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DESALINATION AS A SUPPLY FOR DROUGHT RELIEF

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ABSTRACT

The majority of the groundwater within the state of New Mexico is considered brackish, with a total dissolved solids concentration of more than 1,000 mg/L. In general, municipalities do not usually consider using brackish waters for domestic supply, because although the water is potable, to most people it is not palatable. However, during extended drought periods, this brackish groundwater reserve can provide municipalities with an entirely new supply. Through the use of desalination technologies, the total dissolved solids are reduced to less than 500 mg/L, and a potable, palatable resource is created from an otherwise unusable reserve.

Desalination of saline water has been around for more than 40 years. Currently, more than 12,000 desalination plants exist worldwide, consisting of small hotel/resort brackish water systems to large

seawater desalination plants. The economics of desalination has also improved over the recent years, to a point where many municipal and industrial entities are relying on desalination for their future water supply.

Various methods for desalinating brackish and saline waters are currently being used, and include reverse osmosis (RO), electro dialysis reversal (EDR), nanofiltration (NF), ion exchange (IX) and variations of distillation processes. New technologies are under research and development, including forward osmosis, bentonite clay-based membranes and others. New concentrate stream disposal alternatives are also under development.

Regionally, desalination for municipal water supply is currently being used by White Sands Missile Range (Stallion Site), New Mexico; Fort Stockton, Texas; and Horizon City, Texas; and is proposed for El Paso/Ft. Bliss, Texas and Alamogordo, New Mexico.