

Buckman Regional Water Treatment Plant



The Buckman Direct Diversion (BDD) Project includes the Buckman Regional Water Treatment Plant, located near the Municipal Recreational Complex.

Conventional water treatment (coagulation/flocculation/sedimentation) plus advanced water treatment (membrane filtration, ozonation, and granular activated carbon) produces high quality drinking water from the raw water supply diverted from the Rio Grande.

The treated drinking water meets or is better than all state and federal standards.



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WATER TREATMENT

- 1 Presedimentation basins and raw storage:** Three presedimentation and raw water storage basins allow remaining larger particles that were not captured at the sediment removal facility to settle to the bottom for removal and store a large amount of raw water.
- 2 Coagulation/flocculation/sedimentation processes:** These three steps are part of conventional surface water treatment. Ozone is added to oxidize organic material. Water is mixed with a coagulant, ferric chloride, which causes even the finest particles to clump together. Flocculation provides gentle mixing. The tiny individual particles collide, stick together, and become larger and heavier. Contaminants and impurities are swept up into the flocculated particles.
- 3 Membrane filters, ozone generators, and activated carbon:** These steps are part of the advanced water treatment process. Membrane filters remove essentially all the remaining particulate matter (including solids and biological elements) by filtering the water through membranes with extremely small pore size, 0.1 microns. These pores even remove particles much smaller than the pore size. Ozone is again applied to the water to oxidize any dissolved organic materials not previously removed and kill microbes. Organic compounds that may cause bad tastes or odors are broken down, as are PPCPs (pharmaceuticals and personal care products) and EDCs (endocrine disruptors). Residual ozone is then destroyed. The water next passes through GAC (granular activated carbon) contactors. The oxidized organics are removed by the biologically active carbon, which also “polishes” the water.
- 4 Finished water storage:** The finished water is stored in one tank which can hold as much as four million gallons of water. The finished water has small amounts of chlorine and sodium hydroxide to disinfect the water and correct its pH.
- 5 Drinking water pump stations:** Two pump stations, each with 10-million-gallon-per-day capacity, transport the water to established drinking water pipelines to the north and south that serve City of Santa Fe and Santa Fe county customers.

SOLIDS HANDLING

- 6 Solids thickeners:** Gravity thickeners allow water from the sedimentation basins to settle and thicken before being sent to a centrifuge.
- 7 Centrifuge (solids dewatering):** Reduces the moisture in the solids so that they dry to about 20% of the original mass and can be disposed of off-site.

SUPPORT FACILITIES

- 8 Washwater equalization basins:** Two 100,000 gallon basins receive wash water after it is treated by the membrane filters at a high volume, then “equalize” the water so it can be transferred more slowly back to the plant.
- 9 Water treatment chemical storage:** Chemicals used to treat the water are safely stored in and metered from this facility.
- 10 Operations building and laboratory:** This approximately 9,000 square-foot Southwestern style building houses administrative offices and an on-site laboratory to provide constant monitoring of treated water samples.
- 11 Maintenance building and shops:** All equipment required to maintain the Water Treatment Plant is stored in these low-profile facilities designed to blend in with their surroundings.
- 12 Main electrical switchgear building:** Controls and meters all power used by the Water Treatment Plant and related facilities.
- 13 Stormwater and process overflow basins:** Collect stormwater and provide a “ponding” area for any overflow from the treatment process so excess water does not have to be discharged off-site.

About the Buckman Direct Diversion Project: the BDD Project provides a sustainable way for the City of Santa Fe and Santa Fe County to access surface water supplies by diverting San Juan-Chama Project water and native Rio Grande water to reduce their reliance on over-taxed ground water resources. The project began operation in May 2011.