

# RECLAMATION

*Managing Water in the West*

## **Southern Delivery System Final Environmental Impact Statement**

**Great Plains Region**



U.S. Department of the Interior  
Bureau of Reclamation  
Eastern Colorado Area Office  
Loveland, Colorado

December 2008



## **Mission Statements**

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.



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**Eastern Colorado Area Office**



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# Southern Delivery System Final Environmental Impact Statement

Prepared by the U.S. Department of the Interior, Bureau of Reclamation

Cooperating Agencies:

- U.S. Army Corps of Engineers
- U.S. Bureau of Land Management
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service

Abstract:

This Final Environmental Impact Statement (FEIS) describes the effects of contracts with the U.S. Department of the Interior, Bureau of Reclamation that were requested by the City of Colorado Springs, City of Fountain, Security Water District, and Pueblo West Metropolitan District (collectively referred to as the Participants). The contracts would allow the development of a water supply project known as the Southern Delivery System (SDS) Project.

The purpose of the SDS Project is to provide a safe, reliable, and sustainable water supply for the Participants through the foreseeable future. The primary major federal action analyzed in the FEIS is the execution of up to 40-year contracts with the Bureau of Reclamation, for the use of Fryingpan-Arkansas Project (Fry-Ark Project) facilities. To operate the SDS Project, the Participants require contracts that provide for use of excess storage capacity in Pueblo Reservoir (part of the Fry-Ark Project), conveyance of water through facilities associated with Pueblo Reservoir, and exchange of water between Pueblo Reservoir and Fry-Ark Project reservoirs in the upper Arkansas River Basin.

The FEIS describes and analyzes the potential effects of seven SDS Project alternatives, including a no action alternative, on environmental and human resources in the upper Colorado River and Arkansas River basins in Colorado. A Draft Environmental Impact Statement (DEIS) was issued on February 29, 2008 and a Supplemental Information Report was issued on October 3, 2008. This FEIS reflects public comments on both the DEIS and Supplemental Information Report and has been prepared in compliance with the National Environmental Policy Act.

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## **Appendices**

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- Appendix C. Comments and Responses on the Supplemental Information Report
- Appendix D. Operational Characteristics of EIS Alternatives
- Appendix E. Simulated Hydrology Results
- Appendix F. Conceptual Adaptive Management Plan and Environmental Management System
- Appendix G. Dam Failure Inundation Maps
- Appendix H. List of Potentially Affected Parcels
- Appendix I. Programmatic Agreement for Cultural Resources



## Abbreviations and Acronyms

°C	Celsius
°F	Fahrenheit
ac	acres
ac-ft	acre-foot
ac-ft/yr	acre-feet per year
ACHP	Advisory Council on Historic Preservation
ADT	Average Daily Traffic
AFA	Air Force Academy
AHRA	Arkansas Headwaters Recreation Area
AIRFA	American Indian Religious Freedom Act
APE	Area of Potential Effect
Ark-Otero Diversion/Intake	Otero Intake on the Arkansas River
ARUCPS	Arkansas River Upstream of Confluence Pump Station
ARWNA	Arkansas River Water Needs Assessment
ASCE	American Society of Civil Engineers
ASTM	American Society of Testing Materials
AVC	Arkansas Valley Conduit
BASH	Bird Aircraft Strike Hazard
BBC	BBC Research and Consulting
BG	Block Group
BLM	U.S. Bureau of Land Management
BMP	best management practice
CCPA	Colorado Council of Professional Archaeologists
CDLE/OPS	Colorado Division of Labor and Employment Division of Oil and Public Safety
CDNIS	Colorado Natural Diversity Information System
CDNR	Colorado Department of Natural Resources
CDOLA	Colorado Department of Local Affairs
CDOT	Colorado Department of Transportation
CDOW	Colorado Division of Wildlife
CDP	census designated place
CDPHE	Colorado Department of Public Health and Environment
CDPOR	Colorado Division of Parks and Outdoor Recreation
CDPS	Colorado Discharge Permit System
CDSS	Colorado Decision Support System
CDWR	Colorado Division of Water Resources
CEC	Chadwick Ecological Consultants, Inc.
CEQ	Council on Environmental Quality

CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CF&I	Colorado Fuel and Iron Corporation
CFR	Code of Federal Regulation
cfs	cubic feet per second
CGS	Colorado Geological Survey
CL	centerline
CLG	Certified Local Governments
CLOMR	Conditional Letter of Map Revision
CMP	Construction Management Plan
CNHP	Colorado Natural Heritage Program
CO <sub>2</sub>	carbon dioxide
Colorado Springs	City of Colorado Springs or Colorado Springs Utilities
Corps	U.S. Army Corps of Engineers
COS/Peterson	Colorado Springs Airport/Peterson Air Force Base
CP	Comprehensive Plan
CROA	Colorado River Outfitters Association
CSLB	Colorado State Land Board
CSP	Colorado State Parks
CSU	Colorado Springs Utilities
cutbow	cutthroat-rainbow
CWA	Clear Water Act
CWCB	Colorado Water Conservation Board
dB	decibels
dBA	decibels A scale
DBPS	Drainage Basin Planning Study
DEIS	Draft Environmental Impact Statement
DOI	U.S. Department of the Interior
E&H	Engineering and Hydrosystems
<i>E. coli</i>	<i>Escherichia coli</i>
EG	existing ground surface
EIS	Environmental Impact Statement
ELEV	elevation
EPA	U.S. Environmental Protection Agency
EPCDOT	El Paso County Department of Transportation
ERO	ERO Resources Corporation
ESA	Endangered Species Act
ET	evapotranspiration
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency

FG	finished ground surface
FHWA	Federal Highway Administration
FMP	Flow Management Program
Fort Carson	U.S. Department of the Army Fort Carson Military Reservation
FONSI	Finding of No Significant Impact
Fountain	City of Fountain
Fry-Ark Project	Fryingpan-Arkansas Project
ft/d	feet per day
ft <sup>2</sup> /1000 ft	square feet of Weighted Usable Area per 1,000 feet of stream
FVA	Fountain Valley Authority
GEI	GEI Consultants, Inc.
GHG	greenhouse gases
GIS	Geographic Information System
gpcd	gallons per capita-day
gpd	gallons per day
gpm	gallons per minute
GPS	Global Positioning System
Guidelines	EPA's 404(b)(1) Guidelines for discharge of dredge and fill material into wetlands and waters of the U.S. (40 CFR 230)
HARP	Historic Arkansas Riverwalk of Pueblo
HEAP	Home Efficiency Assistance Program
HEC-RAS	Hydrologic Engineering Center River Analysis System
HGM	Hydrogeomorphic
Homestake	Otero Homestake System
HRS	HRS Water Consultants
I-25	Interstate 25
IFIM	Instream Flow Incremental Methodology
IGA	Intergovernmental Agreement
IHA	indicators of hydrologic alteration
IPCC	Intergovernmental Panel of Climate Change
ITA	Indian Trust Assets
JD Phillips WRF	J.D. Phillips Water Reclamation Facility
km	kilometer
Kw	soil erodibility factor
lbs/ac	pounds (of fish) per acre
LDC	Land Development Consultants
LOMR	Letter of Map Revision
LVSWWTF	Las Vegas Street Wastewater Treatment Facility
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
mg/L	milligrams per liter

mgd	million gallons per day
MIN	minimum
mL	milliliter
Montana Method	Montana Wetland Assessment Method
MW-h/d	megawatt hours per day
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NASS	National Agriculture Statistics Service
NAST	National Assessment Synthesis Team
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLCD	National Land Cover Data
NOI	Notice of Intent
NPC	Noise Pollution Clearinghouse
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OAHP	Office of Archaeology and Historic Preservation
P	probability of a flood value being equaled or exceeded in a given year
PA	Programmatic Agreement
PAC	Primary Activity Areas
PACOG	Pueblo Area Council of Governments
PBWW	Pueblo Board of Water Works
PCE	Primary Constituent Elements
PFMP	Pueblo Flow Management Program
PHABSIM	Physical Habitat Simulation Model
PM <sub>2.5</sub>	Particulate Matter less than 2.5 microns in diameter
PM <sub>10</sub>	Particulate Matter less than 10 microns in diameter
PMF	Probable Maximum Flood
Policy Plan	County-Wide Policy Plan
PPACG	Pike Peak Area Council of Governments
PPRBD	Pikes Peak Regional Building Department
Preble's	Preble's meadow jumping mouse
PSOP	Preferred Storage Options Plan
Pueblo West	Pueblo West Metropolitan District
PUMS	Public Use Microdata
PWMD	Pueblo West Metropolitan District
RCRA	Resource Conservation and Recovery Act
Reclamation	U.S. Bureau of Reclamation
ROD	Record of Decision
ROY	Restoration of Yield

S1	critically imperiled
S2	imperiled
SCADA	Supervisory Control and Data Acquisition
SDS	Southern Delivery System
SDWA	Safe Drinking Water Act
Security	Security Water District
SECWCD	Southeastern Colorado Water Conservancy District
SEO	Colorado State Engineer's Office
Service	U.S. Fish and Wildlife Service
SFE	Single Family Equivalents
SHPO	State Historic Preservation Officer
SMAD	Simulated Mean Annual Deliveries
SMAPD	Simulated Mean Annual Project Deliveries
sq mi	square mile
SWA	State Wildlife Areas
SWSI	Statewide Water Supply Initiative
T	recurrence interval
T3	Third Terrace
TCP	Traditional Cultural Property
TDS	total dissolved solids
TE&C	Threatened, Endangered and Candidate
TOPS	Trails, Open Space and Parks
TSI	Trophic State Index
TYP	typical
UAVFMP	Upper Arkansas Voluntary Flow Management Program
URS	URS Corporation
USC	United States Code
USDA	U.S. Division of Agriculture
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
VCRA	Voluntary Cleanup and Redevelopment Act
VRM	Visual Resource Management System
WCRM	Western Cultural Resource Management, Inc.
WEG	Wind Erodibility Group
WMO	World Meteorological Organization
WQCD	Water Quality Control Division
WQA	Water Quality Assessment
WQS	Water Quality Standards
WSEL	Water Surface Elevation
WUA	Weighted Usable Area

WWSP	Winter Water Storage Program
WWTF	wastewater treatment facility
µg/L	micrograms per liter
µS/cm	microsiemens per centimeter