

SDS DEIS Issues Paper

Evaluation of Indirect Potable Reuse as an SDS Alternative

The Bureau of Reclamation (Reclamation), as a part of its Alternative Analysis process for the Southern Delivery System (SDS), considered six potential indirect potable reuse (reuse) alternatives. Indirect potable reuse is the diversion of treated wastewater through environmental barriers, such as reservoirs and wastewater treatment facilities, for use as a potable water supply (i.e., suitable for drinking). The six reuse alternatives were developed to meet the purpose and need of the proposed SDS, and to address the public scoping interest in including reuse concepts in the Environmental Impact Statement (EIS) process.

Each of the reuse alternatives involved: (1) the planned indirect potable reuse of Colorado Springs' reusable return flows (i.e., treated wastewater) diverted from Fountain Creek downstream of Colorado Springs; (2) advanced water treatment of these reusable return flows, including reverse osmosis (i.e., a filtering process that removes salt from water); (3) the blending of reusable return flows with Arkansas River water diverted from Pueblo Reservoir with a maximum of 50 percent of the overall water supply originating from reuse; and (4) storage in reservoirs to allow natural treatment to take place for an average of 1 year prior to use.

The reuse alternatives were excluded from the final seven alternatives considered in the EIS for the following reasons:

- The reuse alternatives' cost exceeded the SDS EIS cost criteria, with the least-costly reuse alternative more than double the cost criteria.
- None of the reuse alternatives would address the major scoping themes better than the seven selected EIS alternatives.
- Because of the dependence on treated wastewater, all reuse alternatives would be considered less desirable from a public health standpoint than alternatives that use natural water sources.

Key DEIS Finding: Indirect potable reuse for drinking water is too expensive, uses large amounts of energy and produces environmental waste.

Key Points

- Best practice dictates that reclaimed wastewater should only be used as a last resort, after all conventional water sources and conservation measures have been, to the extent practical, exhausted (*Issues in Potable Reuse*, National Research Council).
- Reclaimed water is much more expensive than the conventional water sources available to the Participants.
- Reuse is not environmentally benign:
 - Much of the cost associated with reuse is for the large amount of energy required by the advanced water treatment facility and the mechanical brine evaporation used to reduce the volume of brine generated by the reverse osmosis process.
 - A major pipeline and pump stations would still be required from Pueblo Reservoir to provide the conventional water required to ensure that a maximum of 50 percent of the overall water supply originated from reuse.
 - Even after using mechanical brine evaporation, initially about 15 percent of the water treated in the reverse osmosis facility remains. Ten percent of that water can be recovered, resulting in 5 percent lost to brine. The resulting dry salt would need to be disposed of in a permitted landfill.
- Return flows along Fountain Creek would be reduced.
- Reuse provides less redundancy than the Proposed Action because the pipeline from the Arkansas River at Pueblo Reservoir would be smaller than the one in the Proposed Action Alternative.