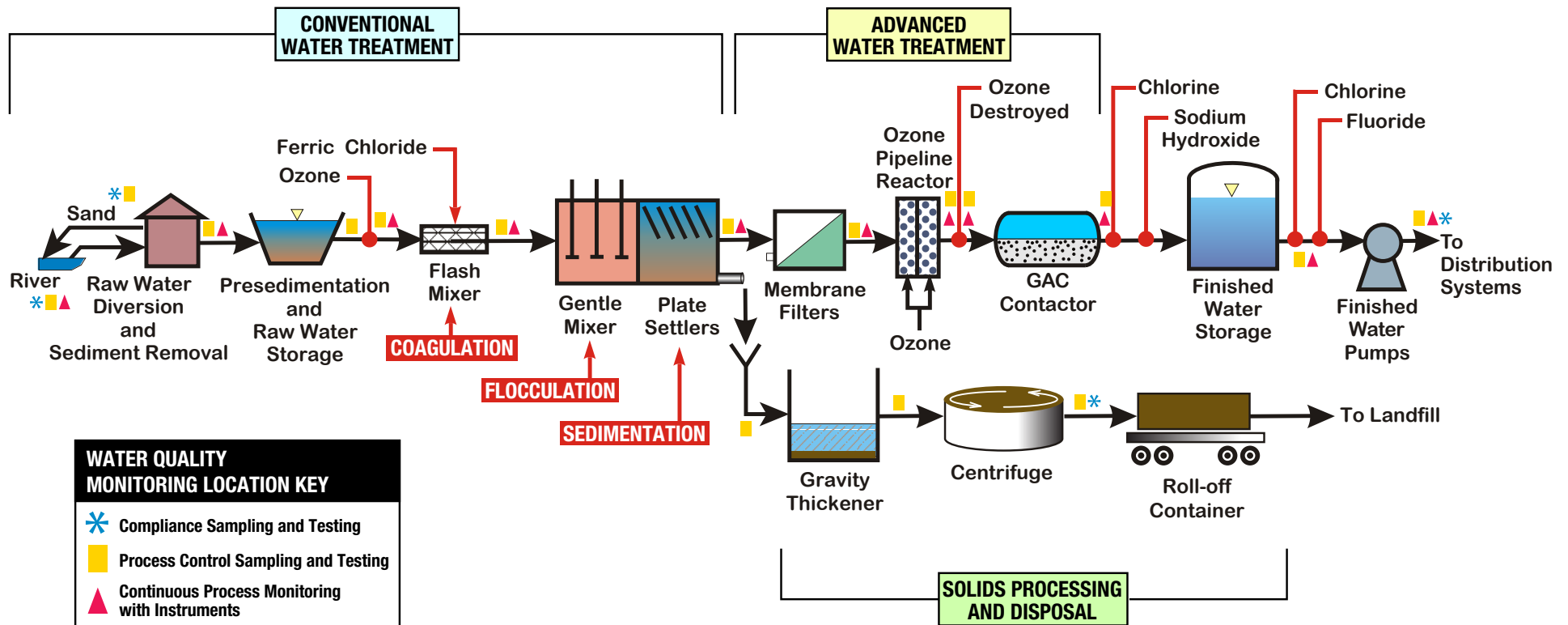




Buckman Regional Water Treatment Plant Processes

Buckman Direct Diversion Project

The Buckman Regional Water Treatment Plant includes a series of conventional and advanced water treatment processes. The conventional processes remove the vast majority of contaminants. The advanced processes provide additional treatment and polishing of the finished drinking water. Conventional treatment processes include coagulation, flocculation, sedimentation and disinfection. Raw water ozonation improves the effectiveness of conventional treatment. Advanced treatment is provided by membrane filters, ozone and granular activated carbon contactors. Disinfection is accomplished with lower amounts of chlorine because the high-quality water does not need as much chlorine.





- 1 River water is diverted through a riverside structure with fish screens. Larger sand particles are returned to the Rio Grande and the water is pumped to the Water Treatment Plant.
- 2 Three presedimentation and raw water storage basins allow remaining larger particles to settle to the bottom for removal.
- 3 Ozone is added to oxidize organic material. Water is mixed with a coagulant, ferric chloride, which causes even the finest particles to clump together.
- 4 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.
- 5 Plate settlers provide very still conditions to separate the heavier floc particles from the water by gravity. The settled solids, called sludge, are concentrated, dewatered in a centrifuge, and hauled to the Caja del Rio landfill.
- 6 The clarified water is filtered under high pressure through membranes with extremely small pore size, 0.1 microns. This membrane filtration removes essentially all of the particulate matter, including particles that are much smaller than the pore size.

- 7 Ozone is again applied to the clean water. It oxidizes any dissolved organic material not previously removed and kills microbes. Organic compounds that may cause bad tastes or odors are oxidized (broken down), as are PPCPs (pharmaceuticals and personal care products) and EDCs (endocrine disruptors). Residual ozone is then destroyed.
- 8 The water passes through GAC (granular activated carbon) contactors. The oxidized organics are removed by the biologically active carbon, which also works as a “polishing” process.
- 9 Small amounts of chlorine and sodium hydroxide are added to disinfect the water and to correct the pH of the treated water. The finished drinking water is stored in a four-million-gallon tank. Two pump stations pump the treated water north and south to BDD Project drinking water transmission line connections to the City and County public drinking water distribution systems. Chlorine is added as necessary to have a very small amount of residual chlorine in the finished drinking water. This protects against any contamination that might occur downstream. Fluoride is also added for dental health. A corrosion inhibitor helps control lead and copper release.

