent impacts to approximately 12.0 acres of non-jurisdictional wetlands. A Section 404 permit application has been submitted for the SDS Project. Project Participants are in the process of defining, in consultation with the CDOW and USACE, the wetlands that will be created as compensatory mitigation for the Section 404 permit application (Colorado Springs Utilities 2009).

This draft FWMP is prepared to satisfy the requirements of C.R.S. 37-60-122.2. The first portion of this statute states:

(1)(a) The general assembly hereby recognizes the responsibility of the state for fish and wildlife resources found in and around state waters which are affected by the construction, operation, or maintenance of water diversion, delivery, or storage facilities. The general assembly hereby declares that such fish and wildlife resources are a matter of state-wide concern and that impacts on such resources should be mitigated by the project applicants in a reasonable manner. It is the intent of the general assembly that fish and wildlife resources that are affected by the construction, operation, or maintenance of water diversion, delivery, or storage facilities should be mitigated to the extent, and in a manner, that is economically reasonable and maintains a balance between the development of the state's water resources and the protection of the state's fish and wildlife resources.

FWMPs for water projects considered under C.R.S. 37-60-122.2 are to be developed by the project applicant, working in cooperation with CDOW, and submitted to the CWC. Upon approval, the CWC forwards the mitigation plan to the CWCB for approval (CDOW 2009a). The FWMP, as approved by the CWCB and confirmed by the Governor, constitutes the official state position concerning a water project.

At the county and city levels, the SDS Project is subject to a variety of regulatory reviews and associated mitigations. Of these regulatory reviews, the Pueblo County 1041 Permit No. 2008-002 (1041 Permit) has notably comprehensive and extensive mitigation requirements. These mitigation requirements are detailed in the SDS 1041 Permit Terms and Conditions approved by the Pueblo Board of County Commissioners on March 18, 2009.

The extensive mitigations required under the permits described above are summarized in **Table 2**.

1.4 History of Partnership

The components outlined in this draft FWMP continue the strong history of partnership between Colorado Springs Utilities (Springs Utilities) and CDOW. Springs Utilities has worked with CDOW to use many of Springs Utilities' water supply facilities to promote habitat for fish and wildlife, and to provide recreational opportunities for the public, such as the greenback cutthroat trout recovery program, Pikeview Reservoir, and the North Slope Recreation Area.

1.4.1 Greenback Cutthroat Trout Recovery Program

The reservoirs and streams that make up Springs Utilities' South Slope Pikes Peak Collection System were developed as greenback cutthroat trout habitat. The program provides a feral broodstock and refugia population that is also a source of greenback cutthroat eggs.

1.4.2 Reservoirs and Recreation Areas

Springs Utilities has water supply reservoirs from which water is ultimately transported to its treatment plants for potable use. Some of these reservoirs (Rosemont, Rampart, Pikeview, Stanley, North Catamount, South Catamount, Crystal Creek, Prospect, Quail, and Nichols) are stocked by CDOW, with Springs Utilities allowing year-round fishing and recreation at many of them. In the North Slope Recreation Area, activities include bank and boat fishing, non-gasoline powered boating, mountain biking, picnicking, hiking, and scenic enjoyment.

1.5 Fish and Wildlife Mitigation Plan Partnership Goals

This draft FWMP was developed by the Project Participants working in close collaboration with the CDOW.

Project Participants intend, through the planning process for the SDS Project, to work in collaboration with federal, state, and local agencies, as well as non-profit groups. To date, the Project Participants have worked with a broad range of entities concerned with fish and wildlife protection. These include, among others:

- **Federal:** Reclamation, USACE, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service (USFWS), and the U.S. Geological Survey (USGS)
- **State:** CDOW, Colorado Department of Public Health and Environment (CDPHE), and CWCBC
- **Local:** Pueblo County, El Paso County, and the Fountain Creek Watershed, Flood Control, and Greenway District (District)
- **Non-profit groups:** Fountain Creek Visioning Task Force, Trout Unlimited, and the National Audubon Society

2.0 Avoidance and Minimization

Throughout the SDS Project development process, the Project Participants maintained a goal of building an environmentally responsible project by avoiding and minimizing impacts of the project. As project impacts were identified during development of the Environmental Impact Statement (EIS) and analyses for the Section 404 permit application, the Project Participants took necessary steps to avoid and offset adverse impacts to aquatic and wildlife resources, including making the following changes to the original Proposed Action to avoid, and thus reduce, impacts of the SDS Project:

- Avoid impacts to 6.2 acres of jurisdictional wetlands (6.1 acres of permanently affected wetlands and 0.1 acres of temporarily affected wetlands) and the existing population of Arkansas darter by changing the terminal storage component of the SDS Project from Jimmy Camp Creek Reservoir to UWCR.
- Avoid impacts to wetlands in Williams Creek by routing return flows from WCR to Fountain Creek through a pipeline, instead of modifying the existing stream channel to convey these flows. This change avoids impacting 9.4 acres of jurisdictional wetlands (4.9 acres of permanent impacts and 4.5 acres of temporary impacts). This change also avoids affecting Arkansas darter habitat. The Arkansas darter is a state-listed and federal-candidate threatened species. Arkansas darter habitat was found in the area of Fountain Creek near the confluence of Williams Creek and Fountain Creek.
- Relocation of the proposed alignment of Bradley Road near the UWCR site provides an ancillary benefit by avoiding impacts to a pair of nesting golden eagles, ensuring the relocated Bradley Road is no closer than ½-mile to the nest.
- Avoid locations of the Needle and Threadgrass – Blue Grama grassland community at the north end of the Jimmy Camp Creek Reservoir site. Exclusion of this reservoir from the project avoids interference with the Sand Creek Ridge Potential Conservation Area (CNHP 2005a).

The avoidance and minimization efforts by the Project Participants are further detailed in the Section 404 permit application prepared for the USACE, which also documents that the SDS Project is the Least Environmentally Damaging Practicable Alternative under the Section 404 program.

As the final design progresses, the Project Participants will undertake the following efforts to avoid environmental impacts:

- Design final alignments and facilities to avoid or minimize wetland impacts.
- Assess alternative construction methods for pipeline crossings (e.g., directional drilling versus open cut) to minimize wetland and stream impacts.
- Review locations of high-quality grasslands, shrublands and woodlands, and other areas with desirable vegetation to determine design changes to the extent practical within the current NEPA study area that will avoid and minimize impacts. This includes pre-construction surveys for areas with known populations of dwarf milkweed and other plant species of concern to locate areas where impacts can be avoided and minimized.

- Construction planning will include conducting wildlife surveys, (e.g., burrowing owls, swift fox, prairie dogs, raptors, and mountain plover), in accordance with standard protocols (CDOW) to minimize disturbance and/or temporarily restrict construction in areas of seasonally sensitive habitat. When habitat disturbance is unavoidable, the Project Participants will develop mitigation plans, construction schedules, and reseedling/reclamation programs to optimize habitat recovery.

3.0 Fish and Wildlife Mitigation

The CDOW and the Project Participants have worked together to ensure reasonable mitigation measures are in place for the SDS Project. These measures address impacts to fisheries and aquatic habitat, wetland and riparian habitat, and wildlife habitat. Sections 3.1 through 3.3 summarize the relevant project impacts identified in the FEIS, identify the specific mitigations proposed as part of this CDOW mitigation plan, and provide a schedule for completing the mitigation measures. A summary of the proposed mitigation components is provided in **Table 1**.

3.1 Fisheries and Aquatic Habitat

3.1.1 Aquatic Life in Streams and Rivers

The key stream and river resources affected by the SDS Project are the upper Arkansas River (above Pueblo Reservoir), the lower Arkansas River (below Pueblo Reservoir), Fountain Creek below the confluence with Monument Creek, and Monument Creek downstream of Garden of the Gods Road. The upper Arkansas River is characterized by steep-gradient, high-velocity flows that are confined to a relatively narrow rock and cobble stream channel. The upper Arkansas River supports cold water fisheries, with brown trout being the most abundant species. As the Arkansas River progresses downstream, it becomes characterized by flatter gradients, with the stream channel changing to a shifting sand channel that meanders along the alluvial flood plain. The lower Arkansas River and Fountain Creek primarily support warm water native fish communities. Fountain Creek is inherently an unstable aquatic system that is routinely subject to flash flooding, high variation in flow due to existing conditions, and agricultural use and related impacts.

Impact

Upper Arkansas River

The FEIS found that upstream of Cañon City, the SDS Project would not change the hydrology from existing conditions and would therefore have negligible effects on aquatic life. Downstream of Cañon City, the analysis found that there would be lower minimum stream flows and more fluctuation of flows as compared to existing conditions, which could result in a minor adverse impact to aquatic life (Reclamation 2008, FEIS Section 3.10.9.1).

Arkansas River Downstream of Pueblo Reservoir

The FEIS found that the SDS Project will cause slightly more frequent daily fluctuations in Arkansas River stream flow than existing conditions due to compliance with the City of Pueblo Flow Management Program (PFMP) in the reach from Pueblo Reservoir to Wildhorse Creek. The impact from this change on aquatic life will be negligible (Reclamation 2008, FEIS Section 3.10.9.1); however, impacts to recreational fishing are expected.

The SDS Project impacts to angling recreation on the Arkansas River downstream of Pueblo Reservoir were based on the number of days that flows will meet the PFMP targets. The SDS Project will positively increase the number of days that the PFMP targets are met (Reclamation 2008, FEIS Section 3.14.5). The impact of the SDS Project on the fishery that is

stocked and managed by CDOW in this reach of the Arkansas River is expected to result in negligible permanent effects to angling opportunities. There will be temporary adverse effects due to interruptions in angling access caused by the construction of the Pueblo Dam Connection (water intake) facilities.

In the reach from Wildhorse Creek to Fountain Creek, the FEIS determined that there would be moderate adverse effects from the SDS Project due to lower stream flows in winter months (Reclamation 2008, FEIS Section 3.10.9.1).

Fountain Creek

The SDS Project would result in higher minimum stream flows, higher average stream flows, higher maximum stream flows, more fluctuations, and lower fish habitat availability for most species in Fountain Creek, although habitat availability for adult flathead chub would be higher in typical and dry years. These differences would be unfavorable to most fish and invertebrates, resulting in minor adverse effects (Reclamation 2008, FEIS Section 3.10.5.1) that may result in alterations of fish composition, distribution, and abundance.

Mitigation – Flow Management

Changes to stream flow due to the operation of water collection and conveyance systems can affect native fish communities and their habitats, as well as recreational angling.

One way to protect aquatic life and recreational angling is through flow management programs. Springs Utilities is committed to continued participation in the flow management programs for which they have existing agreements, including the Upper Arkansas Voluntary Flow Management Program (UAVFMP), the PFMP, the Arkansas River Low Flow Program (ARLFP), and the Flow Management Committee for the PFMP.

The UAVFMP was designed to provide water for fisheries and recreation in the upper Arkansas River by providing target flows from Twin Lakes and Turquoise Lake to Pueblo Reservoir. Components of the UAVFMP include maintenance of minimum year-round flow, maintenance of minimum stream flow stage during spawning season and throughout the winter incubation period, maintenance of minimum flows during spring for egg hatching and fry emergence, augmentation of summer flows for recreational purposes, limitation of daily stream flow changes, and reductions in early fall flows if benefits warrant. Springs Utilities has participated in this voluntary program with 99 percent compliance since 1990.

The PFMP, which sets target flows on the Arkansas River through the City of Pueblo, is based on a 2004 Intergovernmental Agreement between Colorado Springs, the Board of Water Works of Pueblo, the City of Aurora, and the Southeastern Colorado Water Conservation District. Springs Utilities has participated in the PFMP since March 2004.

The ARLFP's goal is to promote the biological health of the Arkansas River and the success of the Corridor Legacy Project. The ARLFP is an agreement in which the Board of Water Works of Pueblo and Springs Utilities each make 1,500 ac-ft of water stored in Pueblo Reservoir available to be released during times when the flow in the river at the Above Pueblo Location (defined as Above Pueblo Gage plus hatchery return flows) is less than 50 cfs. Springs Utilities' participation in this program will begin when the SDS Project begins water delivery, which is scheduled for 2016.

Springs Utilities will be required to adhere to flow management programs as described above as part of their long-term contracts with Reclamation.

Mitigation – Aquatic Habitat

Springs Utilities will support CDOW efforts to preserve and enhance fishery and occupied Arkansas darter habitat as a component of projects developed through the District, or other agencies, insofar as the efforts meet the requirements of the 1041 Permit. An example includes the use of channel realignment projects to control water flow and sediment distribution on lower Fountain Creek to improve fish habitat and riparian habitats.

Mitigation – Aquatic Life

Springs Utilities will implement the following aquatic life monitoring and mitigation activities. These mitigation measures are included in the ROD. Reclamation will oversee these mitigation measures:

- The effects of the operation of the SDS Project upon aquatic life in Fountain Creek will be monitored. Aquatic sampling will be conducted once per year at up to 13 locations. Information obtained from this monitoring effort will be incorporated into the adaptive management program for the SDS Project.
- Research will be conducted on selected representative fish species, but with an emphasis on flathead chub, to determine life history factors (such as migration, spawning, and dispersal patterns; spawning timing and location; egg deposition/movement, fry distribution and habitat utilization; rearing and adult habitat selection; and species interactions) and the relationship to water flow, water quality, and habitat parameters most likely to be influenced by SDS Project operations. Support of this research project will be conducted initially in the years 2011 through 2013, and for one year in the 2020 to 2025 timeframe.
- The ROD also directs Springs Utilities to monitor aquatic life in the Arkansas River from Pueblo Dam to the Las Animas Gage. As stated, effects on aquatic life in the segment from the Fountain Creek confluence to the Las Animas gage are predicted to be negligible to minimal based on hydrologic models. This includes monitoring the effects of the operation of the project upon aquatic life in Fountain Creek and the Arkansas River, and coordinating these efforts to meet goals stated in the ROD, 1041, and FWMP. Aquatic monitoring will be conducted annually in collaboration with the USGS and CDOW. Information obtained from this monitoring effort will be incorporated into the adaptive management program for the SDS Project.
- Project impacts on the Arkansas River between Pueblo Dam and the Fountain Creek confluence are expected to be minimal, however, changes in flow may have a more direct effect upon fishing recreation. Due to the high visibility and angler use within this segment of the river through the City of Pueblo, an assessment of SDS Project operations on fishing recreation flows is appropriate. The CDOW will conduct studies to determine angling use as related to flows. This may include creel surveys and fishery monitoring completed as part of regular CDOW fishery management activities. Springs Utilities will comply with flow management agreements and programs as described above, and consider necessary changes under the adaptive management plan.

3.1.2 Reservoir Fisheries

Pueblo Reservoir is a large storage reservoir located on the Arkansas River in Pueblo County, about 6 miles upstream and west of the City of Pueblo, as shown in **Figure 2**. Pueblo Dam was built by Reclamation between 1964 and the mid-1980s as part of the

Fryingpan-Arkansas (Fry-Ark) project and is a multipurpose, trans-mountain water diversion and delivery project in southern and central Colorado. The Fry-Ark Project makes available water diverted from the Western Slope and, together with available water supplies in the Arkansas River Basin, provides an average annual water supply of 73,300 ac-ft primarily for the supplemental irrigation of 280,600 acres in the Arkansas Valley, as well as municipal and industrial use (Reclamation 2008, FEIS Section 1.4.1). The SDS Project is seeking contracts to use 42,000 ac-ft of excess storage capacity in Pueblo Reservoir. Excess capacity contracts would allow the Project Participants to store non-Fry-Ark Project water in excess Fry-Ark storage space. Pueblo Reservoir is located within Pueblo State Park and is a key fishing recreation resource along the Front Range. The lake is both a warm- and cool-water fishery (for black and white bass, wipers, walleye, catfish, crappie, and bluegill) and also affords a cold-water fishery for rainbow trout due to the diverse thermal regime.

Lake Henry and Lake Meredith are off-channel reservoirs along the lower Arkansas River that are part of the Colorado Canal System, as shown in **Figure 2**. These reservoirs are used to exchange flows from the Colorado Canal to the upper Arkansas River Basin, and have storage volumes of approximately 10,000 ac-ft and 40,000 ac-ft, respectively. Both lakes are warm-water fisheries for numerous species, especially stocked catfish, saugeye, and wipers, and they are habitat for invertebrates typical of reservoirs in the area.

Impact

The SDS Project would use WCR to exchange reusable return flows from Fountain Creek to Pueblo Reservoir, reducing the potential to exchange Colorado Canal System water into Pueblo Reservoir. At full capacity (in the 2050 timeframe), the SDS Project would reduce average water surface elevations and depths from 0.3 to 1.2 feet in Lake Henry and Lake Meredith, and up to 6.0 feet in Pueblo Reservoir (Reclamation 2008, FEIS Section 3.5.5.1). This reflects a reduction in water surface area of at least 257 acres at Pueblo Reservoir, 161 acres at Lake Meredith, and 86 acres at Lake Henry. Generally, lower reservoir water levels may be expected to decrease available spawning/rearing habitat, increase water flushing rates and the potential for fish emigration out of the reservoirs, and impair productivity and feeding, as characterized in the FEIS as minor adverse impacts at Pueblo Reservoir and moderate adverse impacts at Lake Henry and Lake Meredith. Decreases in water surface area of these project reservoirs may result in a decline in recreational fishing use.

The overall decline in water levels in Pueblo Reservoir may increase the potential for invasion by non-native vegetation species at the upper end of the reservoir (which is part of the CDOW Pueblo State Wildlife Area). Mitigation for vegetation impacts is discussed in Section 3.2.1 of this draft FWMP.

Mitigation – Fish Stocking

Increased stocking of advanced fingerlings is one mitigation option, along with others listed below, to offset potential losses of fishery stocks in Pueblo Reservoir, Lake Henry, and Lake Meredith due to SDS Project operations by stocking these and SDS Project reservoirs through cooperative funding for increased CDOW production capability for fry and advanced fingerling fish (in addition, fish stocking is also being proposed for fishery enhancement at UWCR). Current CDOW warm water fish production is inadequate to compensate for the additional fish stocking that may be needed. Fish hatchery facilities could be built at new or existing hatchery locations commensurate with the required fish stocking as determined by CDOW. An additional 3.76 million fry and advanced fingerling

warm-water fish are contemplated to be required with full build out of the SDS Project (CDOW Fish Stocking and Production White Paper, 2009).

Mitigation – Fish Retention Structures

Proposed mitigation for increased water level fluctuations and fish emigration is to install fish screens at the outlet works at Lake Henry. These screens would prevent fish passage out of the lake when flow is released, while also preventing vegetation from blocking or impeding flows out of the reservoir. Based on communication with CDOW personnel, adequate screens and control facilities are currently in place at Lake Meredith to prevent fish emigration. However, an improved access structure would provide by Project Participants to improve access for manual vegetation removal from existing screens.

Mitigation – Fish Habitat Improvement

CDOW will place habitat structures in Lake Henry, Lake Meredith, and Pueblo Reservoir to provide for increased survival of juvenile fish and for refugia that will enable fish to utilize structure during drawdown periods. Project Participants will provide mitigation funding to purchase habitat structure materials that will be placed by CDOW, and will also support these improvements by providing materials (e.g., recycled construction material).

3.1.3 Invasive Species

Aquatic nuisance species control associated with operations at Pueblo Reservoir and SDS Project reservoirs is of high importance to the CDOW fisheries management and regional municipal water users, especially regarding control of the zebra mussel (*Dreissena polymorpha*) and quagga mussel (*Dreissena bugensis*). Zebra and quagga mussels are present in Pueblo Reservoir and could spread to new and existing facilities through raw pipeline water delivery systems (Reclamation 2008, FEIS Section 3.10.5.1).

Impact

The mussel larval stage (veliger) could be transported through the untreated water pipeline to the terminal storage reservoir and other facilities where these invasive species may become established. The SDS Project will not impact invasive mussels in Pueblo Reservoir.

Mitigation

Mitigation for mussels will be aimed at preventing their spread through the SDS Project pipeline. This will not include any measures to reduce populations in Pueblo Reservoir.

A “T” connection to the River Outlet Works piping will be installed during construction of the intake for the SDS Project. This connection will allow for a mussel control system to be implemented in the future if it is deemed necessary.

3.2 Wildlife Habitat

3.2.1 Vegetation

Impact

The project would have major permanent effects on Upland and Mesic Native Grasslands largely as a result of reservoir construction and minor permanent effects on Shrublands and Woodlands. Other types of vegetation could be expected to experience negligible to minor

impacts (Reclamation 2008, FEIS Section 3.12.5.1). Additionally, lowering of water levels and water surface area at Pueblo Reservoir may indirectly increase the spread of tamarisk.

Mitigation

Springs Utilities will implement the following vegetation mitigations to maintain and improve wildlife habitat as specified in the ROD. Reclamation will oversee these mitigation measures:

- Replace mature trees (diameter at breast height of 12 inches or greater) within construction areas at a 1:1 ratio with the same or similar native species with available nursery container stock or pole plantings as soon as practicable after construction activities have ended.
- For 1 year after construction, monitor the construction areas to determine if appropriate native vegetation is establishing. If native vegetation is not establishing, the site will be reseeded with appropriate species.
- After identifying vegetation populations to avoid, mark populations within or nearby the construction easement as environmentally sensitive so that workers avoid inadvertent impacts.
- During construction, wash major construction equipment entering the site so that noxious weeds are not spread from other construction sites.
- Use certified weed-free mulch after seeding construction areas.
- Reseed construction areas with comparable native vegetation as soon as practicable after disturbance, using seed that does not contain any noxious weed seed.
- Monitor construction areas for 3 years after construction to assess whether noxious weeds have invaded the site. If noxious weeds are present, weed control plans will be formulated and implemented.
- Because the project may indirectly increase the spread of tamarisk, the Project Participants will work with the Colorado Department of Agriculture's Colorado Noxious Weed Management Team on high priority tamarisk infestation areas in the Arkansas Valley, including submitting a Request for Partnership Evaluation. Due to its topography, the inlet area of Pueblo Reservoir may potentially be one of the special areas of interest. CDOW would be a cooperator in these efforts because of its management of the Pueblo State Wildlife Area in that vicinity.

3.2.2 Wildlife

Impact

The project would have negligible effects on federally listed species or critical habitat. Impacts to other wildlife species and habitat were found to be negligible to moderate (Reclamation 2008, FEIS Section 3.13.5.1).

Mitigation

In addition to submitting this FWMP, Springs Utilities will implement the following wildlife mitigation measures. These measures were specified in the ROD and will be overseen by Reclamation.

- Promptly revegetate all disturbed areas with native species that provide species diversity, and food and cover for large game and wildlife.

- Conduct clearance surveys in suitable habitat for state-listed species following standard protocols, as available, prior to construction (e.g., prairie dogs, burrowing owls, and mountain plover).
- Conduct raptor nest surveys prior to construction and impose seasonal restrictions to surface activity within recommended buffers (generally $\frac{1}{4}$ to $\frac{1}{2}$ mile) around active raptor nest sites and heron rookeries during construction.
- Consult with CDOW and the USFWS Migratory Bird Permit Office to develop mitigation for unavoidable loss of raptor nests. Options may include constructing artificial nests in suitable habitat or enhancing prey habitat.
- Develop construction schedules to avoid impacts to nesting migratory birds. If construction is scheduled to occur during the nesting season (April 1 through August 31) in areas where migratory birds may nest, a qualified biologist will conduct a nesting bird survey prior to the commencement of construction activities to determine the presence of migratory birds and their nests. If an active nest is detected, a buffer zone between the nest and the limit of construction will be flagged and avoided during the nesting season, or construction will be scheduled outside of the nesting season.
- Conduct pre-construction surveys for swift fox den sites within appropriate habitat along the pipeline corridor and proposed reservoir sites. Avoid surface disturbance within $\frac{1}{4}$ -mile of active den sites while young are den-dependent (March 15 through June 15).
- Restrict pesticides for rodent control within swift fox overall range.
- Impose seasonal restrictions on construction to avoid sensitive big game winter range habitat (from first large snowfall to summer green-up).
- Install wildlife crossovers (trench plugs) during pipeline construction with ramps on each side at a maximum of $\frac{1}{4}$ -mile intervals and at well-defined game trails.
- Create additional nesting habitat or nest boxes in nearby trees for the Lewis' woodpecker when nest trees are destroyed.

By replacing native vegetation and improving natural population diversity in certain areas, the long-term effects on wildlife should be reduced by allowing wildlife to return to disturbed areas. Pre-construction surveys will identify wildlife use at the time of construction and allow for planning for avoidance and minimization. Imposing seasonal or other restrictions on construction should enable wildlife to use important habitat, especially during breeding and other critical periods. Wildlife crossovers installed within the pipeline trench should facilitate wildlife passage and provide escape routes for wildlife trapped within the trench, thereby reducing mortality (Reclamation 2009).

3.3 Wetlands and Riparian Habitat

Impact

Wetland impacts are described in detail in the Section 404 Individual Permit application prepared for the SDS Project (CH2M HILL 2009). Approximately 0.2 acres of Section 404 jurisdictional wetlands and approximately 12.0 acres of non-jurisdictional wetlands are affected.

Mitigation – Commitments in the ROD

Springs Utilities will implement the following wetland, water, and riparian mitigations to maintain and improve fish and wildlife habitat as specified in the ROD. Reclamation will oversee these mitigation measures:

- Mitigate impacts to jurisdictional and non-jurisdictional wetlands at the place of disturbance where possible. Construct compensatory wetlands to replace existing wetland functions and values. Compensatory wetland mitigation will likely occur at the Clear Spring Ranch (CSR) site on Fountain Creek downstream of the City of Fountain.
- Evaluate and consider a strategy to increase the sinuosity of Fountain Creek at appropriate locations so that wetlands areas can be created.

Mitigation – Commitments at Clear Spring Ranch

Springs Utilities' CSR, located just south of the City of Fountain, was selected as the site for mitigation of the 0.2 acres of jurisdictional wetland impacts. A Compensatory Mitigation Plan (CMP) is being developed with the Section 404 permit application to address the 0.2 acres of jurisdictional wetland impacts. The 12.0 acres of non-jurisdictional wetland impacts will be mitigated in the future per Reclamation requirements.

The CMP addresses the mitigation of wetland impacts at a 1:1 ratio and fits into the larger watershed vision of the Strategic Plan for the Fountain Creek Watershed (Fountain Creek Vision Task Force 2009). This vision was developed by a large stakeholder group, including government agencies, local municipalities, businesses, non-profit groups, and private citizens, with a long-term goal to restore and revitalize the Fountain Creek ecosystem for wildlife habitat, fishing, and recreation. Mitigation goals proposed in the CMP at CSR include:

- Creation of over 12 acres of high-function wetland and riparian habitat
- Restoration and stabilization of the Fountain Creek channel at select locations
- Enhancement and revitalization of portions of the ecosystem at CSR
- Improvement of water quality by reduction of erosion and sediment
- Protection of habitat through a conservation easement

3.4 Water Quality and Geomorphology

3.4.1 Water Quality

Fountain Creek is an aquatic system that is routinely subject to flash flooding, erosion, high variation in flow, and agricultural practices and related impacts. Water quality concerns in Fountain Creek include:

- Increased bacterial concentrations, particularly *E. coli*, associated with urban and agricultural runoff that have created a potential hazard to recreational users of the creek
- Salinity levels that are elevated are of some concern, although they do not impact agricultural water uses nor do they require extraordinary treatment for domestic use

Mitigation – Water Quality

In accordance with the Recommended Terms and Conditions and Mitigation of Project Impacts developed for the 1041 Permit, the following mitigation measures will be implemented by the Project Participants:

- Sampling will be conducted monthly for dissolved selenium, *E. coli*, ammonia, and salinity at 13 monitoring locations within the Fountain Creek Basin and Arkansas River, beginning with project construction, then quarterly once the SDS Project is online.
- The inlet and outlet to WCR will be monitored for methyl mercury on a quarterly basis following the start of reservoir operations for a period of one year, then annually for 4 years thereafter.

Project Participants will likely combine the FEIS/ROD and Pueblo County 1041 monitoring programs into one program that meets the adaptive management objectives stated in Appendix F of the FEIS (Reclamation 2008).

3.4.2 Geomorphology of Fountain Creek

Fountain Creek has relatively stable and healthy sections, as well as areas of extreme instability. These instabilities cause the channel banks and bottom to move and erode, generating significant amounts of sediment that are often deposited farther downstream, creating a muddy appearance. Geomorphic processes along Fountain Creek can impact wetlands, riparian vegetation, water quality, and species habitat.

Impact

The SDS Project could cause minor erosion in the upstream reach of Fountain Creek because of an increase in movement of larger sediment due to increased base flow (Reclamation 2008, FEIS Section 3.9.5.1). Long-term effects may increase erosion and negatively affect stream sinuosity and/or slope. The SDS Project could also cause moderate adverse effects due to sedimentation in the lower reach of Fountain Creek (Reclamation 2008, FEIS Figure 81).

Mitigation

Springs Utilities will implement the following geomorphic mitigation measures that are included in the ROD. Reclamation will oversee these mitigation measures:

- Develop a geomorphic mitigation plan that may contain the components outlined below:
 - Evaluate and consider strategies to remove sediments that reduce the effectiveness of USACE levees located near Fountain Creek at its confluence with the Arkansas River.
 - Evaluate and consider strategies to increase the sinuosity of Fountain Creek at appropriate locations on CSR to reduce undesirable erosion and sedimentation.
 - Evaluate and consider strategies at appropriate locations along Fountain Creek to reduce undesirable erosion and sedimentation.
- Complete geomorphic mitigation, including channel stabilization projects and non-structural options such as conservation easements, before the project is operational.
- Design and construct an energy dissipation structure that will protect against erosion at the outlet of the pipeline from WCR to Fountain Creek.

- Evaluate and implement appropriate future geomorphic stabilization projects, if such future projects are determined to be necessary after the project is operational.

In accordance with the Recommended Terms and Conditions and Mitigation of Project Impacts developed for the Pueblo County 1041 Permit No. 2008-002, the following mitigation measures will be implemented by the Project Participants:

- Reduce the sediment load in lower Fountain Creek through dredging and the construction of sediment collection devices. The project will assist the City of Pueblo in preserving the flood protection of the Fountain Creek levees at or above the 100-year flood level.
- Conduct geomorphic monitoring at ten cross-sections along Fountain Creek to monitor degradation, aggradation, and other changes to the geomorphologic surface. Each cross-section will be surveyed once per year during low stream flow.
- Implement a monitoring program to provide information on the current water quality and geomorphology (including erosion, sediment loading, and channel stability conditions) in Fountain Creek and the Arkansas River, and to track changes over time. The monitoring will assist in the selection of SDS Project mitigation measures and in the assessment of the effectiveness of mitigation measures on Fountain Creek and the Arkansas River.

3.5 Adaptive Management Plan

The SDS Project will implement an approved Environmental Management System, which will be a condition of the long-term contracts with Reclamation, to establish procedures for compliance with laws, regulations, permit requirements, and mitigation measures (Reclamation 2009). As part of the Environmental Management System, adaptive management principles will be used to address unforeseen conditions. Adaptive management is defined as “a decision process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood” (Department of the Interior 2008). The mitigation measures implemented for the SDS Project will be monitored and modified as needed to ensure effective environmental stewardship.

The data generated through monitoring programs for aquatic life, water quality, and flow will be used to respond to changes in environmental conditions, adjust to unanticipated impacts of project implementation, or modify mitigation measures to improve effectiveness. If required, additional mitigation responses will be conducted in accordance with the adaptive management plan.

In the event that operation of the SDS Project causes, or threatens to cause, stream flows in Fountain Creek or the Arkansas River to diminish to low levels that could contribute significantly to the impairment of aquatic life, Springs Utilities will coordinate with Reclamation, CDPHE, CDOW, and other interested parties to evaluate and select measures to mitigate adverse effects. Actions will be conducted in accordance with the SDS Project adaptive management plan approved by Reclamation.

4.0 Benefits and Enhancements

In addition to the fish and wildlife impact avoidance actions described in Section 2 and the mitigation components discussed in Section 3, the SDS Project will provide substantial recreational benefits to the region. The Project Participants are committed to working with CDOW and other interested parties to enhance the recreational opportunities associated with the SDS Project facilities. As stated in the ROD, Project Participants will “seek opportunities to enhance angling, boating, or other recreation opportunities” (Reclamation 2009). Meetings with the CDOW during early to mid-2009 resulted in the identification of priority projects and the areas selected for recreation planning include CSR on Fountain Creek, UWCR, and WCR, as detailed below.

4.1 Clear Spring Ranch

The following recreational opportunities for CSR are being evaluated by Project Participants and CDOW as potential SDS Project enhancements.

Clear Spring Ranch is a biologically diverse property owned by Springs Utilities. While Springs Utilities currently allows hiking and wildlife viewing at CSR, additional multi-use recreation and environmental education opportunities are planned for this location. Recreational features may include hunting access and upgrades to the current trail system with environmental interpretative signage and wildlife observation points.

Hunting was allowed previously at CSR; CDOW is interested in restoring that opportunity and has requested that the Project Participants offer a new lease agreement to allow limited and controlled hunting access for species such as turkey, deer, doves, and water fowl. Other programs may include hunting and fishing outreach, and skills training activities.

4.2 Upper Williams Creek Reservoir

The following wildlife recreational benefits will be provided by Project Participants as SDS Project enhancements:

- A recreational fishery will be developed and managed by CDOW by stocking warm water species and trout (See Section 3.1.2, Mitigation – Fish Stocking). Discussions with CDOW personnel have indicated that warm water hatchery production is currently inadequate to provide the needed fish for stocking of UWCR, and CDOW has requested that the Project Participants help address this issue. The CDOW will accommodate the costs of increased trout production and stocking at UWCR.
- Project Participants will develop aquatic habitat at UWCR through the construction and placement of habitat structures within the reservoir. Enhancements could also potentially include water level manipulation for the benefit of certain species. Given the current plant and soil conditions at the proposed reservoir site, ample opportunities exist for aquatic habitat improvements and enhancements. The lack of existing large woody debris (trees, shrubs, etc.) can be mitigated with the placement of artificial fish habitat.

- To provide for dispersed fishing recreation and wildlife viewing at UWCR, the Project Participants will work, through a public process, toward construction of appropriately planned trails, roads, and parking lots around the reservoir. This construction will address access, security, and safety issues at the dam site.
- In an effort to minimize sedimentation/erosion of spawning areas, and to allow shore angler access, two rock jetties will be constructed. These rock jetties should be located in the wakeless area of the reservoir.

4.3 Williams Creek Reservoir

The following recreational facilities are being proposed by Project Participants at WCR as potential SDS Project enhancements.

Enhancements could involve similar recreational features planned for CSR, including small game hunting and establishment of a trail system with environmental interpretative signage and wildlife observation points. While hunting access has not been conducted in this area historically, similar agreements to those proposed for CSR may be proposed that include similar opportunities and restrictions.

4.4 Additional Reservoir Benefits

The Project Participants will seek opportunities to enhance angling, boating, or other recreation opportunities at Lake Henry, Lake Meredith, and Holbrook Reservoir (Reclamation 2009). One approach is to look for ways to make these water bodies less vulnerable to water level fluctuations. In addition, Project Participants will work with CDOW on placement of fish habitat structures (See Section 3.1.2, Mitigation – Fish Habitat Improvement).

5.0 Cost and Schedule of Mitigation Components

As discussed previously, the SDS Project is to be constructed in two main phases. Phase 1, includes the Pueblo Dam outlet works modifications, raw and finished water pipelines, pump stations, and WTP, and is currently scheduled for completion in 2016. Phase 2, which includes construction of the terminal storage reservoir at UWCR and the exchange flow system and reservoir at WCR, is estimated to occur in the 2020 to 2025 timeframe. The fact that the SDS Project will be constructed in these two phases over an extended period of time, with some impacts not occurring for many years, lends itself to a framework that recognizes the environmental benefits of consolidating and developing certain mitigation plans in advance of SDS Project completion.

Table 1 includes a summary of Project Participant mitigation and benefit commitments specific to this CDOW Fish and Wildlife Mitigation Plan and covering the initial 40 year term of the BOR contract period.

Table 2 includes a summary of the mitigation activities required of the SDS Project by other agencies including the estimated cost and schedule associated with each commitment.

Once approved by the Colorado Wildlife Commission and Colorado Water Conservation Board, CDOW and Springs Utilities will enter into a formal Memorandum of Understanding that describes the agreements and commitments for implementation of this Fish and Wildlife Mitigation Plan as outlined in Table 1.

6.0 Conclusions

The studies completed by Reclamation for the FEIS have documented the impacts of the SDS Project on fish and wildlife resources. This draft FWMP presents a broad range of avoidance, minimization, and mitigation actions to address these anticipated impacts. These actions have largely been required as conditions of Reclamation's ROD or as conditions of Pueblo County's 1041 permit, with compliance enforced by those agencies.

In compliance with C.R.S. 37-60-122.2, this draft FWMP also identifies additional actions by the Project Participants that provide benefits of the SDS Project to fish and wildlife above and beyond mitigating the SDS Project's impacts. The timing of the mitigations has been proposed to coincide, to the degree possible, with the commencement of the impact. **Table 1** summarizes the various CDOW-specific mitigation commitments and the SDS Project benefits, including the estimated cost and proposed schedule for each.

The Project Participants request that CDOW staff:

1. Approve this FWMP under C.R.S. 37-60-122.2.
2. Submit this FWMP on behalf of the Project Participants to the CWC for its review and acceptance.
3. Upon acceptance from the CWC, submit this FWMP on behalf of the Project Participants, along with a supporting letter of transmittal, to the CWCB for adoption.

7.0 References

- Bureau of Reclamation. 2008. Southern Delivery System Final Environmental Impact Statement. December.
- — —. 2009. Record of Decision for the Southern Delivery System Project Final Environmental Impact Statement. Record of Decision Reference No. GP-2009-01.
- CDOW. 2009. Fish Stocking and Production Whitepaper.
- CH2M HILL. 2009. Southern Delivery System Clean Water Act Section 404 Individual Permit Application. April 24.
- — —. 2009. Section 404 Individual Permit Application.
- Department of the Interior. 2008. Departmental Manual, Environmental Quality Programs. February 1.
- Fountain Creek Vision Task Force. 2009. Strategic Plan for the Fountain Creek Watershed. Finalized by the Fountain Creek Vision Task Force on March 10, 2009.

Tables

TABLE 1
CDOW Summary of Proposed Mitigation Components

Category		Agency (Reclamation, Pueblo County, USACE, CDOW)	Commitment	Project Phase	Schedule for Implementation	Cost*
FISH AND WILDLIFE MITIGATION						
1. Fisheries and Aquatic Habitat						
	Fish Stocking	CDOW	<ul style="list-style-type: none">Project participants agree to provide capital funds and/or construct additional warmwater hatchery ponds for production of fish needed to offset potential losses of fishery stocks in Pueblo Reservoir, Lake Henry, and Lake Meredith due to SDS Project operations, and also support stocking UWCR, a new terminal storage reservoir for the SDS Project. The capital funds will be used for construction of 7.5 acres of fish production ponds at a CDOW fish hatchery.Project participants agree to provide O&M funds that will be used for ongoing hatchery operations for those ponds.	1 and/or 2	2016-2025	<div>\$7.5M Capital</div> <div>\$2.5M O&M</div>
	Fish Habitat Improvement	CDOW	<ul style="list-style-type: none">Project Participants will provide mitigation funding to purchase habitat structure materials that will be placed by CDOW, and will also support these improvements by providing materials.CDOW will place habitat structures in Lake Henry, Lake Meredith, and Pueblo Reservoir to provide for increased survival of juvenile fish and for refugia that will enable fish to utilize structure during drawdown periods.	2	2016-2025	\$100K
	Fish Retention Structures	CDOW	<ul style="list-style-type: none">Project participants agree to install fish screens at Lake Henry to support and maintain fish populations, and install a walkway at the existing Lake Meredith outlet to improve efficiency of screen cleaning and maintenance. Cost estimates are preliminary to design. Springs Utilities will install fish screens in cooperation with CDOW and the Colorado Canal Company.	End of 1	2016	\$150K
	Aquatic Research	CDOW	<ul style="list-style-type: none">Research will be conducted in Monument and Fountain Creeks on selected representative fish species to determine life history factors and the relationship to water flow, water quality, and habitat parameters most likely to be influenced by SDS Project operations. Baseline research will be conducted for three years prior to completion of Phase I and then for one additional year subsequent to completion of Phase II.Spring Utilities will pay for a Colorado State University student to conduct the approved research studies. CDOW will help define the scope of work for this research.	1 and 2	2011-2016 2020-2025	<div>\$225K</div> <div>\$75K</div>

* Note – The costs in this table are in 2010 US dollars and will be indexed annually at an agreed upon rate to preserve their 2010 values. Mitigation that is paid for or implemented between 2010 and 2014 will not be indexed; for mitigation paid for or implemented after 2014, annual indexing will be applied from 2011 forward..

BENEFITS AND ENHANCEMENTS						
	Clear Spring Ranch	CDOW	<ul style="list-style-type: none">Develop potential hunting opportunities and trails/wildlife viewing.	1	2012-2016	<div>Cooperative venture.</div> <div>No monetary exchange between CDOW and SDS necessary for this item</div>
	WCR	CDOW	<ul style="list-style-type: none">Develop potential hunting opportunities and trails/wildlife viewing.	2	Approx. 2025	<div>Cooperative venture.</div> <div>No monetary exchange between CDOW and SDS necessary for this item</div>
	UWCR	CDOW	<ul style="list-style-type: none">Develop angling (shore and boat), and other wildlife recreation opportunities at UWCR; including fish spawning habitat and two jetties.Provide for dispersed fishing recreation and wildlife viewing at UWCR. The Project Participants will work, through a public process, toward construction of appropriately planned trails, roads and parking lots around the reservoir. This construction will address access, security, and safety issues at the dam site.	2	2016	<div>Cooperative venture.</div> <div>No monetary exchange between CDOW and SDS necessary for this item</div>
	Improve Native Fish Habitat	CDOW	<ul style="list-style-type: none">Seek opportunities to preserve or develop Arkansas darter habitat along lower Fountain Creek and its tributaries.	2	2016 - 2046	<div>Cooperative venture.</div> <div>No monetary exchange between CDOW and SDS necessary for this item</div>

TABLE 2
Summary of Proposed Mitigation Components

Category		Agency (Reclamation, Pueblo County, USACE, CDOW)	Commitment	Project Phase	Schedule for Implementation	Estimated Cost
AVOIDANCE & MINIMIZATION						
	Relocate terminal storage	Reclamation	Avoid impacts to jurisdictional wetlands and the existing population of Arkansas darter by changing terminal storage from Jimmy Camp Creek to Upper Williams Creek. Avoid locations of Needle and Threadgrass – Blue Grama grassland community at north end of Jimmy Camp Creek Reservoir site.	Design		\$12M *
	Discharge WCR return flows to Fountain Creek	Reclamation	Avoid impacts to jurisdictional wetlands on Williams Creek and Arkansas darter habitat by routing return flows from WCR to Fountain Creek through a pipeline instead of releasing them to Williams Creek.	Design		\$22M *
	Bradley Road realignment	Reclamation	Bradley Road realignment provides ancillary benefit by avoiding impacts to a pair of nesting golden eagles.	Design		TBD
	Design review for vegetation impacts	Reclamation	Prior to final design, review locations of grasslands, high quality shrublands, woodlands, and other areas with desirable vegetation to determine design changes within the current study area that will avoid and minimize impacts.	Design		TBD
	Design review for wetland and/or stream impacts	Reclamation	Design final pipeline alignments and facilities to avoid and minimize wetland impacts. Assess alternative construction methods for pipeline crossings.	Design		TBD
	Construction planning for minimum wildlife habitat disturbance	Reclamation	Wildlife surveys will be conducted in accordance with CDOW standard protocols to minimize disturbance and/or temporarily restrict construction in areas of seasonally sensitive habitat.			
FISH AND WILDLIFE MITIGATION						
1. Fisheries and Aquatic Habitat						
	Flow Management					
	UAVFMP	Reclamation	• Participation in the Upper Arkansas Voluntary Flow Management Program.	1 and 2	In place	NA
	PFMP	Reclamation, Pueblo County	• Participation in the Pueblo Flow Management Program, which includes maintenance of target flows on the Arkansas River downstream of Pueblo Reservoir.	1 and 2	In place	NA
	ARLFP	Reclamation, Pueblo County	• Participate in the Arkansas River Low Flow Program, which is intended to minimize the possibility of flows less than 50 cfs below Pueblo Reservoir.	1 and 2	Begins 2016	NA
	Aquatic Habitat					
	Fountain Creek mitigation	Reclamation, Pueblo County, CDOW	• Provide monetary mitigation to the District for specific projects to improve water quality, flood control, or prevent erosion and sedimentation. • Support CDOW efforts to preserve and enhance fishery and occupied Arkansas darter habitat as a component of projects developed through the District, or other agencies, insofar as the these efforts meet the requirements of the 1041 Permit	1		• \$50 M • Cooperative venture. No monetary exchange between CDOW and SDS necessary for this item
	Aquatic Life					
	Aquatic Life Monitoring	Reclamation, Pueblo County, CDOW	• Monitor the effects of the operation of the project on aquatic life in Fountain Creek and the Arkansas River. Coordinate monitoring efforts to meet goals stated in the ROD, 1041, and FWMP. • Aquatic monitoring will be conducted once per year at up to 13 locations. Information obtained from this monitoring effort will be incorporated into the adaptive management plan for the SDS Project.	1 and 2	2010-2046	\$20K/yr
	Invasive Species					
	Aquatic Invasive Species Control	Reclamation	• Potential future mussel control if needed.	1 and 2	2010-2046	TBD

TABLE 2
Summary of Proposed Mitigation Components

Category		Agency (Reclamation, Pueblo County, USACE, CDOW)	Commitment	Project Phase	Schedule for Implementation	Estimated Cost
2. Wildlife Habitat						
	Vegetation					
	Vegetation	Reclamation, CDOW, Pueblo County	<ul style="list-style-type: none">• Mark environmentally sensitive vegetation within or near construction easements to avoid inadvertent impacts.• Replace mature trees (diameter at breast height of 12 inches or greater) within construction areas at a 1:1ratio with the same or similar native species with available nursery container stock or pole plantings as soon as practicable after construction activities have ended.• For 1 year after construction, monitor the construction areas to determine if appropriate native vegetation is establishing. If native vegetation is not establishing, the site will be reseeded with appropriate species.• During construction, wash major construction equipment before it enters the site so that noxious weeds are not spread from other construction sites.• Use certified weed-free mulch after seeding construction areas.• Reseed construction areas with comparable native vegetation as soon as practicable after disturbance, using seed that does not contain any noxious weed seed.• Monitor construction areas for 3 years after construction to assess if noxious weeds have invaded the site. If noxious weeds are present, weed control plans will be formulated and completed.• The project may indirectly increase the spread of tamarisk, therefore; the Project Participants will work with the Colorado Department of Agriculture's Colorado Noxious Weed Management Team on high priority tamarisk infestation areas in the Arkansas Valley, including submitting a Request for Partnership Evaluation. Due to its topography, the inlet area of Pueblo Reservoir may potentially be one of the special areas of interest. CDOW would be a cooperator in these efforts because of their management of the Pueblo State Wildlife Area in that vicinity.	1 and 2	2010-2025	Included in construction costs
	Wildlife					
	Wildlife	Reclamation	<ul style="list-style-type: none">• Promptly revegetate all disturbed areas with native species that provide species diversity and food and cover for large game and wildlife habitat.• Conduct clearance surveys in suitable habitat for state-listed species following standard protocols, as available, prior to construction.• Conduct pre-construction surveys for swift fox den sites within appropriate habitat along the pipeline corridor and proposed reservoir sites. Avoid surface disturbance within 1/4 mile of active den sites while young are den-dependent (March 15 to June 15).• Restrict pesticides for rodent control within swift fox overall range.• Conduct raptor nest surveys prior to construction and impose seasonal restrictions to surface activity within recommended buffers (generally 1/4 to 1/2 mile) around active raptor nest sites and heron rookeries during construction.• Consult with CDOW and USFWS Migratory Bird Permit Office to develop mitigation for unavoidable loss of raptor nests.• Develop construction schedules to avoid impacts to nesting migratory birds. If an active nest is detected, a buffer zone will be flagged to avoid the nest, or construction will be rescheduled.• Impose seasonal restrictions on construction to avoid sensitive large game winter habitat (from first large snowfall to summer green-up).• Install wildlife crossovers (trench plugs) during pipeline construction with ramps on each side at a maximum of ¼-mile intervals and at well-defined game trails.• Create additional nesting habitat or nest boxes in nearby trees for the Lewis' woodpecker if nest trees are destroyed.	1 and 2	2010-2025	TBD

TABLE 2
Summary of Proposed Mitigation Components

Category		Agency (Reclamation, Pueblo County, USACE, CDOW)	Commitment	Project Phase	Schedule for Implementation	Estimated Cost
3. Wetlands and Riparian Habitat						
	Wetland, water and riparian habitat	Reclamation	<ul style="list-style-type: none">Evaluate and consider a strategy to increase Fountain Creek sinuosity to assist in wetlands creation.	1		
	Clear Spring Ranch	Reclamation, USACE	<ul style="list-style-type: none">Mitigate all unavoidable, permanent impacts to < 0.25 acres of jurisdictional wetlands with compensatory wetlands that replace existing wetland functions and values. Compensatory wetland mitigation will occur at the CSR site.Mitigate all unavoidable, permanent impacts to non-jurisdictional wetlands with compensatory wetlands that replace existing wetland functions and values. Approximately 12 acres of compensatory wetland mitigation will likely occur at the CSR site.Restoration and stabilization of select locations of Fountain Creek.Potential habitat protection through a conservation easement.Water quality improvement through erosion and sediment reduction.	1	2010 TBD	<p>\$300K (0.2 acres - USACE wetland construction)</p> <p>\$3M (12 acres - Reclamation wetland construction)</p>
4. Water Quality and Geomorphology						
	Water Quality					
	Water Quality	Reclamation, Pueblo County	<ul style="list-style-type: none">Conduct monthly sampling for dissolved selenium, <i>E. coli</i>, ammonia, and salinity at 13 Fountain Creek Basin and Arkansas River monitoring locations. Sampling will begin with project construction and continue quarterly once the SDS Project is online.WCR inlet and outlet will be monitored quarterly for methyl mercury at the beginning of reservoir operations for one year, and will continue annually for 4 years.	1		TBD
	Fountain Creek Geomorphology					
	Geomorphic mitigation	Reclamation, USACE, Pueblo County	<ul style="list-style-type: none">Prepare a geomorphic monitoring plan – includes removing sediment that reduces the effectiveness of USACE levees near the confluence of Fountain Creek and the Arkansas River, increasing sinuosity on Fountain Creek near CSR, and reducing erosion and sedimentation in appropriate locations along Fountain Creek.Prior to project operation, channel stabilization projects will be completed, which may include non-structural options such as conservation easements.Evaluate and implement future geomorphic stabilization projects if necessary.	1		
	Sediment load reduction	Reclamation, Pueblo County	<ul style="list-style-type: none">Project Participants will implement dredging and sediment collection devices in lower Fountain Creek that will assist the City of Pueblo in preserving Fountain Creek levee flood protection at or above the 100-year flood level.Project Participants will conduct geomorphic monitoring at ten cross-sections along Fountain Creek to monitor degradation, aggradation and other changes to the geomorphologic surface. These surveys will be done annually during low stream flow conditions.	1		
• Adaptive Management Plan						
	Adaptive Management Plan	Reclamation	<ul style="list-style-type: none">The Project Participants will implement an Environmental Management System to establish procedures for compliance with laws, regulations, permit requirements, and mitigation measures. The Environmental Management System will use adaptive management principles to address unforeseen conditions directly associated with SDS operations.	1 and 2		
BENEFITS AND ENHANCEMENTS						
	UWCR	Reclamation, CDOW	<ul style="list-style-type: none">Develop opportunities to enhance angling, boating, or other recreation opportunities at UWCR;	2	2019-2020	\$2.3M
	Lake Henry, Lake Meredith, and Holbrook Reservoir	Reclamation	<ul style="list-style-type: none">Seek opportunities to enhance angling, boating, or other recreation opportunities at Lake Henry, Lake Meredith, and Holbrook Reservoir so that they are less vulnerable to water level fluctuations.	2	2012-2016	TBD

* Note – The estimated costs in this table are in 2010 US dollars.

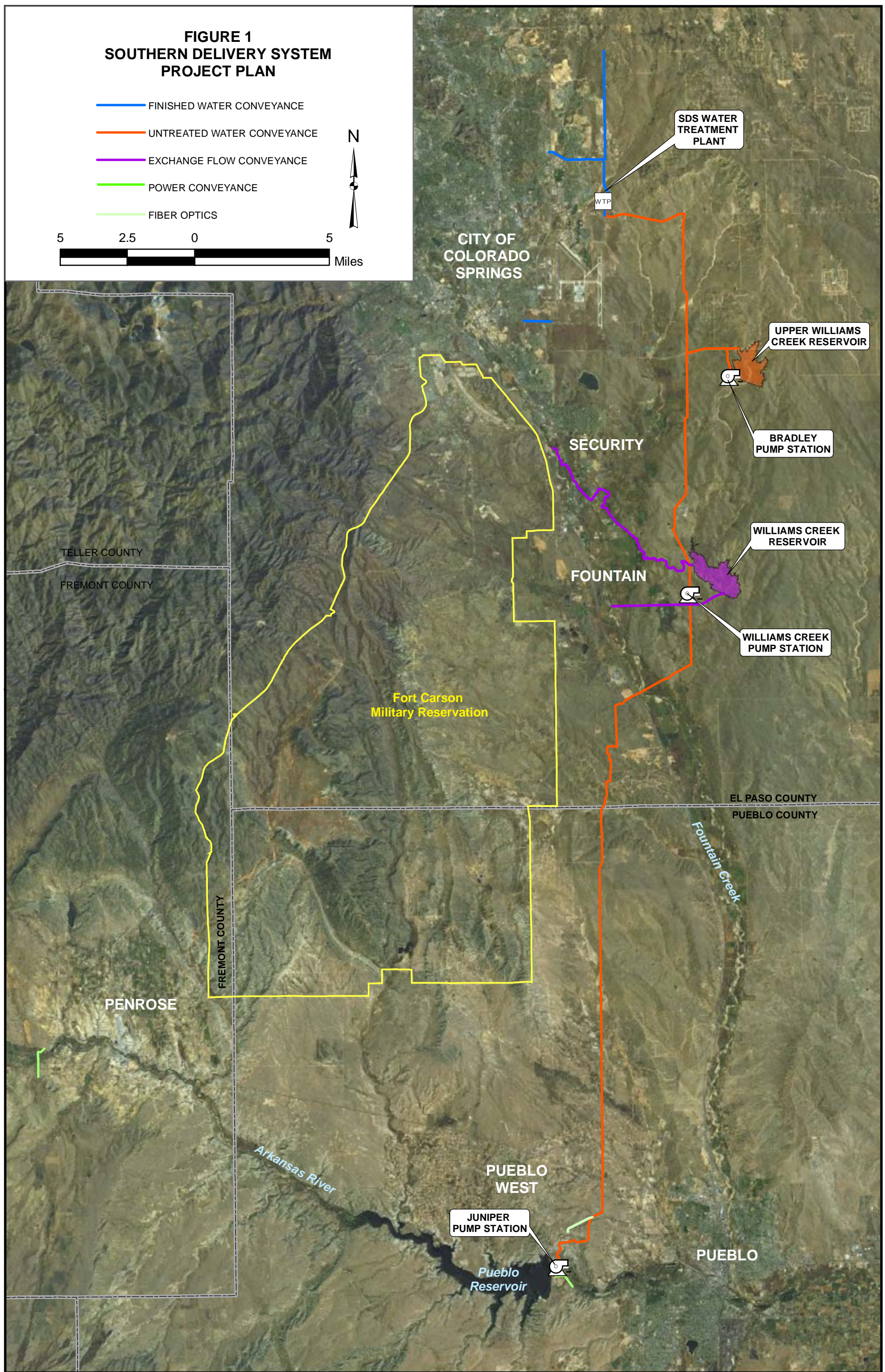
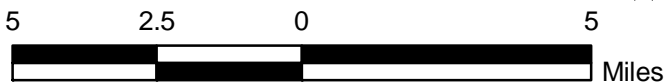
Abbreviations:

TBD = To be determined

Figures

FIGURE 1
SOUTHERN DELIVERY SYSTEM
PROJECT PLAN

- FINISHED WATER CONVEYANCE
- UNTREATED WATER CONVEYANCE
- EXCHANGE FLOW CONVEYANCE
- POWER CONVEYANCE
- FIBER OPTICS



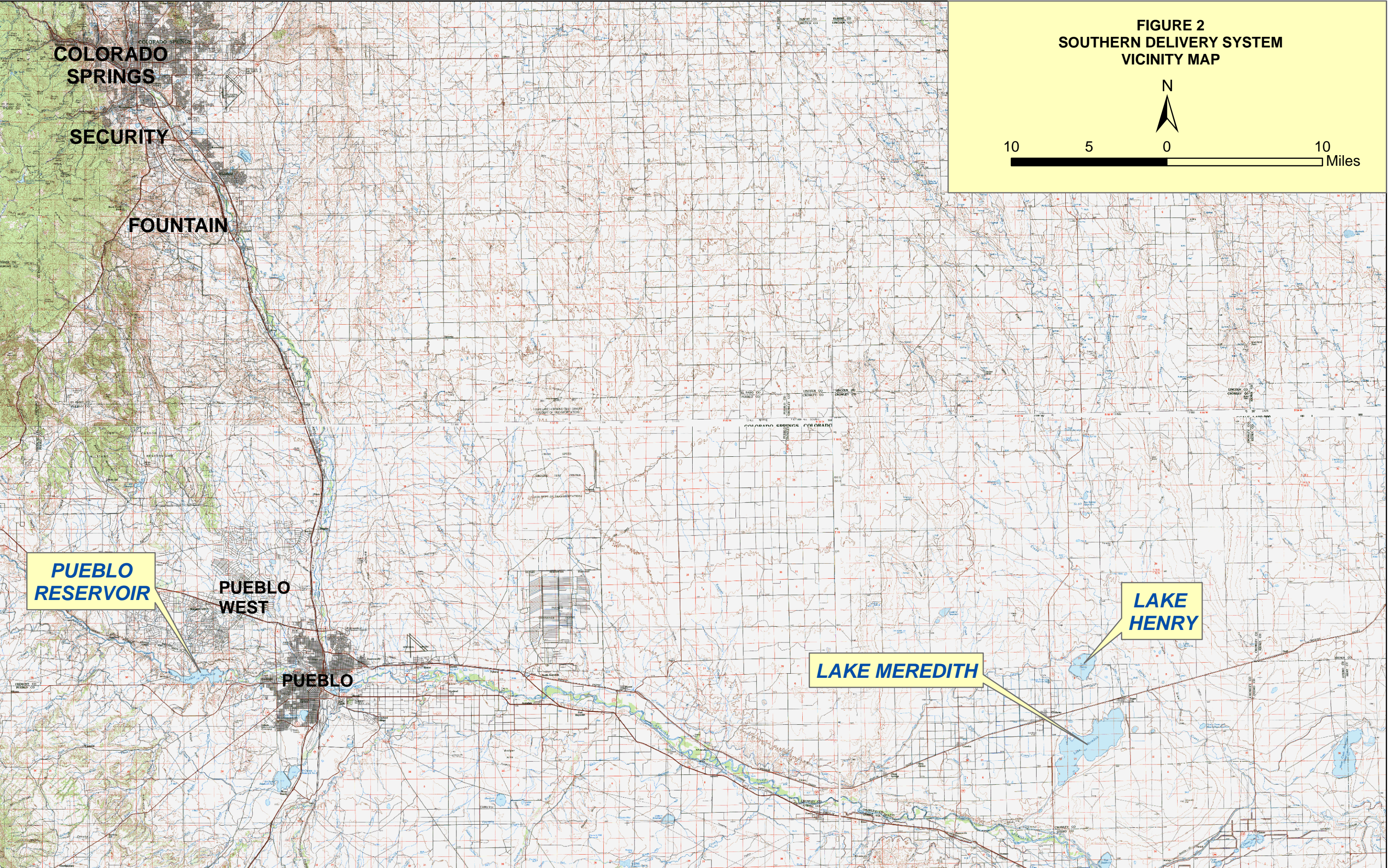


FIGURE 2
SOUTHERN DELIVERY SYSTEM
VICINITY MAP



10 5 0 10 Miles

APPENDIX 3

**Pueblo County 1041 Permit
No. 2008-002 Terms and Conditions**

RESOLUTION NO. 94-09**A RESOLUTION RECOGNIZING THE TERMS AND CONDITIONS OF THE
PUEBLO COUNTY 1041 PERMIT FOR THE SOUTHERN DELIVERY SYSTEM**

WHEREAS, on March 18, 2009, the Pueblo County Board of County Commissioners approved certain terms and conditions for a 1041 Permit for the Southern Delivery System, specified in "Recommended Terms and Conditions and Mitigation of Project Impacts – Southern Delivery System 1041 Application" (March 18, 2009) ("Terms and Conditions"); and

WHEREAS, Condition No. 8 of the Terms and Conditions states that the Applicant for the 1041 Permit has submitted a letter to the Bureau of Reclamation stating its intention and desire to achieve the obligations set forth in the Final Environmental Impact Statement, Sections 5.2.4 and 5.2.6; and

WHEREAS, Condition No. 10 of the Terms and Conditions states that Colorado Springs Utilities shall promptly submit a signed Memorandum of Understanding between the Pueblo Board of Water Works and Colorado Springs Utilities related to implementation of the Arkansas River Low Flow Program ("Arkansas River Low Flow Program MOU"); and

WHEREAS, Condition No. 11 states that Colorado Springs Utilities shall promptly submit to Pueblo County an executed Memorandum of Understanding with the Pueblo Board of Water Works related to the use of the South Outlet Works & Joint Use Manifold and the North Outlet Works of Pueblo Dam ("Outlet Works MOU");

WHEREAS, Condition No. 27 of the Terms and Conditions states: "The Colorado Springs City Council must take formal action to recognize the commitments herein prior to Pueblo County's final issuance of a 1041 Permit for SDS"; and

WHEREAS, Colorado Springs Utilities recommends that City Council take formal action to recognize the Terms and Conditions as approved by the Pueblo County Board of County Commissioners on March 18, 2009; and

WHEREAS, City Council conducted a public hearing on April 9, 2009 to hear comments on the Terms and Conditions; and

WHEREAS, City Council finds that it is in the best interest of the City to take formal action to recognize the Terms and Conditions and to enter into the Arkansas Low Flow Program MOU and the Outlet Works MOU; and

WHEREAS, Colorado Springs Utilities recommends that the City Council approve the Arkansas Low Flow Program MOU and the Outlet Works MOU and direct the Utilities Chief Executive Officer to execute those MOUs on behalf of the City; and

WHEREAS, by letter dated March 17, 2009, Colorado Springs Utilities has committed to a dispute resolution process with the owner of approximately seven miles of proposed right of way for

the SDS pipeline, Mr. Gary Walker, for any disputes that may arise from SDS activities on land owned by Mr. Walker located in Pueblo County, and the City Council finds that it is in the best interest of the City to continue with that agreement;

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF COLORADO SPRINGS:

Section 1: City Council hereby recognizes the commitments in the Terms and Conditions to be included in the Pueblo County 1041 Permit for SDS, as approved by the Pueblo County Board of County Commissioners on March 18, 2009, and directs Colorado Springs Utilities to comply with such commitments if the SDS is constructed through Pueblo County.

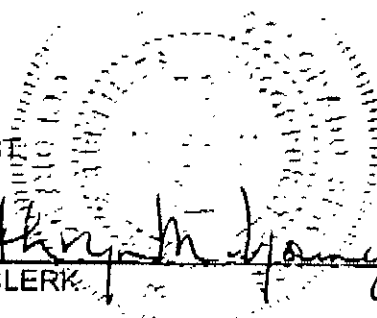
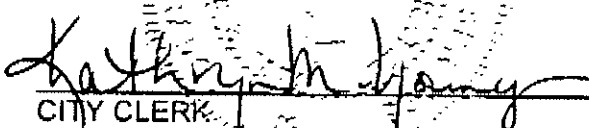
Section 2: City Council hereby approves the Arkansas River Low Flow Program MOU and the Outlet Works MOU and directs the Chief Executive Officer for Colorado Springs Utilities to execute both MOUs on behalf of the City.

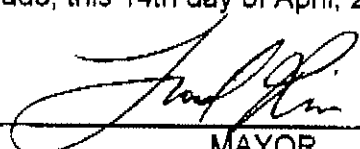
Section 3: City Council hereby ratifies the City's letter to the Bureau of Reclamation stating the City's intention and desire to achieve the obligations set forth in Sections 5.2.4 and 5.2.6 of the SDS Project Final Environmental Impact Statement.

Section 4: City Council hereby ratifies the City's March 17, 2009 letter to Mr. Gary Walker, the owner of approximately seven miles of proposed right of way for the SDS pipeline, and directs Colorado Springs Utilities to comply with the dispute resolution process outlined therein.

Dated at Colorado Springs, Colorado, this 14th day of April, 2009.

ATTEST



CITY CLERK


MAYOR

**RECOMMENDED TERMS AND CONDITIONS
AND MITIGATION OF PROJECT IMPACTS**

Southern Delivery System
1041 Application
March 18, 2009

1. **Commitments of Applicant.**

The following terms and conditions contain the specific commitments of the Applicant and shall be met as herein described.

2. **Term of Permit.**

This Permit is valid indefinitely for the life of the SDS Project, provided Applicant is in compliance with this Permit. If the Applicant fails to take substantial steps to construct the permitted development within thirty-six (36) months from the date of the Permit, then the Permit may be revoked or suspended by the County in accordance with its Areas and Activities Regulations. The Applicant may submit a written request to Pueblo County for an extension of the time period to begin construction under the Permit for good cause.

3. **Transfer of Permit.**

This Permit may be transferred in whole or part to another party only with the written consent of the Board of Pueblo County Commissioners. A proposed transferee shall demonstrate that it can and will comply with all the requirements, terms and condition contained in the Permit.

4. **Compliance with other Regulatory Requirements.**

Applicant shall comply with applicable local, State and federal regulatory requirements and permits. See *Mitigation Appendix C-7*. Prior to commencement of construction of any phase or work package of the SDS Project in Pueblo County, and within 60 days of said permit approvals, Applicant shall provide copies to Pueblo County of permits applicable to that work package of construction. If any such permits or approvals result in a material change in the SDS Project or are inconsistent with the terms and conditions of this Permit, Applicant shall notify Pueblo County, and Pueblo County shall determine whether a Permit amendment or suspension is required.

4.1. **Other Pueblo County Regulations.**

This permit shall not constitute an exemption from Pueblo County zoning, building, health or other applicable regulations and codes (except as provided in Section 17.140.010(F) of the Pueblo County Code regarding special use permits).

4.2. **Flood Hazard Area Development Permits.**

The Applicant shall obtain a Flood Hazard Area Development permit(s) for construction proposed within any designated 100-year floodplain in Pueblo County (as identified by the most current FEMA Flood Insurance Rate Maps for Pueblo County). These permits require review and approval by the Pueblo County Department of Planning and Development prior to any construction within a floodplain.

4.3. **Permit for New Electrical Substation and Transmission Lines.**

Construction of a new substation and transmission lines for the Juniper Pump Station shall require approval by Pueblo County of a Use by Review as specified in the Public Use District (S-1) zoning regulations if less than 115 Kv. If 115 Kv or greater, a separate permit application shall be submitted under the applicable Areas and Activities Regulations.

5. **Permit Amendment.**

Any material change in either the construction, use or operation (exceeding 78 mgd pumping by the Juniper Pump Station) of the SDS Project from that approved herein, or with the Applicant's performance of the terms and conditions approved herein, shall require a permit amendment. For these purposes, a material change shall be any change in the Project which significantly changes the nature of impacts addressed by the Permit. The Applicant shall notify Pueblo County of any material change in the SDS Project (not including routine maintenance, repair or operation of an existing facility) and the County will determine whether an amendment or new permit is required. Any disagreement about the materiality of a change shall be subject to the Dispute Resolution Process outlined herein.

5.1. **Use Of New Water Supplies Delivered Through SDS Project.**

Although Applicant currently has no firm plans to acquire by purchase or lease additional water rights in the Arkansas Basin either downstream or upstream of Pueblo Reservoir, the possibility exists that additional water supplies will be required in the future. In addition, if third-party contracts or agreements are executed meeting the other terms and conditions of this permit, those entities might well seek to acquire new or additional water rights for transportation of water through the SDS Project. Pueblo County asserts that it possesses the legal authority to regulate and control such additional water and water rights transportation through the SDS project. Nothing in the terms and conditions of this 1041 Permit is intended to prevent Pueblo County from asserting that jurisdiction and regulatory authority, subject to the right of any such third-party

and/or Applicant to assert any defenses to the exercise of the County's authority that may then exist.

5.2 Carriage Of Water To Entities That Are Not SDS Project Participants

Although Applicant has no existing permits or agreements with third-parties not listed as Applicants on 1041 Permit Application Number 2008-002, except all existing service agreements already disclosed to Pueblo County, it does not intend to foreclose the potential of making additional agreements for the long term delivery of water to third parties via the SDS Project. In the event any such third-party contracts are entered into under which Applicant would deliver water to such a third-party in El Paso County, Applicant shall require that the following conditions be included in any contract, permit or agreement with such third-party:

- A. A clear acknowledgment of support for the Fountain Creek Watershed Flood Control and Greenway District, together with a commitment to participate in the financing of said district;
- B. A clear and irrevocable commitment not to serve property located outside of the natural drainage of the Arkansas River or to market, transfer, wheel, or otherwise provide water to properties or entities located outside the natural drainage of the Arkansas River;
- C. The adoption and maintenance of a financing mechanism similar to the Colorado Springs Stormwater Enterprise capable of financing, constructing and maintaining storm water detention and retention facilities intended to insure that the storm flows of the Fountain Creek Basin do not increase above existing conditions, along with the adoption and maintenance of regulations and ordinances requiring stormwater detention, retention and management no less strict than those in place in the City of Colorado Springs. This condition can only apply to such third parties who have the legal authority to regulate in this manner;
- D. An agreement to accept and comply with the City of Pueblo Flow Management Program and the Pueblo Recreational In-channel Diversion Decree both impacting the Arkansas River between Pueblo Dam and its confluence with Fountain

Creek, in any application for a change of water rights or exchange implicating that reach of the river;¹

- E. Pro rata participation in any water quality monitoring or studies to the same degree and extent as undertaken by the Applicant under this permit; and
- F. Support of any studies of a flood control dam or dams on Fountain Creek.

Upon the submission of contracts or agreements to Pueblo County evidencing the acceptance of the foregoing terms and conditions, Applicant shall be entitled to enter into third-party contracts for the delivery of water from Pueblo Reservoir to entities located in El Paso County or Teller County within the Arkansas River Basin. Nothing herein shall provide a right in the Applicant or any other entities to operate the SDS Project at a rate of flow in excess of 78 mgd without applying for and receiving an amended 1041 Permit satisfying any additional terms and conditions which might then be imposed.

5.3. **Reservation of Permit Authority.**

Colorado Springs currently does not have the authority to enlarge the storage capacity of Pueblo Reservoir. Should the enlargement of Pueblo Reservoir occur in the future, and should Colorado Springs become a participant in that enlargement, Pueblo County reserves the right to assert, at that time, that those actions constitute a permissible activity under its 1041 regulations, subject to the right of Colorado Springs to assert any defenses to the exercise of the County's authority that may exist.

6. **Monetary Mitigation for Fountain Creek Impacts.**

In order to mitigate the impacts of SDS to Fountain Creek in Pueblo County, Applicant will pay fifty million dollars (\$50,000,000) to the Fountain Creek Watershed, Flood Control and Greenway District ("District") described in the Intergovernmental Agreement for the Management and Conservation of Fountain Creek executed by El Paso County on December 15, 2008 and Pueblo County on December 16, 2008.

Three hundred thousand dollars (\$300,000) of that amount shall be paid in equal annual installments of one hundred thousand dollars (\$100,000), commencing July 1, 2009. These payments shall be used to assist in the identification and prioritization of projects, and to fund a study or studies of opportunities for constructing flood control and sediment control facilities which may include the

¹ The term "Pueblo RICD" refers to case no. 01CW160, District Court, Water Division 2, Colorado.

feasibility of a dam or dams on Fountain Creek or its tributaries in order to improve the flood protection for the City of Pueblo and the Fountain Creek Basin.

Payment shall be made as to the remaining forty-nine million seven hundred thousand (\$49,700,000) as follows: nine million seven hundred thousand (\$9,700,000) on January 15, of the year following completion and commencement of water deliveries through the SDS Pipeline from Pueblo Reservoir to Colorado Springs; and in equal annual installments of ten million dollars (\$10,000,000) on January 15 of each of the four years thereafter.

Payments shall be made to the District, provided: it is created by legislation supported by Pueblo County and El Paso County for the management and conservation of Fountain Creek; it provides for participation by Pueblo County and the City of Colorado Springs as voting members of the board of directors; it has equal representation of entities from Pueblo County and El Paso County as voting members of the board of directors; and it has power to levy taxes and impose fees. If the District is not so created, then Pueblo County and Colorado Springs will establish a not for profit corporation pursuant to the Colorado Revised Nonprofit Corporation Act, C.R.S. § 7-121-101, et seq, governed by a board of directors having an equal number of directors from Pueblo County and from Colorado Springs, for the purposes specified herein. The Foundation, if established, will be referred to as the Fountain Creek Restoration Foundation. ("FCRF").

The District (or if not created, the FCRF) may use funds provided by the Applicant under this permit condition only for one or more new projects in the Fountain Creek watershed between Colorado Springs and the Arkansas River confluence in Pueblo that create a significant and not merely incidental benefit to Fountain Creek within Pueblo County for improvement of water quality, for flood control, or for prevention of erosion and sedimentation. Subject to these criteria, acceptable projects may include:

- A. those projects that have been identified by the United States Corps of Engineers ("Corps") as high priority erosion, sedimentation or flood control projects in a formal Corps recommendation for Fountain Creek;
- B. erosion, sedimentation, flood control or water quality improvement projects identified as part of the Fountain Creek Corridor Master Plan adopted by Colorado Springs Utilities and the Lower Arkansas Valley Water Conservancy District;
- C. any other sedimentation and erosion control, flood control, including a dam or dams, or stream improvement project that is found to be acceptable by the District or, if not created, the FCRF.

In the event completion of the SDS Project is delayed beyond 42 months after the effective date of the permit because of an affirmative decision made by Applicant, then the payments to be made by the Applicant pursuant to this paragraph shall begin to be made on such date, without regard to project construction status, or such payments shall be subject to annual indexing commencing 42 months after the effective date of the permit, to increase the amount of such payments as required to preserve their present values, using the Colorado Front Range Producer Price Index, but not to exceed a maximum annual increase of 3.5%.

7. Expenditures for Wastewater System Improvements.

In order to continue its efforts to protect against future spills to Fountain Creek, to increase its opportunities for reuse, and to mitigate possible water quality impacts by the SDS Project to Fountain Creek, Colorado Springs Utilities shall commit to invest an additional seventy-five million dollars (\$75,000,000) in its wastewater system. Expenditures will be made as part of the wastewater collection system rehabilitation programs or wastewater reuse systems between January 1, 2009 and December 31, 2024 as required. These expenditures shall be for projects not currently required by other regulatory permits, agency enforcement or court orders, consent agreements, or governmental regulations existing as of January 30, 2009. These expenditures will include the Local Collector Evaluation and Rehabilitation Program (LCERP) for the improvement and fortification of wastewater lines which could adversely affect Fountain Creek or its tributaries. These expenditures are subject to annual appropriation by the Colorado Springs City Council. Beginning in 2010, by January 31 of each year, Colorado Springs Utilities shall provide an annual report to Pueblo County describing such expenditures for the prior year.

8. Sediment Control/Dredging and Clear Springs Ranch.

It is acknowledged by Pueblo County and Applicant that one mitigation commitment will be a project to reduce the sediment load in lower Fountain Creek through dredging and the construction of sediment collection devices. These efforts will occur prior to the construction of the SDS Project. These sediment removal activities are of vital importance to Pueblo County because they will assist the City of Pueblo in preserving the flood protection of the Fountain Creek levees at or above the 100 year flood level. This mitigation commitment may be conducted in cooperation with a project or projects of the U.S. Army Corps of Engineers. It is acknowledged that there will have to be sampling done on the bed sediments in Fountain Creek to insure that no hazardous materials exist that would make a dredging and sediment removal project technically or financially impracticable. Applicant, as a condition of this permit, will pursue vigorously its efforts to complete this sediment removal project at the levels committed to in the final Environmental Impact Statement process. In the event that sediment removal is not practicable because of the quality of the

bed sediments, Applicant will commit an equal amount of money that would have been expended on this sediment removal project at the level required by the FEIS for another project designed to assist the City of Pueblo in restoring and maintaining sufficient flood protection to allow the existing levee systems to withstand a 100 year flood, subject to approval of the Bureau of Reclamation.

In addition, Applicant has committed, as part of the EIS process, to construct new wetlands and redirect a portion of the channel of Fountain Creek adjacent to the wetlands area at the Clear Spring Ranch to reduce the slope and improve channel stability through this area subject to the approval of Reclamation. The redirected channel is proposed to have an increased length and sinuosity to stabilize the channel. The purpose of this mitigation activity is to reduce sediment transport down Fountain Creek into Pueblo County, improve water quality and reduce flood threat downstream. This project will be completed to the levels required by Reclamation.

Applicant has submitted a letter to Reclamation, dated _____, stating its intention and desire to achieve its obligations set forth in the Final Environmental Impact Statement, sections 5.2.4 and 5.2.6, in the manner described in this paragraph 8. A copy of the letter has been made a part of the record.

9. Continuation of Pueblo Flow Management Program.

All SDS Participants shall cooperate in and comply with the PFMP (including Pueblo West and Security who are not signatories to the PFMP agreements at this time) and its requirements for maintaining target flows through Pueblo below Pueblo Reservoir by cessation of exchanges.

10. Implementation of Arkansas River Low Flow Program.

Colorado Springs Utilities shall promptly submit a signed Memorandum of Understanding between the Pueblo Board of Water Works and Colorado Springs Utilities which shall provide the terms and conditions under which each of the entities will contribute to and assist in the maintenance of a storage pool in Pueblo Reservoir designed to permit the release of water into the Arkansas River during times when the flow in the River could fall dangerously low, to levels at or below 50 cubic feet per second (cfs). SDS participants shall not exchange against reservoir releases made by the Board of Water Works of Pueblo or Colorado Springs Utilities for the Arkansas River Low Flow Program.

11. Construction and Use of North River Outlet Works.

Colorado Springs Utilities shall promptly submit to Pueblo County an executed Memorandum of Understanding with the Pueblo Board of Water Works designed to describe the manner in which the two entities will use the South Outlet Works & Joint Use Manifold and the North Outlet Works of Pueblo Dam for the provision

of municipal water supplies. If approved by the Bureau of Reclamation, the North Outlet Works shall be constructed and used as the primary outlet works for SDS.

12. Safety Review of Design and Construction of Structures at Pueblo Dam.

No construction shall occur at or near Pueblo Reservoir Dam (outlet modifications and pipelines west of the Pueblo West turnout) until the Bureau of Reclamation has performed its dam safety review and has accepted the design construction plans. Prior to commencement of construction, Applicant shall provide Pueblo County with written proof of such acceptance by the Bureau of Reclamation and any other required regulatory agency.

13. County Road Improvements and Restoration.

The Applicant shall obtain and comply with Excavation Permits from the Pueblo County Public Works Department ("Department") for each road crossing within the County, and Access Permits from the Department for each access point onto a County road. The Applicant shall submit a Traffic Control Plan to the Department for review and approval. The Applicant shall submit a Staging Area Plan to the Department for review and approval to define construction work times, material delivery hours, noise suppression, dust abatement, construction methods, and other mitigation of construction nuisances. The Applicant shall provide a Haul Route Plan to the Department for review and approval; the Haul Route Plan shall identify the roads utilized for construction vehicle traffic, maintenance of those roads at Applicant's expense during the project and rehabilitation of those roads to current Pueblo County Roadway Design and Construction Standards at Applicant's expense. Within thirty (30) days of the Applicant issuing a notice to proceed to its contractors to perform pipeline installation activities that require use of roads in the Haul Route Plan, the Applicant shall establish a cash payment, escrow, or other financial instrument such as a performance bond, acceptable to the County, in an amount estimated by the Department to cover the total costs for rehabilitation of the roads to County Standards (currently estimated at approximately \$6.1 million), plus estimated increases in costs over time as represented by the Construction Cost Index. The Applicant shall coordinate, design and construct the SDS pipeline facilities so as to anticipate and accommodate future roadways and utilities across the SDS easement so as not to unreasonably preclude them or increase their costs. *See Mitigation Appendix, CR-1 through CR-11 with Exhibits 1 – 5.*

14. Cultural and Archaeological Resource Protections.

Applicant shall execute the Programmatic Agreement in a form substantially similar to that set forth in the FEIS with the applicable federal and state agencies and Native American Tribes. Applicant shall comply with the standards and procedures of the Programmatic Agreement to ensure the identification,

avoidance, protection and disposition of cultural and archaeological resources which may be encountered during construction in Pueblo County, as required by federal and state laws and in accordance with landowner agreements. Proof of execution of the Programmatic Agreement shall be provided to Pueblo County prior to land disturbance.

15. Acquisition of Property Interests.

Applicant shall acquire necessary property interests required for each individual work package or phase of the SDS Project in Pueblo County prior to the initiation of construction of that work package. Private property owners shall be treated fairly by the Applicant and the SDS Project shall not create undue financial burdens on existing or future residents of Pueblo County. The Applicant shall commit to using the power of eminent domain only as a last resort. The Applicant shall offer to compensate landowners to have their own appraisal done if they disagree with the Applicant's appraisal. Applicant shall reimburse landowners for relocation costs, title work and closing costs in accordance with the City of Colorado Springs Procedure Manual for the Acquisition and Disposition of Real Property Interests. No landowner should have out-of-pocket expenses from the Project. Applicant shall provide proof to the County that it has secured the necessary interests in property required to construct the Project prior to starting construction at any given location. *See Mitigation Appendix SE-1.*

16. Lake Level Management at Pueblo Reservoir.

Colorado Springs Utilities commits to Pueblo County as a part of the 1041 process that it will voluntarily participate, when and if the Southeastern Colorado Water Conservancy District, the Bureau of Reclamation, and any other affected party agree to participate, in developing a reservoir management plan for Pueblo Reservoir designed to protect reservoir levels and recreational opportunities on Pueblo Reservoir to the extent feasible given the potential for future changes in hydrology and water demands by project beneficiaries.

17. Payments In-Lieu Of Property Tax.

Applicant shall minimize to the extent practicable the number of private properties acquired in fee to support construction and operation of SDS facilities. For those private properties purchased and owned in fee, Applicant shall make an annual payment in lieu of taxes equal to the value of the taxes assessed by the Pueblo County Assessor. Payment shall be made to the Pueblo County Treasury on or before April 30 of each calendar year. *See Mitigation Appendix SE-2.*

18. Monitoring Program and Adaptive Management for Fountain Creek and the Arkansas River.

Applicant shall implement a monitoring program to provide information on the current water quality and geomorphology (including erosion, sediment loading and channel stability conditions) in Fountain Creek and the Arkansas River, and to track changes over time. The monitoring will assist in the selection of mitigation measures and in the assessment of the effectiveness of SDS mitigation measures on Fountain Creek and the Arkansas River. To collect data that supports the evaluations related to impacts on water quality and geomorphology, Applicant shall implement monitoring activities at defined monitoring locations in the Fountain Creek Basin and the Arkansas River. See *Mitigation Appendix E-1*.

Pursuant to the Environmental Impact Statement process, Applicant has committed to engage in adaptive management, which contemplates that Applicant will undertake modified or different mitigation activities for impacts that have been identified in the EIS. If additional mitigation activities are required in order for Applicant to comply with the requirements of the ROD, any costs associated with that additional mitigation activity shall be the sole responsibility of Applicant.

To the extent that the monitoring and the adaptive management program causes Pueblo County to request or require that additional mitigation activities occur over and above those required by the Bureau of Reclamation, Applicant's obligation to conduct those mitigation activities shall be the responsibility of the Fountain Creek District (or FCRF, if the District is not formed) and not directly the responsibility of Applicant. Pueblo County shall be a stakeholder in the Adaptive Management Program, for purposes of this paragraph.

19. Colorado Springs Utilities - Wastewater Collection System Management Practices to Protect Water Quality.

Colorado Springs Utilities has committed as a condition of this Permit to continue to implement and maintain wastewater collection system improvements within the Fountain Creek drainage to prevent and minimize the impact of its wastewater system overflows or spills through prevention programs and response activities. Since 2000, it has spent \$114 million for these programs. In addition, Colorado Springs has established a Stormwater Enterprise Fund to finance the capital costs of needed stormwater control infrastructure. See *Mitigation Appendix E-2*.

20. Construction Impact Mitigation.

Applicant shall mitigate the impacts of project construction, as set forth in the Mitigation Appendix C-1 through C-22, to include the following:

- Proof of required permits and compliance
- Pre-existing condition assessment of affected properties

- Public information measures and responses to public complaints
- Pre-mobilization readiness
- Sustainable design and construction
- Protection of open excavations and trenches
- Construction site maintenance
- Provisions for access to properties
- Limits on work hours
- Dewatering control
- Lighting Control
- Dust Control
- Noise control
- Drainage and erosion control
- Traffic control
- Weed control
- Protection of plants and wildlife/vegetation surveys
- Hazardous waste management
- Management of surface and ground water flows
- Protection of livestock
- Site restoration

Applicant shall assign a point of contact for responding to public questions, comments and concerns during construction in Pueblo County and one-year following final construction in Pueblo County. Applicant shall also develop notices to affected residents and a website for information on construction scheduling.

21. Juniper Pump Station Architectural Review.

Applicant shall allow Pueblo County to appoint a representative who will participate in the final selection of the architecture and landscaping for the Juniper Pump Station, along with representatives of Colorado State Parks and the Bureau of Reclamation.

22. Reclamation of Disturbed Lands.

Applicant shall conduct a preconstruction evaluation of existing vegetation to be disturbed during construction of the SDS Project within Pueblo County. Upon reclamation of the site, the vegetation cover shall be of the same seasonal variety native to the area of the disturbed land, or a reasonable substitute pursuant to agreement with the landowner. The revegetated area will be considered acceptable if its cover will be not less than 90 percent of the pre-construction vegetation cover with similar species diversity. Applicant shall provide to Pueblo County a security bond equal to \$2,000/acre of land in permanent or temporary construction easement in each work package. The

security bond shall be released upon establishing 90 percent of pre-construction vegetation cover on the impacted land segment. See Mitigation Appendix C-9.

23. Stormwater Management.

The Applicant shall maintain stormwater controls and other regulations intended to ensure that Fountain Creek peak flows resulting from new development served by the SDS project within the Fountain Creek basin are no greater than existing conditions. This requirement can only apply to Project Participants who have the legal authority to regulate in this manner. Regulations shall comprehensively address peak flow conditions, runoff volumes, and flood hazards, incorporating at a minimum all relevant components of existing regulations of Colorado Springs and the other Project Participants including: regional drainage planning for low-flow and major storm events; detention; erosion and sediment control for land disturbance, construction, and similar activities; structural measures such as channel protection and engineered outfalls; prohibition of activities that infringe on the designated floodway; water quality controls, including water quality capture volume and a determination of the need for permanent best management practices (BMPs); and adequate provision for maintenance of all drainage-related facilities so required. This condition shall not prevent Colorado Springs and other local jurisdictions subject to this condition from revising and improving stormwater regulations from time to time, to incorporate new technologies, management techniques, or otherwise modify regulations consistent with the intent of not exceeding historical peak flows. See Mitigation Appendix E-2.

24. Conservation and Reuse.

In recent years, Applicant has demonstrated a commitment to water conservation programs and local reuse. Continued commitment and local reuse will reduce the Applicant's diversions from the Arkansas River and Pueblo Reservoir and reduce flows on Fountain Creek, below what they would have been without such conservation and reuse, thereby reducing the impacts of the SDS Project in Pueblo County. Applicant has specifically committed itself to continue such conservation and reuse despite the availability of additional water from the SDS Project.

25. Compliance Monitoring and Reporting.

Applicant shall monitor and periodically report to Pueblo County on its compliance with this Permit. During project construction in Pueblo County, Applicant will submit a quarterly report to Pueblo County summarizing the activities during that period, forecasting activities scheduled for the upcoming period, and addressing compliance with the terms and conditions of the Permit. After commencing deliveries of water through the SDS pipeline, Applicant shall submit annual reports to Pueblo County summarizing its activities related to the

SDS Project, the Permit, and addressing compliance with the terms and conditions of the Permit. Pueblo County may, at its discretion, hold public reviews of the reports and Permit compliance, including hearings in accordance with its regulations. See Mitigation Appendix ENF-1.

26. **Noncompliance.**

Substantial noncompliance with the terms and conditions set forth herein shall be subject to the provisions governing revocation or suspension of a permit set forth in section 17.148.320(A) of the Pueblo County Code. The final resolution of issues related to non-compliance (except for the failure to pay the monetary mitigation payments as set forth in Paragraph 6 herein) and any further act of revocation or suspension of the Permit will be accomplished through the dispute resolution process described below.

27. **Approval by Colorado Springs.**

The Colorado Springs City Council must take formal action to recognize the commitments herein prior to Pueblo County's final issuance of a 1041 permit for SDS.

28. **Mitigation Appendix.**

The provisions of that certain Mitigation Appendix previously referenced herein and attached hereto is hereby incorporated by this reference as though fully set forth. In the event of a conflict between the provisions of the Mitigation Appendix and the terms and conditions set forth in this Resolution, then the terms and conditions set forth in this Resolution shall prevail.

29. **Dispute Resolution.**

If a dispute between the Applicant and the County arises relating to any term or condition contained in this Permit (except for the failure to pay the monetary mitigation payments as set forth in Paragraph 6), the following procedure shall be followed:

- A. A joint management team, comprised of three (3) representatives of each Party shall first consider any of the circumstances and contentions related to any disputed matter. If the County Manager for Pueblo County [or another representative of the County as designated by the Board of Commissioners] (County Manager) determines that Pueblo County requires technical assistance to assess a disputed matter, Applicant will pay the costs, not to exceed a total of \$150,000 for all disputes related to the Permit, of hiring a technical consultant for that purpose.

- B. If not resolved by agreement of the members of the joint management team, the disputed matter shall be referred by either Party to the Administrative Officers of the Parties defined below. The Administrative Officers shall hold a meeting promptly, but in no event later than fifteen (15) working days from the referral of the dispute, also attended by other staff members with direct responsibility regarding the dispute, to attempt in good faith to negotiate a resolution or cure of the dispute; provided, however, that no such meeting shall be deemed to vitiate or reduce the obligations and liabilities of the Parties or be deemed a waiver by a Party hereto of any remedies to which such Party would otherwise be entitled unless otherwise agreed to by the Parties in writing. For purposes of this dispute resolution provision, "Administrative Officers" means the Chief Water Services Officer for Colorado Springs Utilities and the County Manager [or another representative of the County as designated by the Board of Commissioners].
- C. If, within fifteen (15) working days after such meeting, the Parties have not succeeded in negotiating a resolution of the dispute, they agree to submit the dispute to non-binding mediation with Applicant to bear the costs of the mediation.
- D. The Parties agree to participate in good faith in the mediation and related negotiations for a period of 30 calendar days. The substantive and procedural law of the State of Colorado shall apply to the proceedings. If the Parties are not successful in resolving the dispute through mediation, then the Parties shall be free to pursue any other legal remedy including the remedies contained in any conditions or commitments appended to or made a part of the Permit. The Parties agree to reasonably expedite any legal proceedings brought hereunder in order to obtain a prompt resolution. The venue for these legal proceedings shall be the District Court of Pueblo County.

30. **Integrated Terms and Conditions.**

In issuing this Permit, the Board of County Commissioners has determined that the benefits accruing to the County and its citizens from the SDS Project (subject to the terms and conditions set forth herein) outweigh the unavoidable impacts and losses of resources within the County. Consequently, if any term or condition herein is deemed invalid and unenforceable, this Permit shall be rescinded or suspended unless the Board of County Commissioners, in its discretion, approves a Permit amendment.

MITIGATION APPENDIX

Resolution No. P&D 09-_____

A Resolution Approving Pueblo County
1041 Permit No. 2008-002
Southern Delivery System

TABLE OF CONTENTS

Environmental Conditions / Mitigation

E-1	Water Quality and Sediment Monitoring Program	2
E-2	Drainage Regulations	6

Construction Conditions / Mitigation

C-1	Protection of Open Excavations and Trenches	6
C-2	Lighting	7
C-3	Construction Site Maintenance and Security	8
C-4	Control of Access to Properties	9
C-5	Pre-existing Condition Assessment	9
C-6	Work Hours	10
C-7	Permitting	10
C-8	Dewatering	11
C-9	Site Restoration	12
C-10	Public Communications	13
C-11	Dust and Other Air Emissions (Dust Control)	14
C-12	Drainage and Erosion Control (Sediment Control)	15
C-13	Pre-Mobilization Readiness Review	16
C-14	Traffic Control	16
C-15	Protection of Plants and Wildlife	17
C-16	Noxious Weed Control	17
C-17	Hazardous Waste Management	18
C-18	Sustainable Design	18
C-19	Sustainable Construction Practices	18
C-20	Surface and Groundwater Flows	19
C-21	Protection of Livestock	19
C-22	Noise Control	20

Socio-Economic Conditions / Mitigation

SE-1	Securing Land through Easements, Fee Purchase, or Condemnation	20
SE-2	Payment in Lieu of Property Taxes	21

Operational Conditions / Mitigation

O-1	Release Rate Limit	21
O-2	Pipeline Drainage	21
O-3	Pipeline Capacity	21

Enforcement Practices

ENF-1	Compliance Monitoring and Reporting	22
-------	---	----

County Roads – Conditions / Mitigation

CR-1	Evacuation Permit	24
CR-2	Access Permit	24
CR-3	Traffic Control Plan	24
CR-4	Plan – Route/Easement Construction Staging Area	24
CR-5	Haul Route Plan	25
CR-6	Haul Route to Staging Area	25
CR-7	Cash Payment / Escrow / Other Financial Instrument	26
CR-8	Drainage Calculations / Blow-off Valves	27
CR-9	Stormwater Management Plan	27
CR-10	Future Roadways / Utilities	27
CR-11	Final Plans / Specifications	28

ENVIRONMENTAL CONDITIONS / MITIGATIONS

E-1	Water Quality and Sediment Monitoring Program
	Applicant shall implement a monitoring program to provide information on water quality and sediment conditions in Fountain Creek and Arkansas River, and track changes over time.

PROJECT DETAIL

Conduct monitoring to assess the effectiveness of proposed SDS mitigation measures. Monitoring along Fountain Creek and the Arkansas River will focus on water quality and geomorphic features. To collect data that supports the evaluations related to impacts on water quality and geomorphology, Colorado Springs Utilities will implement the following monitoring activities at defined monitoring locations in the Fountain Creek Basin and the Arkansas River near the mouth of Fountain Creek.

Water Quality Monitoring

Colorado Springs Utilities will monitor specific water quality constituents to include dissolved selenium, E. coli, ammonia, and salinity as measured by specific conductance. To monitor water quality, samples will be taken from each of the 13 monitoring locations, shown in Figures 1 through 3 within the Fountain Creek Basin and along the Arkansas River monthly, starting at the beginning of project construction, until the SDS project begins operation and then quarterly once the project is online. Pre-operation monitoring shall consist of no less than 2 years of monthly-collected data before or during construction of the project. At least two samples will be taken at each monitoring site following standard procedure according to the National Field Manual for the Collection of Water-Quality Data (Field Manual). One sample from each monitoring location will be filtered for inorganic solid constituents in the field according to section 5.2 of the Field Manual to get an accurate reading of dissolved selenium. The other sample from each monitoring location will be analyzed for E. coli, ammonia and salinity. All samples will be managed in accordance with the Field Manual or approved EPA criteria for sample collection and management and analyzed by a State-certified laboratory capable of detecting each constituent below the Maximum Contaminant Level (MCL) or other applicable compliance criterion. Samples will be analyzed in accordance with standard ASTM or EPA-approved methods.

In addition to the water quality constituents referenced above, Springs Utilities will monitor both the inlet and outlet to Lower Williams Creek Reservoir for methyl mercury on a quarterly basis following the start of reservoir operations for a period of one year, then annually for four years thereafter. Samples will be collected and analyzed following standard procedures according to the Field Manual and EPA Method 1630.

Springs Utilities will use effluent monitoring data from its wastewater treatment plants to demonstrate the plants are operating in accordance with all required specifications and standards. In addition, Springs Utilities will conduct additional monitoring in accordance with monitoring requirements adopted and participated in by all other regional wastewater treatment agencies (i.e., those in the Fountain Creek basin, Pueblo and Pueblo West wastewater treatment plants) including monitoring programs associated with emerging contaminants or other contaminant analyses. CSU will take into consideration and maintain records of other reliable information presented to it by outside sources.

Figures 1 through 3 present the general location of the sampling locations for water quality monitoring efforts. The rationale used to select sampling locations are as follows:

- SP #1 – USGS Gage 07103700 Fountain Creek near Colorado Springs, CO and a baseline upstream of Colorado Springs**
- SP #2 – USGS Gage 07104905 on Monument Creek at Bijou St. at Colorado Springs and point below the Northern Wastewater Treatment Plant**
- SP #3 – USGS Gage 07105500 Fountain Creek at Colorado Springs, CO and point above the Las Vegas Wastewater Treatment Plant**
- SP #4 – Point below the Las Vegas Wastewater Treatment Plant**
- SP #5 – USGS Gage 07105800 Fountain Creek at Security, CO**
- SP #6 – Point above the CSR wetland mitigation**
- SP #7 – USGS Gage 07106000 Fountain Creek near Fountain, CO and point below the CSR wetland mitigation**
- SP #8 – USGS Gage 07106300 Fountain Creek near Pinon, CO**
- SP #9 – Point above the Pueblo levee system**
- SP #10- USGS 07106500 Fountain Creek at Pueblo, CO and a point within the Pueblo levee system**
- SP #11 – Point below the Pueblo levee system**
- SP #12 – USGS Gage 07099970 Arkansas River at Moffat Street at Pueblo, CO and point on Arkansas River above confluence to establish baseline**
- SP #13 – USGS 07109500 Arkansas River near Avondale, CO and point below confluence to determine exit conditions**

Figure 1 - General Locations of SDS Water Quality Monitoring (North)

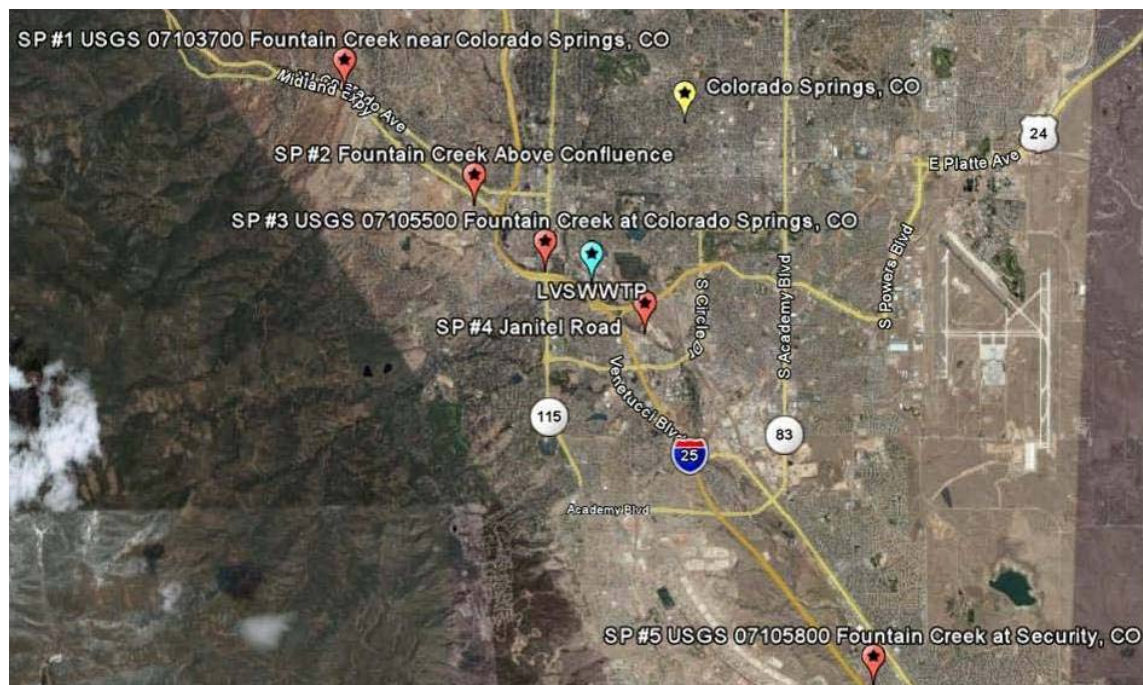


Figure 2 - General Locations of SDS Water Quality Monitoring (Central)

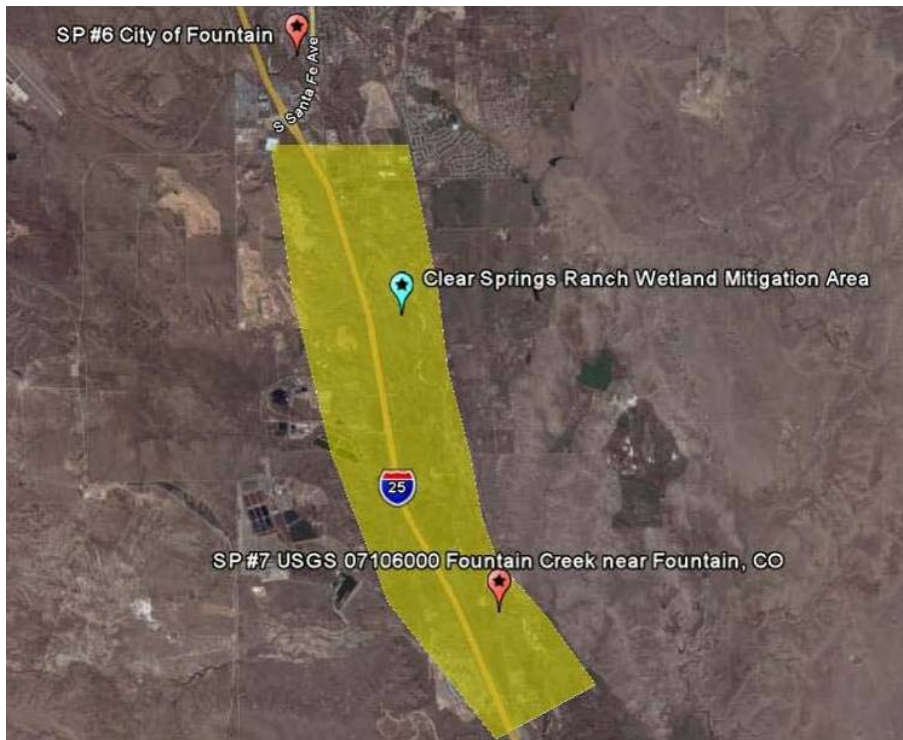


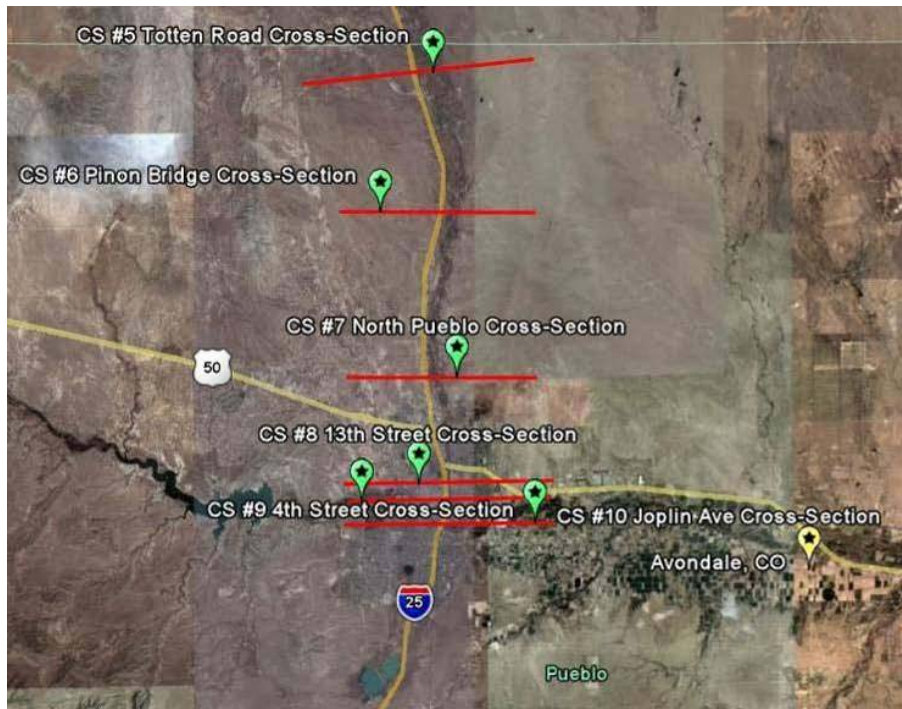
Figure 3 - General Locations of SDS Water Quality Monitoring (South)



Geomorphic Monitoring

In addition to water quality monitoring, geomorphic monitoring is also required. Ten cross-sections will be established at designated points along Fountain Creek to monitor for degradation, aggradation, and other changes to the geomorphologic surface. Each cross-section will be surveyed once per year during low stream flow; preferably in the winter when leaves and other organic material on the ground is at a minimum. Cross-sections will be accurate to standards for normal transect surveys, with a vertical tolerance of approximately 0.01 foot in measurements of channel elevation.

Figure 4 - General Locations of SDS Geomorphology Monitoring (South)



Data gathered by the water quality and geomorphic monitoring programs will be assembled and entered into an electronic database accessible to Pueblo County upon request. Monthly data gathered before SDS comes online will be used as a baseline to compare against once flows from SDS start entering Fountain Creek in 2012. Data will be categorized by type, date, and location. These data, along with other data collected through independent sampling and monitoring efforts will be the basis for making decisions as part of the adaptive management strategy.

Estimated Start Date	Within 60 days of approval of Pueblo 1041 permit.
Estimated Completion Date	December 31, 2046.
Permits	None.

E-2	Drainage Regulations
	<p>At all times water is delivered through the Southern Delivery System, the Applicant, including all participants, shall maintain stormwater controls and other regulations intended to ensure that Fountain Creek peak flows and runoff volumes received from development served by the SDS project are no greater than existing conditions, or at levels as appropriate to prevent damage to presently existing downstream facilities. Regulations shall address peak flow and runoff volume, conditions and flood hazards, incorporating at a minimum all relevant components of existing Colorado Springs regulations, including: regional drainage planning for low-flow and major storm events; detention; erosion and sediment control for land disturbance, construction, and similar activities; structural measures such as channel protection and engineered outfalls; prohibition of activities that infringe on the designated floodway; water quality controls, including water quality capture volume and a determination of the need for permanent best management practices (BMPs); and adequate provision for maintenance of all drainage-related facilities so required. This condition shall not prevent Colorado Springs and other local jurisdictions subject to this condition from revising and improving stormwater regulations from time to time, to incorporate new technologies, management techniques, or otherwise modify regulations consistent with the intent of preventing the exceedence of historical peak flows.</p>

CONSTRUCTION CONDITIONS / MITIGATION

C-1	Protection of Open Excavations and Trenches
	Applicant shall provide safe work sites for the residents of Pueblo County.
<p style="text-align: center;">PROJECT DETAIL</p> <ol style="list-style-type: none"> 1. Comply with applicable Codes, Standards, Laws and Regulations relating to the safety of persons or property or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain safeguards for such safety and protection. 2. Provide and maintain temporary security fences to protect the Work Sites. Temporary security fencing is described in more detail in Construction Conditions C-3. 3. Inspect open excavations and trenches for compliance with safety plans and document in daily inspection reports. 4. Limit the maximum length of open trench to 400 linear feet. 	

5. Shore or bench excavations as required by OSHA regulations.
6. Protect streets, roads, highways, and other public thoroughfares that are closed to traffic by barricades with warning signs per Manual of Uniform Traffic Control Devices (MUTCD).
7. Provide signage and lighting to alert general public of construction hazards, which could include surface irregularities, unramped walkways, grade changes, and trenches or excavations in roadways and in other public access areas.
8. Designate a qualified and experienced safety representative at the Work Site whose duties and responsibilities shall be the maintaining, supervising and enforcement of safety plans and programs.

C-2	Lighting
	Applicant shall minimize adverse light impacts to Pueblo County residents during night time hours.
PROJECT DETAIL	
1.	Comply with applicable Codes, Standards, Laws and Regulations relating to providing lighting for the safety of persons or property, or to the protection of property from damage, injury, or loss.
2.	Notify property owners within 500 feet of the site 48 hours prior to any night work, except in the case of emergency night work.
3.	Design lighting to prevent spillover, nuisance, or hazard effects of light and glare on adjacent locations and uses of land.
4.	Position, to the extent practical, lighting used for security around equipment storage areas away from residences and oncoming traffic. The use of cut-off type luminaires is required. Light bulbs and light sources shall be shielded so that they are not directly visible from any adjacent lot or public roadway. Spillover of lighting for adjacent properties will not exceed one-half of one (.50) footcandle measured at any point ten feet (10') beyond a property line.
5.	Provide individual light sources not exceeding 150,000 lumens per light source (typical of a 1250W metal halide light). Light standards will not exceed 24 feet in height. Generators used to power light sources will not exceed 70 dB at 25 feet from the source.

C-3	Construction Site Maintenance
	Applicant shall maintain construction sites and equipment in a safe and secure manner for the protection of the public.
<p style="text-align: center;">PROJECT DETAIL</p> <ol style="list-style-type: none"> 1. Comply with applicable Codes, Standards, Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss, and shall erect and maintain safeguards for such safety and protection. 2. Protect open trenches as described in Construction Condition C-1. 3. Close open ends of installed pipeline during non-working periods. 4. Close access manholes during non-working hours. 5. Provide barricades and light as necessary to prevent unauthorized entry to construction areas and affected roads, streets, and alleyways, inside and outside of fenced area, and as required to ensure public safety and the safety of project personnel and others who may be affected by the Work. 6. Lock or otherwise disable construction equipment during non-working hours. 7. Store materials and equipment in secure areas and arrange partitions to provide security of contents and ready access for inspection and inventory. Combustible materials (paints, solvents, fuels) shall be stored in a well-ventilated building meeting safety standards. Hazardous materials shall be stored according to product specification, codes, and manufacturer's instructions. 8. Lock controlled access points (private property gates) providing entry to construction sites and maintain a secure key control to prevent unauthorized access. 9. Perform work within right-of-way and easements in a systematic manner that minimizes inconvenience to property owners and the public and interferes as little as possible with public travel, whether vehicular or pedestrian. This will include that no residence or business will be cut off from vehicular traffic for a period exceeding 4 hours unless special arrangements have been made. Whenever it is necessary to cross, close, or obstruct roads, driveways, and walks, whether public or private, safe bridges, detours, or other temporary expedient access for accommodation of public and private travel will be provided and maintained. 10. Sweep roadways, streets, and walkways affected by the work and adjacent to the work when necessary. 11. Erect temporary security fencing around active construction areas. Fences around open trenches, staging areas, material storage areas and equipment storage areas may be standard plastic orange construction fence, 4 feet high, with posts at intervals no greater than 20 feet. Temporary 4-strand barbed wire fences shall be installed wherever necessary to prevent livestock from migrating out of their designated pasture. Temporary fences shall be maintained as needed during the construction period. Material selection for fencing between work area and adjacent property will be agreed upon between Applicant and the property owner. 	

12.	Inspect site safety measures each work day and periodically during non-working days.
13.	Provide 24/7 security services including mobile patrols, lighting and video surveillance.

C-4	Control of Access to Properties
	Applicant shall prevent unauthorized access to properties.
PROJECT DETAIL	
<ol style="list-style-type: none"> 1. Work with property owners, both public and private, to understand the conditions of ingress and egress, security issues, property control and protection issues, regarding the property, prior to mobilization to a specific work area. 2. Establish mutually agreeable conditions of access with property owner, and require all personnel accessing the site to sign a statement indicating that they understand and will abide by the conditions of access. 3. Grant access to enter the property only to those individuals that have a legitimate SDS related need to access the property, and then shall only do so under the previously agreed access conditions. 4. Provide signs at gates and access points notifying individuals that specific conditions of entry exist. 5. Close and secure gates and entry points by a locking mechanism when not in use. Conditions of entry will specify approved access times and conditions on open gates. 6. Strictly control access to keys to entry point locks. Recipients of keys will be required to sign when receiving the key, and again when returning the key. Recipients will be required to advise the Site Health & Safety Officer when they have lost or misplaced a key. Keys will be required to be of a non-duplicating type. Locks and keys will be changed when a key is reported lost or misplaced. 7. Designate the Site Health and Safety Officer to monitor the access control system. 	

C-5	Pre-existing Condition Assessment
	Applicant shall determine the condition of Pueblo County residents' existing property so that it can be restored to preconstruction condition or better.
PROJECT DETAIL	
<ol style="list-style-type: none"> 1. Perform an examination of pre-construction existing conditions of land surface, drainage, vegetation and structures adjacent to the construction site that could be damaged or altered by construction operations. The property owner will be invited to attend. 2. Perform periodic reexaminations, if required, to document any changes, including, but not limited to, cracks in structures, settlement, leakage, and similar conditions. 	

Examinations may include photography, sampling and expert assessments of existing or current conditions.	
3.	Document examinations in writing, and by photographs and audio-video recordings. Photography shall be by a professional commercial photographer, experienced in shooting interior/exterior construction photos, in daylight and nighttime conditions, and in good and inclement weather.
4.	Provide a copy of documentation to property owner for review and acceptance. A copy of the documentation shall be provided to the County. Applicant and the County shall each maintain a copy of the documentation. Such documentation shall be used as indisputable evidence in ascertaining whether and to what extent damage occurred as a result of Applicant's operations.

C-6	Work Hours
	Applicant shall limit work hours to minimize disturbance to Pueblo County residents.
PROJECT DETAIL	
1.	Perform work within the hours of 7:00 am to 6:00 pm Monday through Friday. Work outside of these hours will be restricted to maintenance of traffic, safety, and construction controls, maintenance of construction equipment, and approved exceptions. Pueblo County and residences within 500 feet of the affected portion of the work site shall be notified 48 hours in advance of work outside of these hours, other than maintenance or emergency work.

C-7	Permitting
	Applicant shall obtain all applicable permits.
PROJECT DETAIL	
1.	<p>Obtain permits and comply with permit conditions and applicable regulations. Permits may include those listed below and in Section C, Table C-1 of the 1041 Application, as well as other permits that may be required under Federal, State, County, or local regulatory jurisdiction.</p> <ul style="list-style-type: none"> • Bureau of Reclamation <ul style="list-style-type: none"> ○ Execution of Contracts (Reclamation Project Act 43 CFR 427) ○ Record of Decision (ROD) • U.S. Fish and Wildlife Service <ul style="list-style-type: none"> ○ Depredation Permit ○ Section 7 Consultation (Endangered Species Act 50 CFR 402) • U.S. Army Corps of Engineers <ul style="list-style-type: none"> ○ 404 Permit (Clean Water Act 33 CFR 320) • Colorado Department of Transportation (CDOT)

- Utility/Special Use Permit
- State Highway Access Permit
- Colorado Department of Public Health and Environment (CDPHE)
 - Air Pollution Emission Permit for Land Development
 - Stormwater Construction Permit
 - Construction Dewatering General Permit
 - Minimal Discharge Industrial Wastewater General Permit
 - Water Quality Control Division Plan Approval
- Other State Permits/Approvals
 - 401 Certification (Clean Water Act 40 CFR 121)
 - Reservoir Plan and Dam Safety Emergency Preparedness Plan Approval
 - Section 106 Review (National Historic Preservation Act 36 CFR 800)
- Union Pacific/Burlington Northern Santa Fe Railroad Permits
 - Utility License/Pipeline Crossing Agreements
- Potential Regional Permits*
 - Various Building related Permits (i.e., electrical, mechanical, HVAC, structural, etc.)
 - Floodplain Permits
- Potential County Permits*
 - Excavation/Grading Permits
 - Driveway Access Permits
 - Land Use/Zoning Permits
 - Building Permits
 - Grading and Erosion and Stormwater Quality Control Permits
 - Air Quality Construction Permits
 - Individual Sewage Disposal System Permits
 - Floodplain Permits
- Potential City Permits*
 - Excavation/Grading Permits
 - Land Use/Zoning Permits
 - Grading and Erosion and Stormwater Quality Control Permits
 - Driveway Access Permits

*As required by local agency with jurisdiction over the specific SDS Project work location. These may include the Pueblo Regional Building Department, Pueblo County, and Pueblo West Metropolitan District Department of Public Works.

2. Provide copies to Pueblo County within 60 days of obtaining permits.

C-8	Dewatering
	Applicant shall minimize dewatering impacts on Pueblo County properties and watercourses.
PROJECT DETAIL	
1. Obtain a construction dewatering permit from the Colorado Department of Public Health and the Environment (CDPHE).	
2. Create and implement a water control plan that includes descriptions of proposed	

	<p>ground and surface water control facilities including, but not limited to: equipment, methods, standby equipment and power supply, pollution control facilities, discharge locations, and provisions for temporary water supply; drawings showing locations, dimensions, and relationships of elements of each system; design calculations demonstrating accuracy of proposed dewatering system and components. Copies of plan will be provided to Pueblo County within 60 days of approval by CDPHE.</p>
3.	Control water during the course of construction, including weekends and holidays and during periods of work stoppages. Adequate backup systems shall be in place to maintain control of water.
4.	Remove surface water controls when they are no longer needed.
5.	Furnish, operate and maintain dewatering systems of sufficient size and capacity to continuously maintain excavations free of water, regardless of source, until backfilled to final grade.
6.	Design and operate dewatering systems to prevent loss of soil as water is removed, to avoid inducing settlement or damage to existing facilities, completed work, or adjacent property, and to relieve artesian pressures and resultant uplift of excavation bottom.
7.	Be responsible to obtain and comply with the requirements set forth in any applicable well permits required by the State.

C-9	Site Restoration
	Applicant shall provide Pueblo County residents with replacement vegetation and property to match pre-construction conditions or better.
PROJECT DETAIL	
1.	Grade disturbed areas to preconstruction contours so preconstruction drainage paths are reestablished.
2.	Reclaim disturbed land, except water areas and surface areas of roads, by seeding or planting to achieve a permanent vegetation cover as specified below. <ul style="list-style-type: none"> a. In accordance with Construction Condition C-5, a pre-construction evaluation of existing vegetation will be conducted to determine species diversity, woody plant density, and seasonal variety. b. Vegetation cover will be of the same seasonal variety native to the area of disturbed land, or species that support the post-construction land use. In those areas of disturbed vegetation where such seeds are not commercially available, seeds will be collected on-site to be used in revegetation, including, rare plants identified in the FEIS, by the Colorado Natural Heritage Program or by other qualified investigators. c. Seeding and planting of disturbed areas will be conducted during the first normal

	<p>period for favorable planting conditions after final preparation for seeding or planting.</p> <p>d. Soil stabilization practices will be used on all regraded and topsoiled areas.</p> <p>e. The revegetated area will be considered acceptable if the revegetated area cover is not less than 90 percent of the pre-construction vegetation cover with similar species diversity. The pipeline access road will not be included in the 90 percent coverage calculation.</p>
3.	<p>Restore roads and driveways so that:</p> <p>a. Surfaces are finished level with existing surfaces.</p> <p>b. Sealed roadways are finished to match existing seal (asphalt, spray seal, etc).</p> <p>c. Unsealed roadways are to be finished to match existing surface. Concrete roadways/driveways shall be reinstated in such a manner as to match existing surface. Portions of slab damaged or rendered unstable by undermining (whether inadvertently or deliberately) should be included in the portion to be restored.</p>
4.	<p>Restore damaged or injured property including outbuildings, to a condition similar or better to that existing before the damage or injury occurred, by repairing, rebuilding, or restoring the property.</p>
5.	<p>Restore or replace fences and gates that are disturbed during construction.</p>
6.	<p>Provide Pueblo County a security bond equal to \$2,000 per acre of land in permanent or temporary construction easement in each work package. The security bond shall be released in full to the Applicant two years following the final completion of the construction contract, upon successful revegetation, as described above. If successful revegetation is not achieved, the security bond will be forfeited in the amount of \$2,000 for each acre, or fraction of an acre, that has not been successfully revegetated.</p>

C-10	Public Communications
	Applicant shall keep Pueblo County residents informed of the SDS project and upcoming construction activities.

PROJECT DETAIL

1. Assign a point of contact for responding to public questions, comments and concerns. The point of contact shall continue for one year following the final construction in Pueblo County.
2. Establish a local telephone number (a "hot-line") to allow citizens' access to the Public Communications Office and team throughout the duration of the Project. This telephone number will be included in the public information measures listed below, as well as on job site signage. The hot-line will be a combination of pre-recorded and live operator communications.
3. Develop and maintain a website that will include details of current and future project activities (i.e., schedules, type of work, phases, etc.)
4. Deliver individual resident "mailers" notifying each resident of future construction activity near their home. Residences within 500 feet of an upcoming construction zone will be informed thirty (30) days prior to construction. The mailers will include details of when construction will begin, when completion is planned, what types of activities are expected, an overview of the Project; and the hotline number.
5. Distribute individual resident "door hangers" to properties within 500 feet of the construction site. These will serve as reminders of future construction activities, and will be distributed approximately seven (7) days prior to construction.

C-11	Dust and Other Air Emission Controls (Dust Control)
	Applicant shall minimize fugitive dust impacts to County residents.
PROJECT DETAIL	
<ol style="list-style-type: none"> 1. Prepare, submit and implement a fugitive dust control plan as required by the Colorado Department of Public Health and Environment (CDPHE) Air Pollution Control Division. A copy of the plan will be submitted to Pueblo County. 2. Implement standard fugitive dust control practices as specified in the fugitive dust control plan, including: <ol style="list-style-type: none"> a. Watering unpaved roads on site. b. Limiting vehicle speeds to 30 mph on site. c. Covering excavated material with synthetic or natural cover or preventing sediment movement from the pile using silt fence. d. Installing vehicle tracking control at access points to the site. e. Re-vegetating disturbed areas as described in Construction Condition C-9 as soon as appropriate to reduce dust sources. f. Sweeping paved streets as necessary to remove construction dust. 3. Perform particulate monitoring using real-time particulate monitors that are capable of 	

monitoring particulate matter less than ten microns (PM10). Particulate levels will be monitored immediately downwind of the working site and integrated over a period not to exceed 15 minutes. Monitoring will be conducted a minimum of once a day, with additional testing conducted if complaints are received. Instrumentation shall require necessary averaging hardware to accomplish this task. In order to ensure the validity of the fugitive dust measurements performed, there will be appropriate Quality Assurance/Quality Control (QA/QC) that includes the following features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and record keeping.

The action level will be established at 150 µg/m³ over the integrated period not to exceed 15 minutes. If particulate levels are detected in excess of 150 µg/m³, the upwind background level must be measured immediately using the same portable monitor. If the working site particulate measurement is greater than 100 µg/m³ above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust.

4. Use construction equipment that meets Colorado opacity standards for operating emissions. Construction equipment will be emissions tested at an approved facility prior to use on the site. This test will be performed each year that the equipment is used on the project. The certificates of approval for each item of construction equipment will be maintained by Applicant and be available for inspection by Pueblo County if requested.
5. Do not burn waste materials, rubbish, or other debris on or adjacent to the construction site.

C-12	Drainage and Erosion Control (Sediment Control)
	Applicant shall maintain soil within construction zone.
PROJECT DETAIL	
1.	Obtain a permit for Drainage and Erosion Control within a construction site: General Permit - Stormwater Discharges Associated with Construction Activity (Permit No: COR-030000).
2.	Implement a Stormwater Management Plan (SWMP) and Best Management Practices (BMPs) per Colorado Department of Transportation (CDOT) Erosion Control and Stormwater Quality Guide.
3.	Perform a pre-existing condition assessment of areas potentially subject to sedimentation from SDS construction as described in Construction Condition C-5.
4.	Restore lands outside of the work area that have been impacted by sediment from SDS construction consistent with Construction Condition C-9.
5.	Shall not release sediment impacting more than 4 square feet of land outside of the work.

C-13	Pre-Mobilization Readiness Review
	Applicant shall perform pre-mobilization readiness reviews prior to Applicant's contractor's beginning on-site construction activities.
PROJECT DETAIL	
<ol style="list-style-type: none"> 1. Prepare a Project Execution Plan (PEP) for each Work Package of the SDS Project (i.e., Pump Station, Pipeline Segment, Water Treatment Plant). The PEP will be structured to standardize and codify the project planning process for consistency and quality of implementation. 2. Perform a Pre-Mobilization Readiness Review to determine the project's readiness for mobilization of field activities. Pueblo County will be invited to participate in the review. Subject matter of a Readiness Review will, at a minimum, include: <ol style="list-style-type: none"> a. Safety management and Emergency Preparedness policies and procedures. b. Quality Assurance/Quality Control programs and procedures. c. Required local, state, and federal permits and agency approvals have been acquired, the Contractor is aware of permit requirement and limitations, and appropriate Contractor policies and procedures are in place for compliance. d. Site and security controls are in place. e. Communications systems are in place and operational. f. Temporary facilities are in place where required. g. Safety plan and safety representative. h. Utility Locations have been verified. i. Agency Approvals (incl. Pueblo County). j. Applicant shall verify that land, easement, and right-of-way acquisitions are complete and what limitations are related to Project access. 	

C-14	Traffic Control
	Applicant shall provide for safe vehicular and pedestrian traffic.
PROJECT DETAIL	
<ol style="list-style-type: none"> 1. Develop a traffic control plan complying with the applicable standards of the Manual on Uniform Traffic Control Devices. The Traffic Control Plan will be signed by an individual certified by the Colorado Department of Transportation (CDOT) or the American Traffic Safety Services Association (ATSSA), as a Worksite Traffic Control Supervisor, whose signature shall constitute certification that the plan meets or exceeds MUTCD standards. The plan will include drawings(s) of the project location showing phases of the project, a list of the posted speed limits throughout the project, and a drawing(s) of the traffic control measures to be employed at the project site. 	

2. Comply with the Haul Route Plan accepted by Pueblo County.

C-15	Protection of Plants and Wildlife
	Applicant shall control impacts to native endangered and threatened flora and fauna.
PROJECT DETAIL	
<ol style="list-style-type: none">1. Protect native endangered and threatened flora and fauna in accordance with the Final Environmental Impact Statement.2. Submit a wildlife mitigation plan to the Colorado Division of Wildlife in accordance with their regulations prior to construction. This Plan will include actions the Applicant proposes to mitigate impacts that the SDS Project may have on fish and wildlife. As required by statute, the Wildlife Commission will evaluate the probable impact of the project on fish and wildlife. The Applicant shall provide the official wildlife mitigation plan and official state position to Pueblo County Staff prior to construction.3. Coordinate with Bureau of Reclamation to release flows to the Arkansas River through the flood control gates when the North Outlet Works is unavailable due to construction activities.	

C-16	Noxious Weed Control
	Applicant shall control spread of noxious weeds resulting from project construction.
PROJECT DETAIL	
<ol style="list-style-type: none">1. Provide a person experienced in field identification of noxious weeds to locate existing noxious weeds that will be disturbed during construction in advance of ground-disturbing construction activities.2. If List A species are found, provide to the State Weed Coordinator mapping data pertinent to each population including:<ol style="list-style-type: none">a. Species nameb. Population location(s) including distribution and abundancec. Estimated infested acreage3. Implement an eradication program within the project limits. Eradicate existing Class A and B noxious weed populations.4. Adopt the following methods to prevent the spread of noxious weeds during	

construction.

- a. Major equipment (track equipment, rubber tire loaders, and backhoes) will be cleaned by high pressure air or water spray before being delivered to the project site.
 - b. Use weed free seed, mulch, and borrow material.
 - c. Use 100-percent certified weed free seed and mulch. Locally or regionally available seed and mulch will be used when practicable.
5. Disturbed areas will be re-seeded as soon as practicable after the disturbance ends.

C-17	Hazardous Waste Management
	Applicant shall ensure that hazardous wastes are appropriately managed.
PROJECT DETAIL	
<ol style="list-style-type: none">1. Follow regulations to the handling, storage, transportation, and disposal of hazardous materials as set forth in the Code of Federal Regulations (CFR) 1910.120, DOT, EPA and NRC regulations, as applicable. The type and quantity of these materials will be small quantities (paints, solvents, fuels, etc.).2. Development and implement Health, Safety and Environmental plans including hazardous material management in compliance with Federal, State and Local regulations prior to mobilizing on-site for Project construction.	

C-18	Sustainable Design
	Applicant shall, where practical, design SDS facilities to be sustainable or "green".
PROJECT DETAIL	
<ol style="list-style-type: none">1. Make an effort to balance cut and fill for site grading and backfill to reduce imported or exported material.2. Use site and building design to promote energy and resource conservation.3. Motors and electrical equipment will be high-efficiency rated. Efficiencies will be determined by testing as set forth in ANSI/IEEE 112-Standard Test Procedures for Polyphase Induction Motors and Generators, Method B or Method F.	

C-19	Sustainable Construction Practices
	Applicant shall, where practicable, use sustainable construction practices.
PROJECT DETAIL	

1. Create opportunities for sustainable construction.
2. Prepare a materials handling plan including recycling and reuse. This plan shall identify materials expected to be encountered during demolition, site clearing, field office operations, equipment maintenance, etc. In this plan, the Applicant shall define how these materials will be handled to maximize recycling and reuse opportunities and to minimize permanent disposal of such items including used motor oil, waste paper, removed asphalt, removed concrete, used tires, etc.
3. Use minimum 10-percent bio diesel in construction equipment.
4. Purchase local goods and services to the maximum extent possible consistent with sound procurement practices and local availability. Such purchases may include bulk commodities where longer shipping distances are not economical, such as fuel, lubricants, oils, sand and gravel, masonry and concrete.

C-20	Surface Water and Groundwater Flows
	Applicant shall restore ground and surface water supplies to pre-construction conditions.
PROJECT DETAIL	
1.	Restore disturbed surfaces to pre-construction contours, as defined by the aerial survey and mapping.
2.	Perform pre-construction hydrologic investigations on properties that have active springs along the pipeline route. Design and construct the pipeline to prevent injury to springs. <ol style="list-style-type: none"> a. Use "flowable fill" for bedding and pipe zone material. b. Use native material that was removed from the trench in the trench zone above the pipe. c. Use trench plugs in areas where groundwater is encountered to prevent flow along the trenchline.

C-21	Protection of Livestock
	Applicant shall protect livestock on lands crossed by the project during construction.
PROJECT DETAIL	
1.	Work jointly with landowners and livestock owners to determine grazing areas, watering points and livestock pathways to food and water.

2.	Provide access for livestock through farm areas, do not cut off ready access points of farmlands in which livestock are pastured, provide alternate accessible water sources, maintain existing fences required to restrain livestock, and keep gates closed and secure.
3.	Temporarily relocate livestock away from construction activities if requested by livestock owner.

C-22	Noise Control
	Applicant shall minimize noise impacts to adjacent property owners.

PROJECT DETAIL

1. Comply with applicable OSHA, State of Colorado, and local noise control standards, requirements, and regulations.
2. Measure baseline noise conditions prior to construction work commencing. The baseline will be the average noise reading over three 24-hour periods at each receptor lot-line location or at 1-mile intervals, whichever is greater.
3. Periodically monitor generated sound levels and record decibel levels. Should noise levels exceed appropriate standards, the operation will be ceased and noise mitigation measures will be implemented.
4. Develop a noise control plan to mitigate construction noise and to comply with appropriate standards.
5. Any excessively high decibel level work, such as blasting or pile driving will be performed between the limited hours of 9:00 am and 5:00 pm to minimize disruptions.

SOCIO-ECONOMIC/CONTRACTING PRACTICES

SE-1	Securing Land Through Easements, Fee Purchase, or Condemnation
	Applicant shall secure land necessary for construction of the project in a fair and equitable manner.

PROJECT DETAIL

1. Treat private property owners fairly and commit to using the power of eminent domain only as a last resort.
2. Offer to compensate landowners to have their own appraisal done if they disagree with the applicant's appraisal.
3. Reimburse landowners for relocation costs, title work, and closing costs. No landowner

should have out-of-pocket expenses from the project for these activities.

4. Provide proof to Pueblo County that they have secured the necessary rights to construct the project prior to starting construction at any given location.

SE-2	Payment in Lieu of Property Taxes
	Applicant shall reimburse Pueblo County for property taxes lost due to acquisition of land in fee.
PROJECT DETAIL	
<ol style="list-style-type: none">1. Preferentially acquire easements and minimize to extent practicable, the number of private properties acquired in fee to support construction and operation of SDS.2. For those private properties purchased and owned in fee, make an annual payment in lieu of taxes equal to the value of the taxes assessed by the Pueblo County Assessor.3. Payment shall be made to Pueblo County Treasury on or before April 30 of each calendar year.4. Upon successful closing of private property purchase.5. This mitigation is ongoing until private properties purchased are sold or conveyed to another private owner.	

OPERATIONAL PRACTICES

O-1	Release Rate Limit
	Applicant shall limit the maximum release rate from the Williams Creek Reservoir to 300 cubic feet per second.
O-2	Pipeline Drainage
	Applicant shall limit the release rate of drains from the pipeline to a drainageway to the equivalent of less than a 2-year storm event in that drainageway, except in the case of emergency.
O-3	Pipeline Capacity
	Applicant shall limit the rate of water pumped by the Juniper Pump Station to 78 mgd.

ENFORCEMENT PRACTICES

ENF-1	Compliance Monitoring and Reporting
	Applicant shall monitor and report on compliance with the conditions of the 1041 permit.
PROJECT DETAIL	
<p>1. Submit a quarterly report during project construction in Pueblo County that will provide a summary of activities related to the Conditions of the permit. The report will summarize the activities occurring in the reporting period, and a forecast of activities planned in the upcoming period.</p> <p>Contents of the report will include (as applicable):</p> <ul style="list-style-type: none">a. Safety incident log.b. Citizen call log.c. Description of mitigation and restoration activities (i.e., quantity and location of repaired road surface, reseeding, etc.).d. List of non-compliance issues by contractors (silt releases, work hour infractions, fines and penalties).e. Sustainable construction practices employed.f. Schedule and key milestones met and forecast.g. Location and extent of excavations.h. Instances of work outside normal work hours, except maintenance activities.i. Status of site maintenance, security and access control to properties.j. Location and extent of dewatering activities.k. Status of other required permits, including compliance with the programmatic agreement to protect cultural resources.l. Dust monitoring summary.m. Status of drainage and erosion control measures.n. Status of plant and wildlife protection requirements.o. Status of measures to protect surface and groundwater flows.p. Status of livestock protection measures.q. Status of Clear Spring Ranch project.r. Status of pump station architectural review.s. Status of land acquisition.t. Status of compliance with requirements concerning Pueblo County Roads.	

- u. Status of dredging at the levees on Fountain Creek in Pueblo.
 - v. Status of reclamation and bonding for disturbed areas.
 - w. Status of the written MOU for construction and use of the North River Outlet Works.
 - x. Acceptance of the design of structures at Lake Pueblo Dam by the BOR.
 - y. Status of conservation strategies, local reuse, stormwater management, drainage regulations and enforcement.
 - z. Status of stormwater and wastewater system improvements per permit commitments.
 - aa. Status of NEPA, ROD, contract negotiations with BOR and notice of NEPA-required required mitigation and any project changes resulting from contract negotiations.
 - bb. Status of payments in lieu of property taxes.
 - cc. Copies of the annual reports on the SDS Project submitted to Reclamation.
2. Submit an annual report to Pueblo County that will provide a summary of activities related to the SDS Project and the Conditions of the Permit. These reports will be due annually on or before January 31, beginning the year following commencement of water deliveries through the SDS pipeline. The reports shall include a signed certification of compliance with the Permit.
- Contents of the report will include, but will not be necessarily limited to:
- a. Summary of storage, diversion, delivery of water in Pueblo County.
 - b. Summary of Participants' return flows to Fountain Creek including storage and releases of such return flows (maximum daily flows, average annual and monthly flows and amounts).
 - c. Summaries of exchanges by Participants between Pueblo Reservoir and the Fountain Creek confluence (monthly and annual rates of flow and quantities).
 - d. Use of any new water rights to be delivered or stored through SDS (amount, time, source).
 - e. Water quality monitoring.
 - f. Geomorphology monitoring.
 - g. Status of adaptive management plans on Fountain Creek.
 - h. Status of payments into the Fountain Creek monetary mitigation fund.
 - i. Status of expenditures for wastewater system improvements for Participants (and third party users in the Fountain Creek basin) per Permit Conditions.
 - j. Reports on the operation of the Pueblo Flow Management Program and the Low Flow Program (rates, and quantities, and times of foregone exchanges, releases,

	and reception documentation).
k.	Status of lake level management cooperative efforts with other entities at Pueblo Reservoir.
l.	Status of conservation and local reuse.
m.	Payments to Pueblo County in lieu of property taxes.
n.	Copies of the annual reports on the SDS Project submitted to Reclamation.

COUNTY ROADS – CONDITIONS / MITIGATION

CR-1	Excavation Permit
	Applicant shall make application for an Excavation Permit with the Pueblo County Public Works Department (Department) for each road crossing and comply with all conditions of that permit.

CR-2	Access Permit
	Applicant shall make application for an Access Permit with the Department for each access point onto a County roadway and comply with all conditions of that permit.

CR-3	Traffic Control Plan
	Applicant shall submit a Traffic Control Plan to the Department for review and approval, for the project which conforms to applicable standards of the Manual on Uniform Traffic Control Devices.

PROJECT DETAIL

1. The traffic control plan shall be developed and administered by a certified Traffic Control Supervisor or their authorized personnel.

CR-4	Plan – Route/Easement Construction Staging Area
	Applicant shall provide a plan to the Department defining the use of the pipeline route/easement as a construction “Staging Area” for approval.

PROJECT DETAIL

1. The Staging Area Plan shall define construction work times, material delivery hours, noise suppression, dust abatement, construction methods, and other mitigation of construction nuisances. Deviation from the plan will require approval by the Department prior to a change in use.

CR-5	Haul Route Plan
	Applicant shall provide a Haul Route Plan, for use of the public road system to provide access to the Staging Area/pipeline easement, to the Department for review and approval.

PROJECT DETAIL

1. The Haul Route Plan will identify the roads utilized by the applicant for construction vehicle traffic, maintenance of those roads during the project and rehabilitation of those roads. For the purpose of this plan, "construction vehicle" shall mean those vehicles requiring operators to possess a Commercial Drivers License (CDL) and/or weighing more than 10,001 pounds.
2. The Haul Route Plan shall identify the final treatment for utilized roads and be developed cooperatively between Colorado Springs Utilities and the Department.
3. The roads utilized in the Haul Route Plan shall be maintained by the applicant during pipeline construction periods such that they are passable by the motoring public at all times except when identified in an approved Traffic Control Plan as "Closed" or as otherwise approved by the Department.
4. All road rehabilitation and maintenance work on the Haul Route Plan roads shall comply with the Pueblo County Roadway Design and Construction Standards.
5. Costs for maintenance of the Haul Route Plan roads shall be borne solely by the applicant.
6. The applicant shall initiate maintenance at the discretion of the Pueblo County Director of Public Works.

CR-6	Haul Route to Staging Area
	Applicant shall limit the haul route from the "Staging Area" to the State Highway System to those roads identified in the above defined "Haul Route Plan Map" dated 12-31-08 ("Exhibit 1" and Haul Route Plan Road Table "Exhibit 2") or Haul Route Plan approved by the Department prior to commencement of pipeline installation activities that require use of roads identified in the Haul Route Plan.

PROJECT DETAIL

1. Said plan shall be incorporated within construction plan and specification

documents. Identification by the applicant of additional roads they desire to be included in the Haul Route Plan for dedicated project use will require approval by the Department.	
2.	The Department may include roads in the plan if it is determined that they are being used by the applicant's representative or their contractor by above identified "construction vehicles".
3.	The Department will notify the applicant, prior to inclusion in the Haul Route Plan, of the observed use of non Haul Route Plan roads. Incidental use of roads not specifically designated on the Haul Route plan is approved for the applicant, their representatives or contractor's vehicles weighing less than 10,001 pounds and/or not requiring a CDL license.

CR-7	Cash Payment / Escrow / Other Financial Instrument
	Applicant shall establish a cash payment, escrow, or other financial instrument such as a performance bond, acceptable to the Department and the Pueblo County Attorney, to Pueblo County, in an amount estimated by the Department to cover the total costs for rehabilitation of the roads identified in the approved Haul Route Plan, to Pueblo County Roadway Design and Construction Standards (Standards) as noted in "Exhibit 4" within thirty days of the applicant issuing a notice to proceed to its contractors to perform pipeline installation activities that require use of roads identified in the Haul Route Plan.

PROJECT DETAIL	
1.	If a financial instrument is selected, said financial instrument shall be held by Pueblo County until such time as the rehabilitation of Haul Route Plan roads are accepted by the County.
2.	The financial instrument is to be for an amount sufficient to cover the estimated costs established in "Exhibit 4", for rehabilitation of the Haul Route Plan roads plus estimated increases in costs over time as represented by the Construction Cost Index.
3.	It will be at the discretion of the Public Works Director to determine when it is necessary to commence rehabilitation of individual roads identified in the Haul Route Plan.
4.	Upon request of the Public Works Director, the applicant will be required to submit funds to the Department necessary to perform the rehabilitation of the individual roads selected by the Director of Public Works.
5.	The applicant will have 30 days to provide the requested funds to the Department. Upon such a request and payment of the funds, the applicant will be relieved of any further rehabilitation, maintenance or warranty obligation for that road section. Upon receipt of the requested funds, the total value of the financial instrument may be

	reduced by a same amount, less any increased cost over estimated costs in "Exhibit 4", at the discretion of the applicant.
6.	Pueblo County will commence maintenance of rehabilitated roads upon their completion and final acceptance by the County. Attached as "Exhibit 3" is the minimum defined cross-section and treatment for identified Haul Route Plan roads. The minimum pavement section may change based upon the outcome of a "Pavement Structure Design" which conforms to the Standards. In any event, all reasonable costs associated with rehabilitation of Haul Route Plan roads will be borne solely by the applicant including engineering design, construction, drainage, etc.

CR-8	Drainage Calculations / Blow-off Valves
	Applicant shall provide to the Department for review and approval, drainage calculations performed by a professional engineer licensed to practice in the State of Colorado, detailed plans on the "Blow-off Valves".
PROJECT DETAIL	
1.	The plans shall include any necessary drainage structures and erosion control measures and be incorporated into the construction plans.

CR-9	Stormwater Management Plan
	Applicant shall submit a Stormwater Management Plan accepted by the responsible jurisdiction to the Department and incorporate that Stormwater Management Plan into the construction plans.

CR-10	Future Roadways / Utilities
	Applicant shall not unreasonably prohibit the installation of future roadways and utilities across the utility easement. Future roadways are expected to be surface crossings at existing grade for a typically defined roadway section in the Pueblo County Roadway Design and Construction Standards today or as modified in the future.
PROJECT DETAIL	
1.	Future roadways are expected to be surface crossings at existing grade for a typically defined roadway section in the Pueblo County Roadway Design and Construction Standards today or as modified in the future.

CR-11	Final Plans / Specifications
	Applicant shall submit to Pueblo County, which reserves the right to review, the final construction plans and specifications, final Haul Route Plan, final Staging Area Plan, and other supporting documents and to modify these conditions of approval based upon that review to conform to final documents.

Including Exhibits:

(Previously submitted for record, not included in this appendix)

Exhibit 1 - Haul Route Plan Map

Exhibit 2 - Haul Route Plan Roads Table

Exhibit 3 - Haul Route Plan Treatment

Exhibit 4 - Haul Route Plan Cost Estimates

Exhibit 5 - Pueblo County Roadway Design and Construction Standards

References

- Bureau of Reclamation. 2008a. Southern Delivery System Final Environmental Impact Statement. December.
- Bureau of Reclamation. 2008b. Southern Delivery System Project Supplemental Information Report. October.
- Bureau of Reclamation. 2009. Record of Decision for the Southern Delivery System Project Final Environmental Impact Statement. Record of Decision Reference No. GP-2009-01.
- Colorado Department of Public Health and Environment. 2010. Section 401 Water Quality Certification. April 23.
- CH2M HILL. 2010. Draft Fish and Wildlife Mitigation Plan. January.
- Colorado Springs Utilities. 2009. Southern Delivery System Clean Water Act Section 404 Individual Permit Application. April 24.
- Galloway, J.M., R.F. Ortiz, J.D. Bales, and D. P. Mau. 2008. Simulation of Hydrodynamics and Water Quality in Pueblo Reservoir, Southeastern Colorado, for 1985 to 1987 and 1999 to 2002. Prepared in cooperation with Colorado Springs Utilities and the U.S. Bureau of Reclamation. Scientific Investigation Report 2007-5056.
- Pueblo County. 2009. 1041 Permit No. 2008-002. The Board of County Commissioners of Pueblo County Colorado; A Resolution Approving 1041 Permit No.2008-002 With Terms and Conditions for Construction and Use of a Municipal Water Project Known as the Southern Delivery System within Pueblo County, Colorado. April 21.
- Williams, B.K., R.C. Szaro, and C.D. Shapiro. 2009. Adaptive Management: The U.S. Department of the Interior Technical Guide. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC.