

**PETROS & WHITE** LLC  
ATTORNEYS AT LAW

**MEMORANDUM**

TO: ALEX SCHATZ, BANKS & GESSO

FROM: RAYMOND L. PETROS, JR.

DATE: JANUARY 20, 2009

RE: FEIS: SCOPE OF SDS

---

The FEIS (Final Environmental Impact Statement, December 12, 2008) contains important new or clarifying information about the SDS Project and alternatives.

**I. SUMMARY**

At year-2046 demand levels, the SDS Project is projected to have average annual exchanges and resulting depletions in the Arkansas River through Pueblo of about 86,000 acre-feet – 63,000 through the SDS pipeline, and another 24,000 acre-feet temporarily stored in Pueblo Reservoir and then exchanged to upstream storage. An additional 5,000 acre-feet of Pueblo Reservoir water would be exchanged by contract to Colorado Springs for Fry-Ark Project water stored in upstream reservoirs and otherwise released to Pueblo Reservoir. The SDS Project is therefore much larger in terms of average water yield than the entire Fry-Ark Project (average annual yield of 73,000 acre-feet for Fry-Ark Project).

On the annual average, the SDS Project would lower Pueblo Reservoir water levels by 10% and lake surface acres by 7% over existing conditions. Even with the Pueblo Flow Management Program, the SDS Project would reduce average annual flows through Pueblo by 84 c.f.s., about 13% lower than existing conditions, and 25% lower than historical flows (1982 – 2003). Fountain Creek flows would increase in Pueblo on an annual average by 65 c.f.s., or 35%, over existing conditions. In May and June of dry years, flows would increase by 250% over existing conditions. Average annual flows of Fountain Creek would be 253 c.f.s., about 400% higher than the 60 c.f.s. of average flows 50 years ago.

As proposed and evaluated for impacts, the SDS Project would utilize about 2/3 of the SDS pipeline capacity. Without regulatory limits, the use of the SDS pipeline could be expanded up to an annual average of 28,000 acre-feet of yield (equivalent to a dry-up of about 15,000 to 20,000 acres of farmland) through the use of new water rights or excess storage – the impacts of which have not been evaluated at the present time.

The Fremont County alternatives and the Downstream Intake would have similar impacts to the SDS Project on Fountain Creek flows. These alternatives (even without the Pueblo Flow Management Program), however, would result in higher average annual flows and annual

average dry-year flows through Pueblo than the SDS Project (direct and cumulative). The Fremont County alternatives would result in higher average annual and dry-year storage levels in Pueblo Reservoir, but the Downstream Intake would result in lower storage levels.

## II. DEFINITIONS

The “SDS Project” refers to the proposed Pueblo Reservoir and Pipeline alignment. The “Hwy 115 Pipeline” refers to the alternative in Fremont County without Reclamation action. The “Hwy 115 Pipeline and Pueblo Reservoir” refers to the option of the Fremont County pipeline and use of Pueblo Reservoir storage. The “Downstream Intake” refers to the option of a pipeline from the Arkansas River below its Fountain Creek confluence.

“Historical” refers to hydrologic conditions experienced during the period 1950 – 2003, except as otherwise noted. “Existing” refers to hydrological conditions (1950 – 2003) as modified or simulated with existing demands. “Existing” conditions under the FEIS, for example, incorporate Reclamation’s recent approval of a long-term lease of Pueblo Reservoir excess storage (10,000 acre-feet) to the City of Aurora.

The information reported below is summarized from the hydrological tables in Appendix E of the FEIS, and from the water yield tables in Appendix D - Operations of the FEIS.

## III. DISCUSSION

### A. Pueblo Reservoir

Historical average annual storage content (1982 – 2004) in Pueblo Reservoir was 181,434 acre-feet. Simulated existing conditions for the annual average are estimated in the FEIS as 170,700 acre-feet or 10,734 acre-feet (6%) lower than historical (years 1950 – 2003). The SDS Project would lower the content to an average of 153,200 acre-feet, or 17,500 acre-feet (10%) lower than existing conditions, and 28,234 acre-feet (16%) below historical levels. Cumulative effects of the SDS Project, combined with other reasonable future demands (not including the effects of the Arkansas Valley Conduit or Pueblo Reservoir Enlargement) would reportedly be an average of 130,000 acre-feet or 51,434 acre-feet (28%) lower than historical levels.

The SDS Project would reduce the surface area of Pueblo Reservoir as compared to existing conditions by an annual average of 255 acres or 7% (3,518 acres to 3,263 acres). Cumulative effects would result in an annual average surface area of 2,922 acres, or 596 acres (17%) lower than existing conditions.

By comparison, the Hwy 115 Pipeline would result in higher average annual storage in Pueblo Reservoir than the SDS Project, or about 6,000 acre-feet more in an average year, and about 10,000 acre-feet in a dry-year. Average lake surface area would also be larger by 94 acres, and about 2.5 feet higher in elevation.

The Hwy 115 Pipeline and Pueblo Reservoir alternative would have about the same direct impacts in Pueblo Reservoir as the SDS Project on the average. Dry-year storage levels would be about 8,000 acre-feet higher than the SDS Project. Under cumulative effects, storage levels for this alternative would be higher in both average and dry years than the SDS Project.

The Downstream Intake would have lower storage levels than the SDS Project, about 4,500 acre-feet in average and dry years. Under cumulative effects, average yield content would be about the same, and about 3,000 acre-feet lower in dry years.

B. Arkansas River Below Pueblo Reservoir (at Above Pueblo Gauge)

Historical river flows (1982 – 2004) were 725 c.f.s. on an annual average. Existing flows are 631 c.f.s. Even with the benefits of the Pueblo Flow Management Program (PFMP), the SDS Project would reduce average annual flows to 547 c.f.s., 84 c.f.s. (13%) lower than existing, and 25% lower than historical. Cumulative effects would reduce flows to 531 c.f.s., 100 c.f.s. (16%) lower than existing, and 196 c.f.s. (27%) lower than historical conditions.

The average dry-year flow would be reduced from an existing condition of 407 c.f.s. to 339 c.f.s. (17%) and the cumulative flow condition would be down to 331 c.f.s. (19% lower).

By comparison, the Hwy 115 Pipeline (even without PFMP) would result in higher average annual flows through Pueblo than the SDS Project – about 15 c.f.s. in both average and dry years for direct effects, and about 20 c.f.s. higher under cumulative effects.

Annual flows under the Hwy 115 and Pueblo Reservoir alternative (without any benefit of PFMP) would be about 5 c.f.s. higher in average and dry years than the SDS Project, under both the direct and cumulative scenarios.

Flows with the Downstream Intake (without any benefit of PFMP) would be much higher than the SDS Project. Flows would remain the same as the existing condition for average years and slightly above existing conditions in dry years. For cumulative effects, the flow would be 22 c.f.s. lower than existing in average years, and remain about the same as existing in dry years.

C. Fountain Creek at Pueblo

Historical flows in Fountain Creek (1982 – 2004) at Pueblo were 167 c.f.s.; even much lower historical average flows, about 60 c.f.s., have been reported in the 1960s era before recent urbanization. [Watershed Facts, Fountain Creek Watershed website, PPPAC.].

Existing conditions are now higher, at 188 c.f.s. By 2047, the average annual flows with the SDS Project would be 253 c.f.s., 65 c.f.s. (35%) higher than existing, 39% higher than recent historical, and 400% higher than flows in the 1960s.

Dry-year flows with the SDS Project are estimated at 191 c.f.s., compared to 129 c.f.s. existing, or 62 c.f.s. (32%) higher. During May and June in dry years, flows would increase by 250%, from about 100 c.f.s. on average to 250 c.f.s.; in average years during May and June, flows would increase by 150%. Average wet-year increases in flow would be 72 c.f.s., 33% higher than existing.

Fountain Creek flows are estimated to be about the same as the SDS Project for the Hwy 115, Hwy 115 and Pueblo Reservoir, and Downstream Intakes. Flows in Fountain Creek would be about 4 c.f.s. lower on the annual average for the Hwy 115 alternative.

D. Project Operations

“The SDS Project would provide the Participants with additional water, using existing water rights, to meet most or all of their projected future demand through 2046. . . . Total firm yield of the SDS Project would be 42,400 ac-ft, and total SMAPD (simulated mean annual project deliveries) would be 52,900 ac-ft (Table 1).” (FEIS, pp. 8-9).

**Table 1. Project Yield for Each Participant.**

<b>Participant</b>	<b>Firm Yield (ac-ft/yr)</b>	<b>SMAPD (ac-ft/yr)</b>
Colorado Springs	38,000	47,800
Fountain	2,500	2,500
Security	1,400	1,500
Pueblo West	500	1,100
<b>Total</b>	<b>42,400</b>	<b>52,900</b>

According to the FEIS, the SDS Project is to divert through the pipeline in year 2047 an annual average of about 60,000 acre feet to CSU, Fountain and Security, or an annual average rate of flow of 53 mgd (82 c.f.s.) through the pipe. This would result in the proposed

average annual yield of the Project for these participants of about 52,000 acre feet (presumably, after deducting evaporation losses from the Upper Williams Creek terminal reservoir and other system losses). The pipe would only flow near the peak capacity of 78 mgd during 4 or 5 summer months, with the rest of the months flowing much less, reportedly down to 16 mgd. This compares to the pipeline potential of 87,000 acre feet if the 78 mgd (121 c.f.s.) capacity were fully used throughout the year. In other words, only about 66% of the pipeline capacity was proposed for this SDS Project.

If there were no quantity limits in the permit, and no limits to existing water rights, CSU, Fountain and Security could divert an additional 28,000 acre feet per year. As an example, 15,000 to 20,000 acres or more of farmland could be dried up to provide this amount of water. The impacts of diverting this additional water, the additional flows down the Fountain, the decreased Lake Pueblo levels, and the likely reduced flows through Pueblo have not been studied or addressed in the FEIS. Also, adding different users could increase the demand, and also could change and accelerate the timing of the impacts to the County.