

SDS Supplemental Information Report Issues Paper

Summary of Findings

In February 2008, the Bureau of Reclamation (Reclamation) issued a Draft Environmental Impact Statement (DEIS) which documented the impact of the Southern Delivery System (SDS) on human and environmental resources in the Arkansas River Basin. Based on the findings of the DEIS and public input, Reclamation conducted additional analysis of the environmental implications of the SDS project. The information was published in a Supplemental Information Report (SIR) on October 3, 2008.

KEY SIR FINDINGS: The most significant change to be reported in the SIR is modifications the project participants made to the Proposed Action Alternative (Alternative 2) to avoid or minimize effects identified in the DEIS. The report also summarized results of an additional water quality analysis, additional study of impacts to stream flows on the Western Slope, and a dam failure analysis. The analyses in the SIR did not reveal major impacts to the environment.

DETAILED FINDINGS:

I. Modifications to the Alternatives

Following is a summary of modifications the SIR outlines to Alternatives 2 and 7 (these are the project participants' first and second choices for SDS) and the No Action Alternative, which would be implemented if either action alternative could not be implemented.

A. Modifications to the Proposed Action Alternative (Alternative 2)

Under Alternative 2, water would be diverted from Pueblo Reservoir, conveyed by a pipeline to a new reservoir near Colorado Springs, treated, and delivered to participants' customers. Colorado Springs return flows would be stored in a new reservoir on Williams Creek, prior to exchange down Fountain Creek. The SIR described a modified Proposed Action Alternative that would blend elements of two of the SDS alternatives – the Proposed Action and the Wetland Alternative -- to come up with a hybrid alternative. Following are key modifications reported in the SIR:

- Locating the terminal storage reservoir at Upper Williams Creek rather than Jimmy Camp Creek Reservoir in order to avoid or minimize effects on wetlands and cultural and paleontological resources. Moving the terminal storage reservoir from Jimmy Camp Creek will avoid a significant number of historic and prehistoric sites. Additionally, the change will minimize potential increased Bird Aircraft Strike Hazards.
- Realigning Bradley Road to the south of Upper Williams Creek Reservoir rather than to the north to avoid potential effects on a golden eagle nest.
- Using a new pipeline, rather than Williams Creek, to convey return flows from Williams Creek Reservoir to Fountain Creek, to further protect wetlands and protect habitat for a state threatened fish species, the Arkansas Darter. (This pipeline change was also made to Alternatives 1, 6 and 7.) This pipeline does increase the chance of erosion at its discharge point in Fountain Creek. However, this impact can be mitigated. Participants can build a structure that reduces the energy of water flow at discharge, reducing impact and potential erosion.
- All of these changes combined will help avoid approximately 16 acres of jurisdictional wetlands.
- Eliminating the Clear Spring Regional Water Reclamation Facility, a wastewater treatment facility that was planned by Colorado Springs Utilities unrelated to SDS. As a result, treated wastewater will be discharged from existing Las Vegas Street Wastewater Treatment Facility and the J.D. Phillips Water Reclamation Facility, further upstream.

In consequence, facilities to collect reusable return flows from the formerly proposed reclamation facility were also eliminated. (The change was also made to Alternatives 3, 4, 5 and 6.)

- A new site has been identified for the drinking water treatment plant associated with Upper Williams Creek.
- Reclamation identified the modified Proposed Action Alternative as the agency's preferred alternative.

B. Modifications to Highway 115 Alternative (Alternative 7)

- Relocating an existing liquid petroleum pipeline from beneath the proposed Jimmy Camp Creek Reservoir site to an alignment northeast of the reservoir site.
- Making the same return flow conveyance modifications as proposed for Alternative 2.
- If Alternative 7 were implemented, Colorado Springs would plan to locate the terminal storage reservoir site at Jimmy Camp Creek Reservoir due to significant increased costs to using Upper Williams Creek Reservoir for this alternative.

C. Modifications to the No Action Alternative (Alternative 1)

- Relocating an existing liquid petroleum pipeline from beneath the proposed Jimmy Camp Creek Reservoir site to an alignment northeast of the reservoir site.
- Making the same return flow conveyance modifications as proposed for Alternative 2.

II. Water Quality Analysis

In response to public comment, the SIR employed an additional tool to analyze water quality effects. A watershed study, using a mass balance calculation, was used to estimate effects on dissolved selenium and *E. coli* for a variety of stream flows. Water quality has now been analyzed using two different scientific methods. Both methods confirm that SDS has no major effect on water quality in Fountain Creek or the Arkansas River. Findings include:

- ***E. coli***: *E. coli* are a large and diverse group of bacteria. Their presence can indicate water contamination. The effects of all alternatives on *E. coli* densities in Monument Creek, Fountain Creek and the Arkansas River below Pueblo Reservoir would be negligible to slightly beneficial.
 - In Monument Creek, all alternatives would reduce densities of *E. coli* from existing conditions by adding water from the J.D. Phillips Water Reclamation Facility.
 - In Fountain Creek, Alternatives 1, 2 and 7 would have similar *E. coli* densities. These alternatives could slightly reduce *E. coli* concentrations in the Creek.
 - In the Arkansas River, *E. coli* densities are low under existing conditions, and all alternatives effect only minor changes.
- **Selenium**: Selenium is a naturally-occurring mineral found in rocks and soils. The effects of all alternatives on selenium concentrations range from beneficial to negligible adverse.
 - In Monument Creek and Fountain Creek (through the city of Fountain), selenium concentrations under all alternatives would not differ from existing conditions.
 - In Fountain Creek in Pueblo, Alternatives 2 and 7 slightly reduce the selenium concentrations in the Creek. .
 - At the Arkansas River below the Fountain Creek confluence, dissolved selenium levels are similar under all alternatives and existing conditions.

Estimated Direct Effects on *E. coli* Densities and Dissolved Selenium Concentrations

	Existing Conditions	Alternative 1 No Action	Alternative 2 Preferred Action	Alternative 7 Highway 115 Alternative
Monument Creek <i>E. coli</i> densities	474/100 milliliter	386/100 milliliter	386/100 milliliter	386/100 milliliter
Fountain Creek in Pueblo <i>E. coli</i> densities	142/100 milliliter	133/100 milliliter	130/100 milliliter	135/100 milliliter
Arkansas River near Moffat St. <i>E. coli</i> densities	26/100 milliliter	29/100 milliliter	37/100 milliliter	43/100 milliliter
Arkansas River near Avondale <i>E. coli</i> densities	48/100 milliliter	56/100 milliliter	56/100 milliliter	58/100 milliliter
Arkansas River at Catlin Dam <i>E. coli</i> densities	56/100 milliliter	60/100 milliliter	61/100 milliliter	62/100 milliliter
Monument Creek Dissolved Selenium	4 micrograms per liter of water	4 micrograms per liter of water	4 micrograms per liter of water	4 micrograms per liter of water
Fountain Creek in Pueblo Dissolved Selenium	28 micrograms per liter of water	23 micrograms per liter of water	24 micrograms per liter of water	22 micrograms per liter of water
Arkansas River near Moffat St. Dissolved Selenium	33 micrograms per liter of water	49 micrograms per liter of water	59 micrograms per liter of water	70 micrograms per liter of water
Arkansas River near Avondale Dissolved Selenium	16 micrograms per liter of water	18 micrograms per liter of water	20 micrograms per liter of water	19 micrograms per liter of water
Arkansas River at Catlin Dam Dissolved Selenium	12 micrograms per liter of water	14 micrograms per liter of water	14 micrograms per liter of water	14 micrograms per liter of water

Source: SIR pages 62 and 64.

Additional analysis was done on the constituent sulfate and effects SDS would have on downstream dischargers.

- **Sulfate:** Sulfate is a naturally occurring chemical that can cause taste and odor problems as well as gastrointestinal problems from drinking water. SDS effects on sulfate concentrations would be negligible to minor for all alternatives.
- **Wastewater:** All SDS alternatives would not affect effluent permit limits for waste water facilities on Monument Creek and Fountain Creek or the Pueblo wastewater treatment facilities.

III. Dam Failure Analysis

The SIR also conducted dam failure analyses for the terminal storage reservoir (Jimmy Camp Creek or Upper Williams Creek) and the return flow storage reservoir (Williams Creek) that would be built in El Paso County to store water used for SDS. These reservoirs would be designed and constructed according to the dam safety criteria specified by the Colorado State Engineer's office, resulting in a low probability of actual dam failures. Dams will be designed, constructed and operated to ensure the lowest risk of failure and to withstand a catastrophic flood. Dam safety rules require the dams to be built to withstand failure in a storm that would produce 37 inches of rain and withstand a flood of 150,000 cubic feet per second (1.2 million gallons per second). To provide a comparison, a storm this size would produce three times the amount of water generated during the 1965 flood of Fountain Creek.

In the unlikely event any of the dams were breached, water flow would reach a maximum rate of 550,000 cubic feet per second directly downstream of the failure, and flow rates would diminish as water spreads downstream. Portions of the city of Fountain and the city of Pueblo and the town of Pinon would be inundated.

The SDS project will not result in any changes to floodplains and will not require residents to buy new or additional flood insurance.

IV. Impacts on Western Slope Streams

A portion of the water in the Arkansas River Basin comes from the Colorado River Basin on the Western Slope. The water travels east via the Busk-Ivanhoe System, the Homestake Project and the Twin Lakes Project. The Western Slope analysis examined the impact of all alternatives on Ivanhoe Creek, Homestake Creek and the Roaring Fork River, waterways that supply these transmountain diversions.

- **Streamflow Volume and Water Quality:** All alternatives would cause negligible to minor changes in streamflow in the Western Slope area. These slight changes would have negligible effects on water quality.
- **Geomorphic Stability:** Geomorphology is the study of water and earth forces that form stream channels, drainage patterns, floodplains, erosion and sediment transportation. Reduced streamflow would have a negligible to slightly beneficial effect on the geomorphology and stability of the streams where diversions take place. Some localized sedimentation and erosion could occur in Western Slope streams near existing diversion sites, but this impact is likely to be limited by the high geomorphic stability of Western Slope streams.
- **Aquatic Life and Recreational Impact:** The No Action Alternative would have a moderately adverse effect on aquatic life in Homestake Reservoir, by reducing storage volume about 17 percent throughout the year. All other alternatives would have no or slightly beneficial effects to aquatic life and no effects on recreational opportunities, compared to the No Action alternative.

V. Next Steps

Reclamation is accepting public comment on the SIR through November 24, 2008. A public hearing is scheduled for October 29, 2008 at the Pueblo Convention Center from 6 to 9 p.m. The purpose of the hearing is to provide the public with an opportunity to submit oral and written comments on the SIR.