SUMMARY OF ALTERNATIVES:

**Alternative A—No Action**

The existing deep injection well would not be replaced. The existing well would be plugged and abandoned in accordance with the EPA Underground Injection Control (UIC) Permit. The pipelines and existing brine production wells would be capped or plugged and abandoned, and the buildings would be assessed for possible future use. No change in temporary or permanent ground disturbance is anticipated. Reclamation would retain its land associated with the PVU until a future date when the land would be reevaluated for other uses. Reclamation land that is determined no longer needed for future Reclamation purposes would be disposed of in accordance with applicable Federal law and Reclamation Manual Directives and Standards. Currently authorized BLM ROWs or easements on private lands would be reviewed to determine if they could be put to other uses. Reclamation would retain its water rights and would assess the need for their possible future use. Monitoring for seismic events via the Paradox Valley Seismic Network would continue until Reclamation determines it is no longer necessary.

**Alternative B—New Deep Injection Well**

Brine would be collected from the existing brine production well field and piped to the existing surface treatment facility (STF). Then it would be piped from the STF to a new deep injection well and injected into a currently unpressurized block of the Leadville Formation. Data show that the Leadville Formation should accept the injected brine at a continuous rate of 200 gallons per minute (gpm) (323 acre-feet per year), while keeping wellhead pressures below 5,000 pounds per square inch over 50 years. This equates to up to 114,000 tons of salt that would be prevented from entering the Colorado River system annually. If Alternative B is selected, additional 3 dimensional (3D) seismic geologic investigations would be completed to identify the final location of the well within the larger areas analyzed and may require additional site-specific NEPA analysis, tiered to this EIS. The 3D seismic survey would cover an area of 175 square miles surrounding the proposed injection well location.

Two areas (B1 and B2) are analyzed as potential locations for a new injection well, of which only one will be chosen. Area B1 includes a combination of Reclamation and BLM-administered land on and near Skein Mesa; Area B2 would be on BLM-administered land on Monogram Mesa or Fawn Springs Bench. Area B1 would occur predominantly on Reclamation land and would require construction of a new deep injection well, surface facilities, access roads (including two new bridges over the Dolores River), a powerline extension, a low-pressure pipeline to transport the brine, and a ROW from BLM and/or withdrawal of up to 80 acres for use by Reclamation. In the 440-acre study area, 10 acres would be temporarily disturbed, and 16 acres would be permanently disturbed. Area B2 would require construction of a new deep injection well, surface facilities, access roads, a low-pressure pipeline, pipeline pump stations, powerline extensions from nearby lines to the pump stations, and a ROW from BLM and/or withdrawal of up to 616 acres for use by Reclamation. Reclamation would need to acquire 185 acres of non-Federal lands for Area B2. In the 810-acre study area, 145 acres would be temporarily disturbed, and 7 acres would be permanently disturbed.

**Alternative C—Evaporation Ponds**

Brine would be collected from the existing brine production well field and piped to the existing STF and then to a series of evaporation ponds 7 miles southeast of the production well field. The facility would be operated to evaporate the water from the brine, allowing the solid salt to be harvested for disposal in an onsite salt landfill or to be used as a commodity. The evaporation pond system would be designed to accommodate a
continuous flow of up to 300 gpm of brine (484 acre-feet/year). This equates to up to 171,000 tons of salt that would be prevented from entering the Colorado River system annually, assuming the brine would be continuously diverted.

The conceptual pond system design includes a 27-acre surge pond, a 39-acre concentrator pond, 290 acres of crystallizer ponds, 24-acre bittern (remaining liquid) concentration pond, and a 10-acre-foot bittern storage pond. A hydrogen sulfide (H₂S) treatment system would be included to remove H₂S before brine is discharged to the evaporation ponds. Salt would be harvested from the evaporation ponds and disposed of in a 60-acre, onsite salt landfill, which would reach an ultimate vertical height of 100 feet above the ground surface.

A freshwater wildlife pond would be constructed in the evaporation pond complex, and the bittern ponds would be netted to mitigate impacts on wildlife, particularly waterfowl. The evaporation pond complex would be located within 1,530 acres. In the 1,530-acre study area, 231 acres would be temporarily disturbed, and 600 acres would be permanently disturbed. A ROW from BLM and/or withdrawal of 1,300 acres for use by Reclamation would be required. Reclamation would need to acquire 225 acres of non-Federal lands.

**Alternative D—Zero-Liquid Discharge Technology**

Brine would be collected from the existing brine production well field and piped to the STF, then to a centralized treatment plant consisting of a series of thermally driven crystallizers. The zero-liquid discharge facility would be operated to evaporate (and later condense) water from the brine, resulting in a solid salt and produced freshwater stream. The solid salt would be transported to an onsite, 60-acre salt landfill. In the 480-acre study area, 96 acres would be temporarily disturbed, and 80 acres would be permanently disturbed. A ROW from BLM and/or withdrawal of 267 acres for use by Reclamation would be required. Reclamation would need to acquire 211 acres of non-Federal lands.

The facility would be designed to accommodate a continuous flow of up to 300 gpm of brine (484 acre-feet/year). This equates to up to 171,000 tons of salt that would be prevented from entering the Colorado River system annually, assuming the brine would be continuously diverted. The conceptual design includes the use of multiple crystallizers operating in parallel that would reduce the brine to a solid product suitable for landfill disposal. The crystallizers would be constructed as modular units and installed on a flat slab. Approximately 150,000 square feet of building space would be required at a height of about 40 feet to protect the equipment from the weather and prevent freezing. This footprint includes the space required for drying salt in drain bins before disposing of it in a landfill, which would reach an ultimate vertical height of 100 feet above the ground surface. A treatment facility would be included to remove H₂S from the brine.