



# Summary of F.E.I.S. Changes and Unresolved Technical Issues

*Southern Delivery System*

*1041 Application*

*January 21, 2009*

# Selection of Preferred Alternative

## ◆ Environmental Assessment.

- “*All alternatives would have adverse environmental effects.*” (FEIS p. 106).
- Preferred Alternative:
  - Similar or fewer environmental effects than other alternatives.
  - Lowest cost.
  - Lowest energy usage.
- Gross estimate of total impact.
- No computation or explicit weighing of impacts.
- “Watershed” approach to mitigation.

# Selection of Preferred Alternative

- Comparison of alternatives (Table 24).
- Average annual stream flow example:
  - Arkansas River above Pueblo (below dam).  
Existing: 631 cfs.  
No Action: 562 cfs.  
Preferred: 547 cfs.  
Downstream Intake: 627 cfs.  
Highway 115: 552 cfs.
  - Fountain Creek above Pueblo  
Existing: 188 cfs  
No action: 249 cfs  
Preferred: 253 cfs  
Downstream Intake: 256 cfs  
Highway 115: 254 cfs
- Diminished flow on Arkansas River, increased flow on Fountain Creek
- Preferred alternative not least impact from overall flow perspective
- Emphasis on different criteria could yield different preference

# Selection of Preferred Alternative

- ◆ FEIS not binding on Pueblo County 1041 review.
  - Distinct local regulations.
  - Pueblo county expresses that significant adverse environmental effects will be mitigated or compensated for.
  - 1041 review, Criterion G: “*Environmental impacts...related to the proposed activity have been identified and will be mitigated or compensated for.*”

# Mitigation (FEIS Chapter 5)

- ◆ The Applicant expects substantial mitigation to be required by the 1041 permit.
  - The Bureau of Reclamation will not automatically implement all anticipated mitigation – substantial amount left to “broader coordination” with other permits such as Pueblo County 1041 review.
    - Adaptive management.
    - Flow management.
    - Reduce erosion and sedimentation.
    - Armor banks.
    - Most topics are coordinated with other agencies, including Pueblo County.

# Mitigation (FEIS Chapter 5)

- Examples:
  - Relationship to existing flow management programs (eg. UAVFMP)
  - Operate consistently with FEIS
  - Head pressure monitoring at JUM
  - Water quality monitoring
  - Dredging on Fountain Creek
  - Enhance angling / recreation on lower Arkansas reservoirs
- The Bureau of Reclamation, with implementing contracts, covers:
  - Storage capacity in Lake Pueblo.
  - Monitoring Arkansas River Compact.

# Water Quality

## ◆ FEIS

- Non-attainment for selenium, sulfates, E. coli.
- Monitoring proposal.

## ◆ Federal agencies disagree on methods / findings

- *“Any measurable increased pollutant loading to an impaired water body is a potentially significant impact with associated clean up requirements and costs”* – EPA, Letter 47, FEIS, Appx. C-10.
- EPA recommends mitigation of non-attainment constituents
- U.S. Army Corps of Engineers stated that the Proposed Action is not substantiated in the DEIS as the Least Environmentally Damaging Practicable Alternative.

# Water Quality

- ◆ Unresolved issues from Pueblo County Staff Report
  - Nutrients.
  - Flow characteristics (depth, rate, pulses).
  - Emerging contaminants.
  - Mercury, industrial metals.
  - Spills, untreated waste.
  - Sediment.
- ◆ Total load issues
  - Example: Sources of E. coli, pollutants mobilized by base flow (e.g. sediment, nutrients).
  - Dilution on Fountain Creek = Concentration on Arkansas
- ◆ Staff recommends continued involvement in establishment of sampling protocols.



# Geomorphology

## ◆ Sedimentation.

- *“The changes in channel form have increased in the recent past (about 25 years) as a result of changes in peak flow and base flow hydrology that have become more frequent and higher in magnitude. The changes in hydrology that have increased geomorphic instability are likely a result of development in the Fountain Creek Basin and increases in urban land use. Over the past 25 years, Fountain Creek stormflow has increased, with land use changes from rangeland to urban and suburban use being the primary factor in the increase. Increased streamflow has exacerbated erosion in the upper portions of Fountain Creek and deposition in the lower portions of the creek.” (FEIS § 3.9.4.1, p. 350).*
- “Moderate sedimentation” downstream of Williams Creek; base flow condition
- FEMA certification of Pueblo County levees affected by sediment

# Geomorphology

- More water = More downstream sediment transport.
  - *“Effects were then [sic] calculated, with a negative number in tons per day (and positive number in percent) meaning there would be more potential for erosion in the upstream reach with subsequent deposition in the downstream reach relative to the baseline used (the no action alternative was used as the baseline for the action alternative, and existing conditions used as the baseline for the no action alternative)” (§ 3.9 p. 346, FEIS).*
  - Cumulative impacts.
    - + 160 TPD – relative to no action.
    - + 26 TPD – relative to existing conditions.(§ 3.9.5.3 p. 361, FEIS).
  - Changes in modeling outputs between DEIS, FEIS signal lengthy study to quantify exact effect on Pueblo County
  - Dredging proposal

# Geomorphology

## ◆ Peak flow / flood hazard

- Assumption: Maintenance of 2006 hydrologic conditions.
  - “...the recently approved Colorado Springs Stormwater Enterprise would require future peak flows (up to the 100-year recurrence interval) to remain at current peak flow levels following future development.” (3.8.2 @ p. 317, FEIS).
  - The commitment to control peak flows is aspirational. *"To the extent practicable, Colorado Springs' new Storm Water Enterprise strives to match future and historical hydrographs in the City, despite new development."* (FEIS, Appx. B-114)
  - Pueblo county echoes the State of Kansas in its observation, finding: *"As far as we can determine, the DEIS [FEIS] conclusion that downstream water users will not be affected is based on a modeling assumption, not an analysis by the Bureau. That assumption is that historic flows will be maintained..."* (FEIS, Appx. B-120)
- Concerns:
  - Catastrophic events, major storm events.
  - Non-point source runoff, water quality.
  - Enforcement of BMPs, improvement standards.
  - Staff recommends a condition to enforce assumptions.

## ◆ No change in conclusions from Staff Report.

- Dredging program per USACOE also related to peak flow / flooding risk.

# Recreational Impacts

- ◆ Negative 1 to 5% change in recreation related economy (FEIS, 140).
- ◆ Lake Pueblo
  - Vertical – boat slips (lower elevation by 10%)
  - Horizontal – water surface acreage (loss of 7%, annual average)
- ◆ Arkansas River
  - Below dam – reduce flows by 13% relative to existing conditions (25% reduction from “historic” flows)
  - Down river – Nutrients in reservoirs, of fisheries condition
- ◆ Influence of agricultural calls

# Pipeline Capacity

- ◆ 78 million gallons per day = approximately 88,000 acre feet.
- ◆ 88k AF is more than Applicant's water rights would deliver.
  - Margin available to carry 28,000 acre feet.
  - Superditch has expressed an interest in SDS-aided deliveries.
- ◆ Deliveries of water to non-participants have not been modeled.
  - FEIS: “*Expanding this proposed SDS project to incorporate the Monument / Tri-Lakes region is outside of the scope of this EIS.*” [FEIS Appx. B-85].
  - Same comment was given to Pikes Peak Regional Water Authority.
  - Recent letter from Superditch.
- ◆ Concerns with third party deliveries
  - New exchanges reduce flows thru Pueblo County or Arkansas River.
  - Greater total load of urban / WWTP contaminants.
  - Downstream: Potentially 15,000+ ac. Dried up with conversion to municipal use.

# Other Issues

- ◆ Protected plants and wildlife
  - Inventory: extent and limitations
  - Characterization of impacts
    - “Minor adverse effect” = 25 percent loss of fish
- ◆ Wastewater, applicant commits to investing in containment of SDS and commingled waste flows.
- ◆ Adaptive management
- ◆ Mitigation measures in drafting process



# Summary



- ◆ FEIS not inclusive of all 1041 issues
  - Applicant statements
  - Conservation
  - Example: Is standard industry practice regarding spills sufficient to meet Pueblo 1041 criteria?
- ◆ 1041 criteria require continued analysis or resolution through mitigation