



Water Reclamation and Reuse Research in Rio Rancho, NM

Presentation for the

NM Forum on Reclaiming Produced/Brackish Water

July 23, 2003



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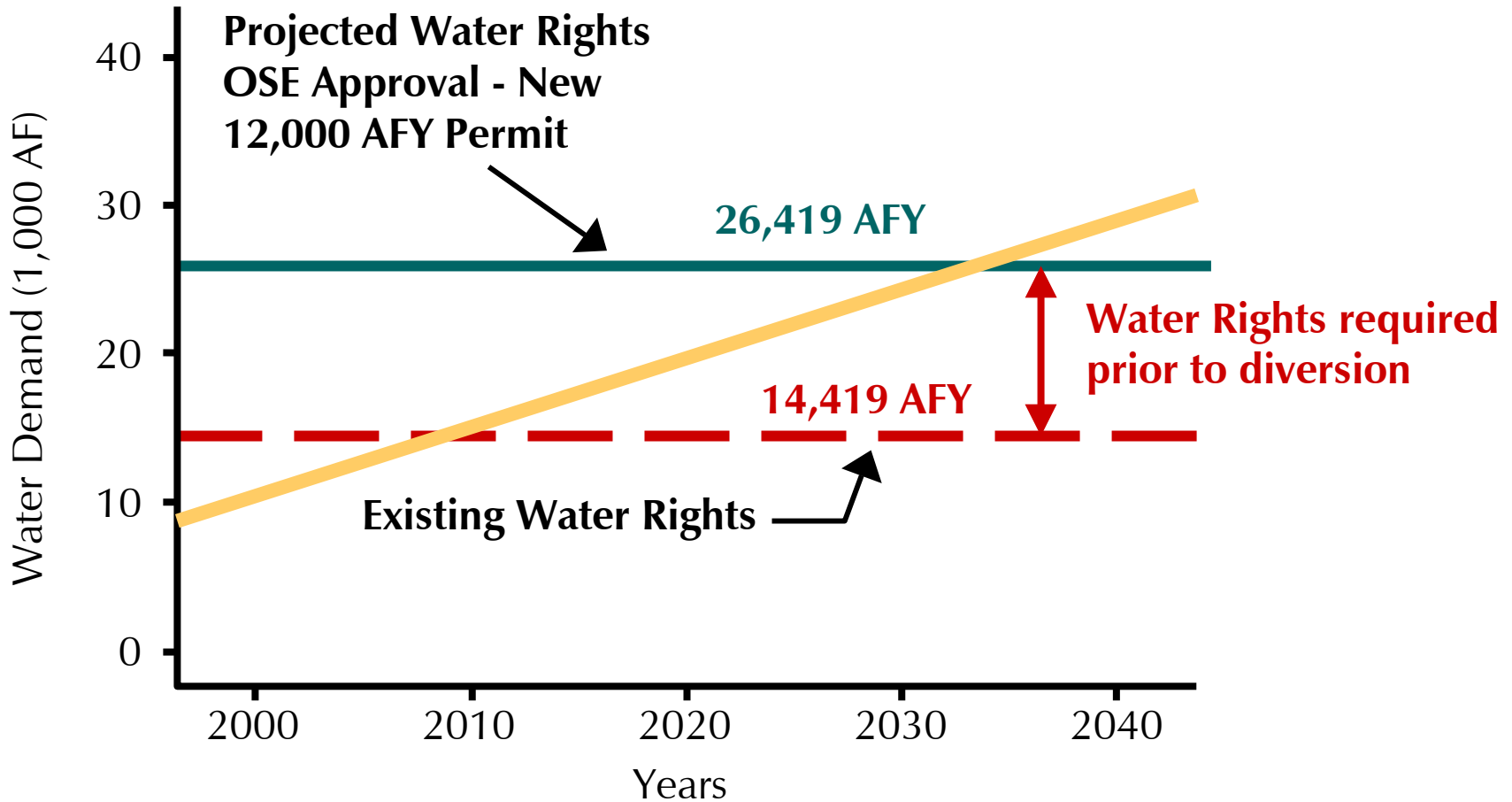
Water Resource Challenges



- **4th Largest & Fastest Growing Community in New Mexico**
- **Aquifer Characterized as Critical Management Area with Significant Groundwater Level Declines**
- **Interstate Compact, Extended Droughts & Endangered Species Act Management**



Growth in Water Demand Drives Aggressive Water Rights Acquisition



Rio Rancho City Council Adopts Resolution 01-004

- **Develop a Reuse Plan that Includes Alternate Uses, Regulatory Review, Facility Plan & Phasing Schedule**
- **Goal of Eliminating Effluent Discharges to the Rio Grande by 2008**

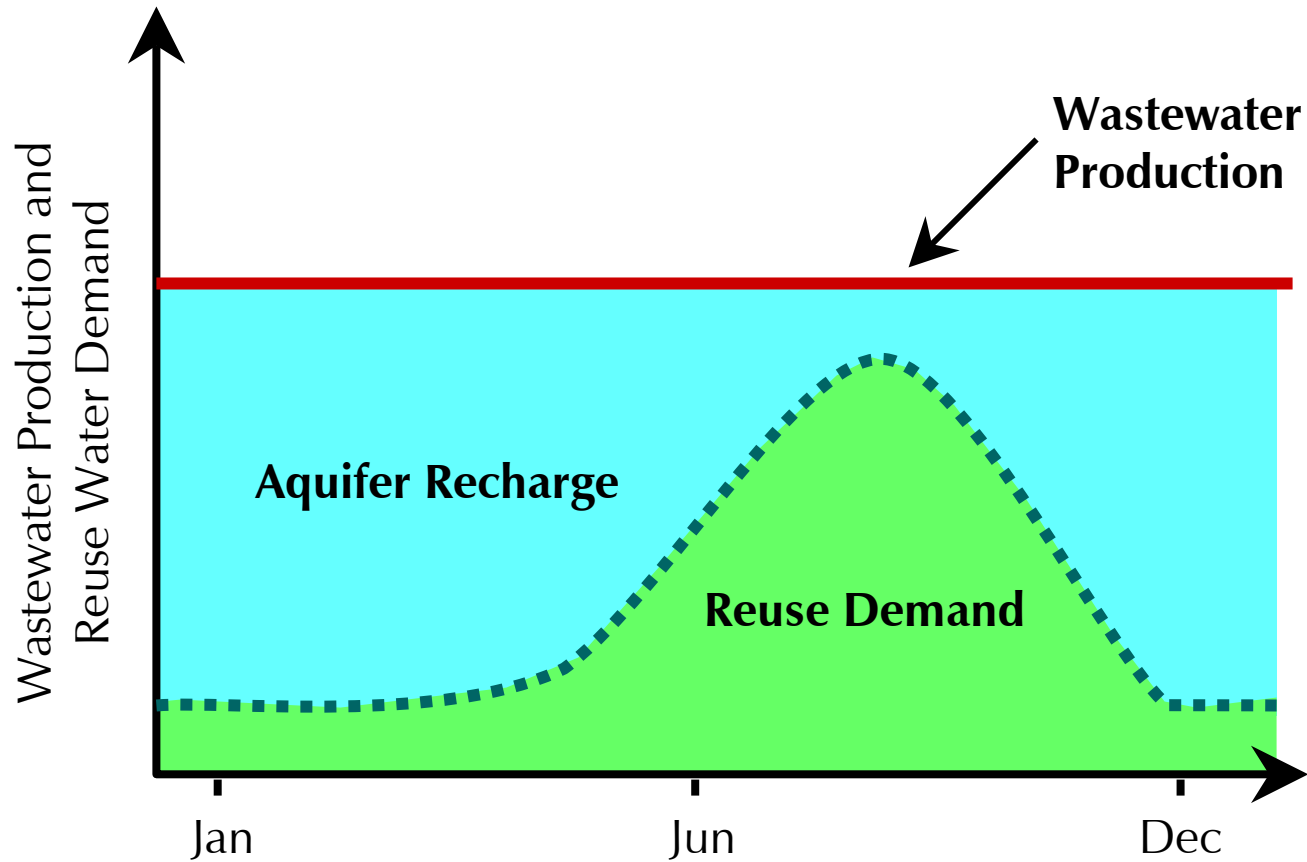


Water Reuse Feasibility Study Established Reuse Options

- **Phase I - Reuse Customer Market Analysis & Regulatory Evaluation**
- **Phase II - Evaluate Reuse & Aquifer Recharge Options**
- **Phase III - Select Reuse Facilities for Design**

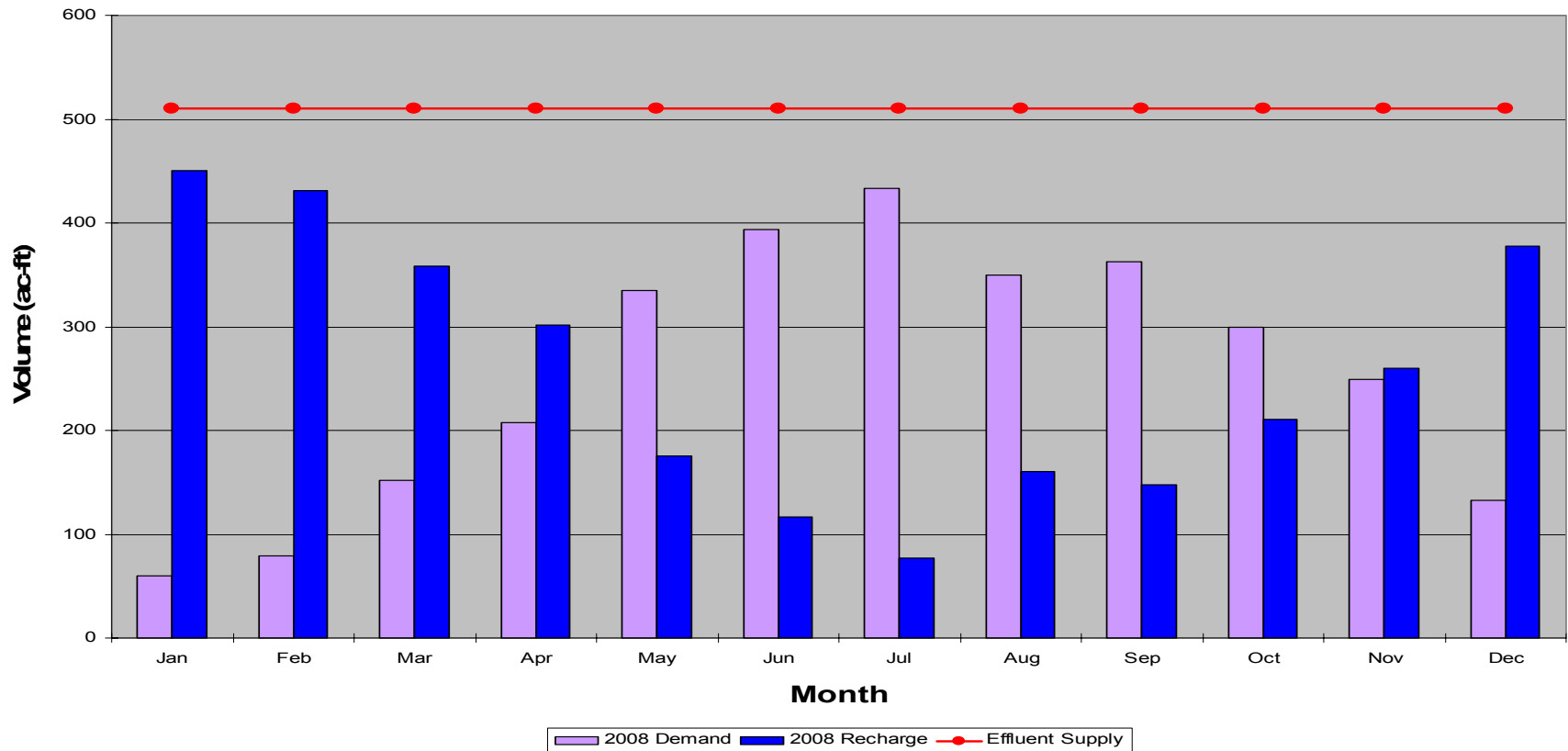


Eliminating Discharge Requires Reuse & Aquifer Recharge

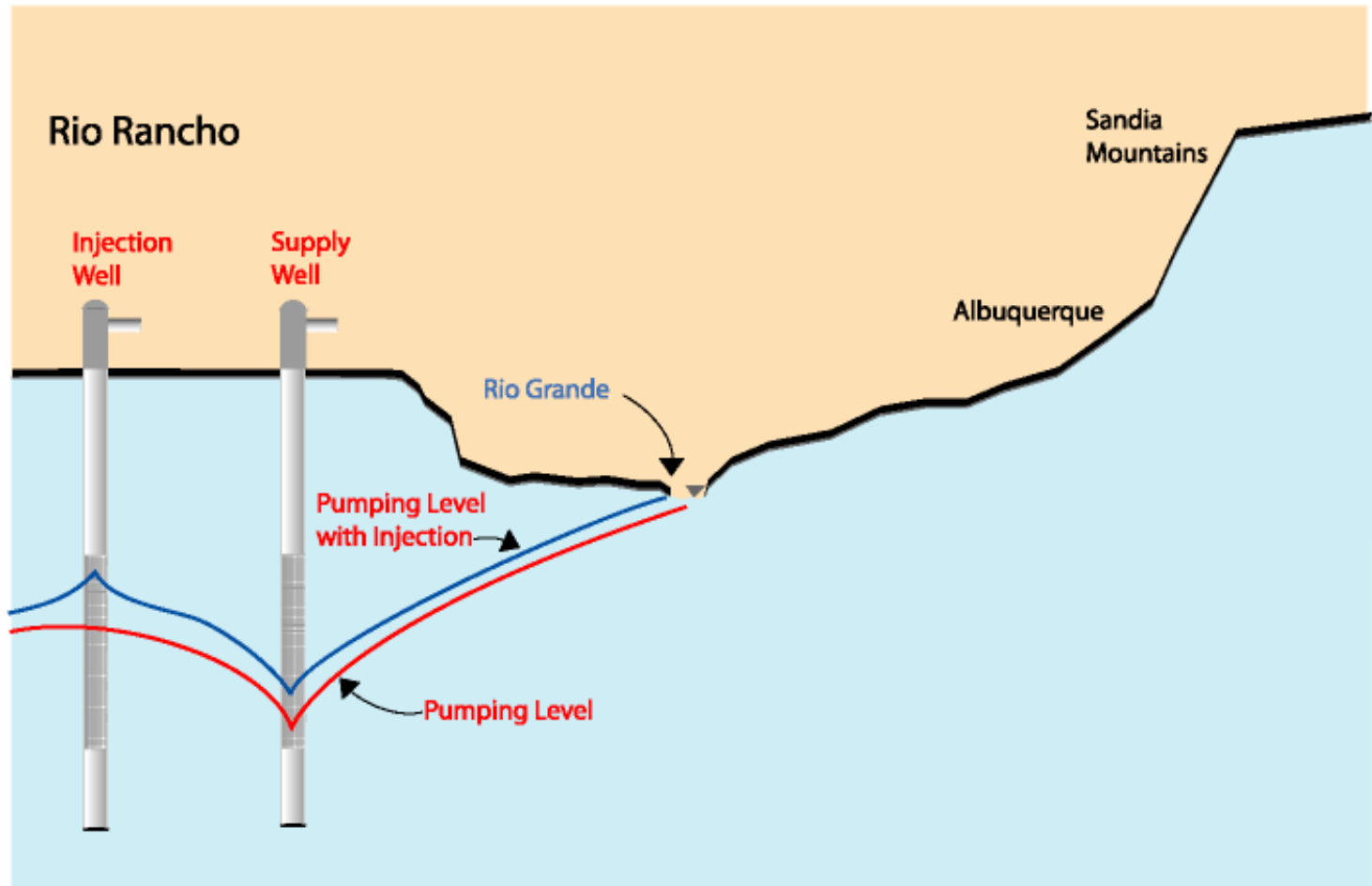


2008 Monthly Demand & Recharge Volume

Alternative III - Irrigation & Commercial



Injection Will Offset Depletion Effects & Delay Water Right Transfers

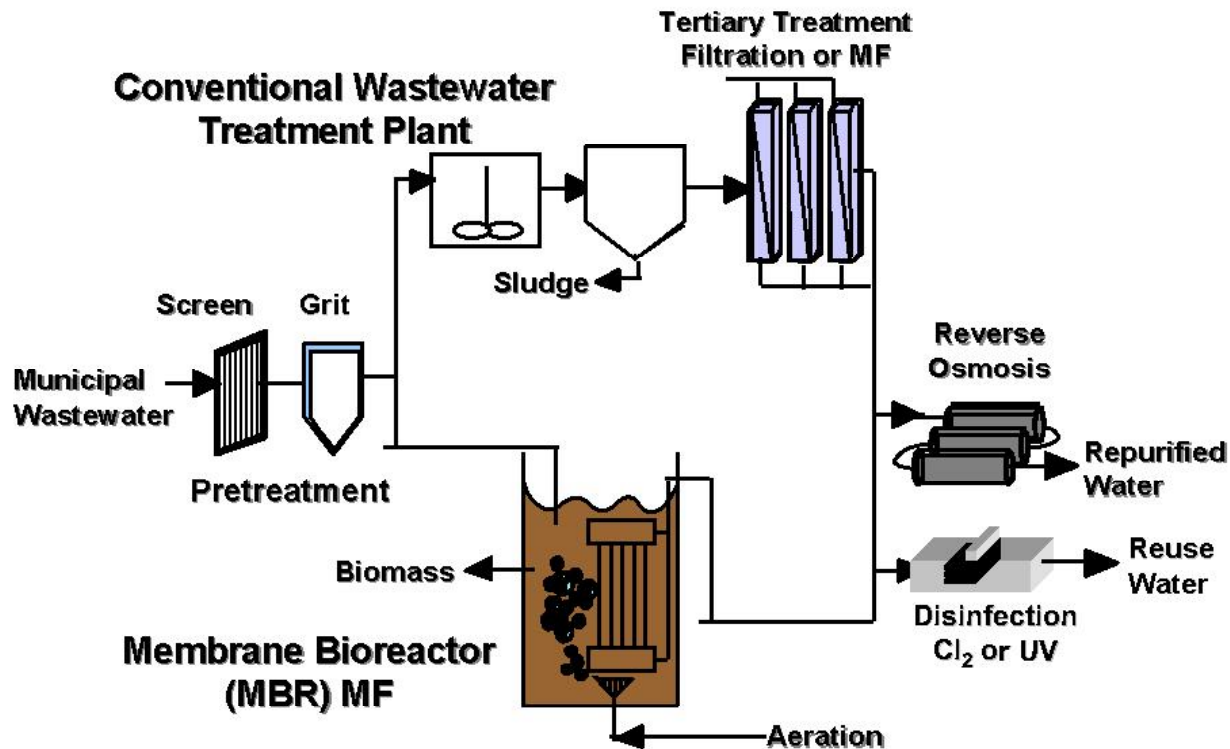


Resource Benefits of Reclaimed Water

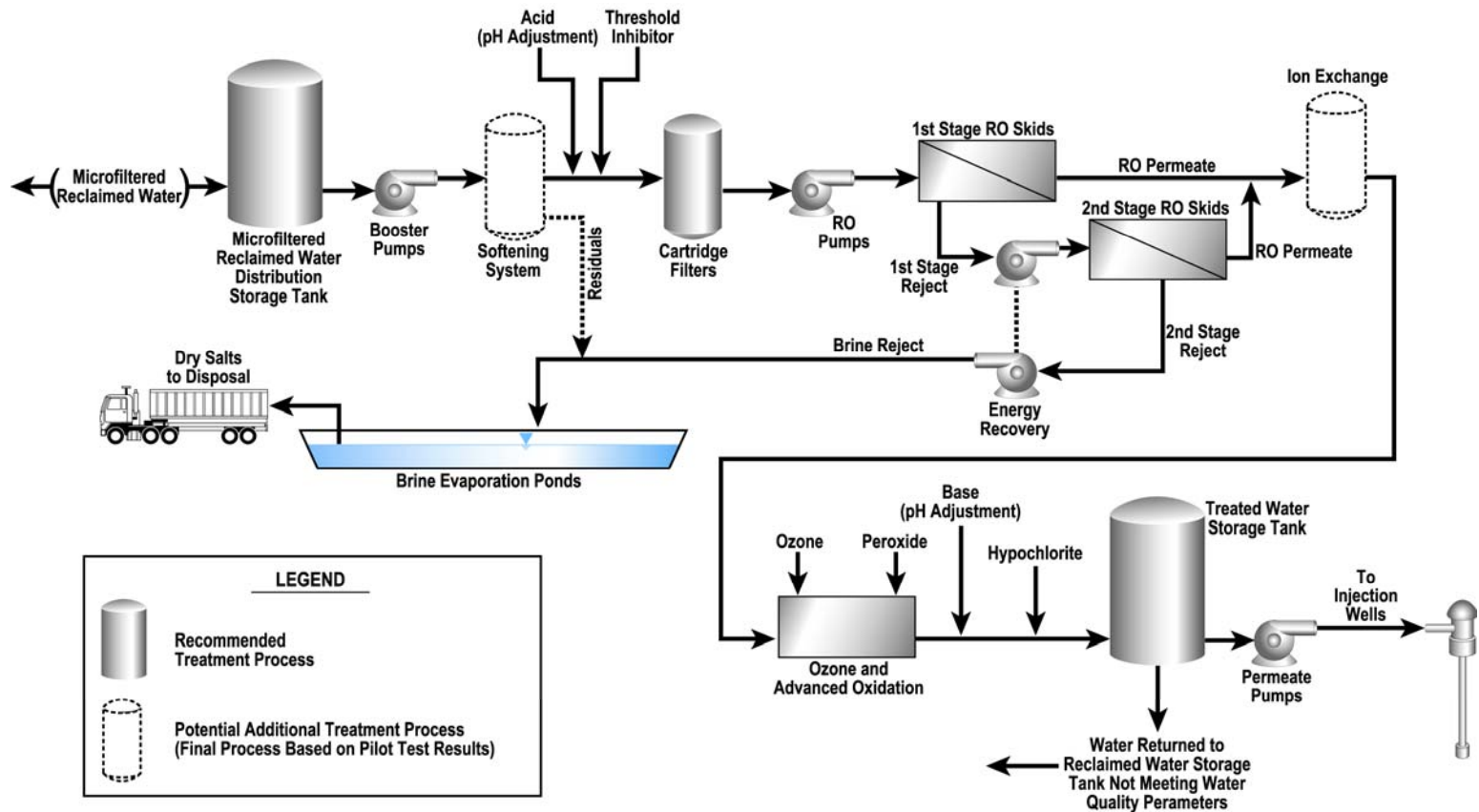
- **Conserves Water by Replacing Existing Demands with Reclaimed Water - Preserves Limited Groundwater Supply**
- **Supply is Drought Resistant & Increases with Community & Economic Growth**



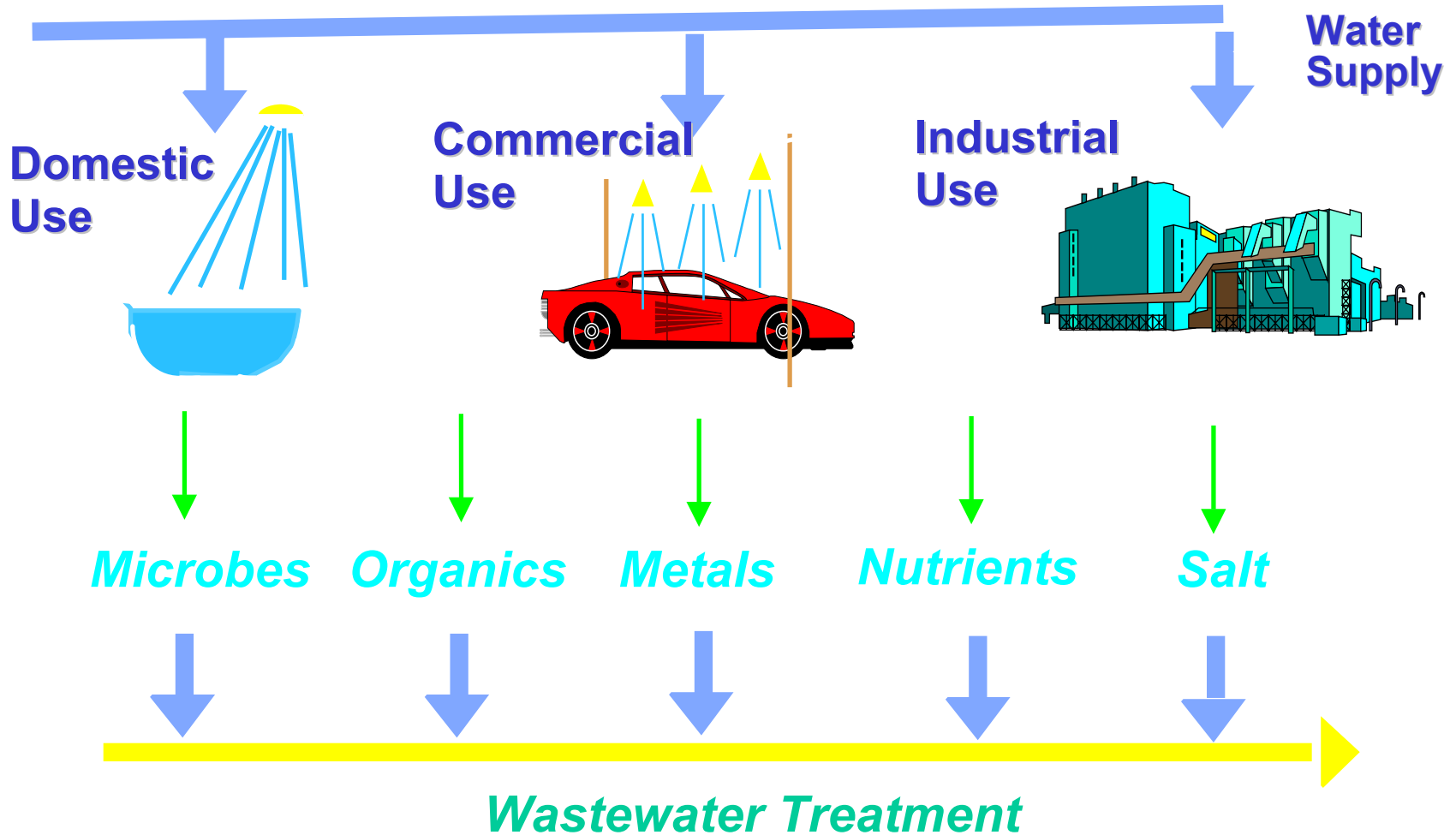
Advanced Treatment Technology Expands Reclaimed Water Market



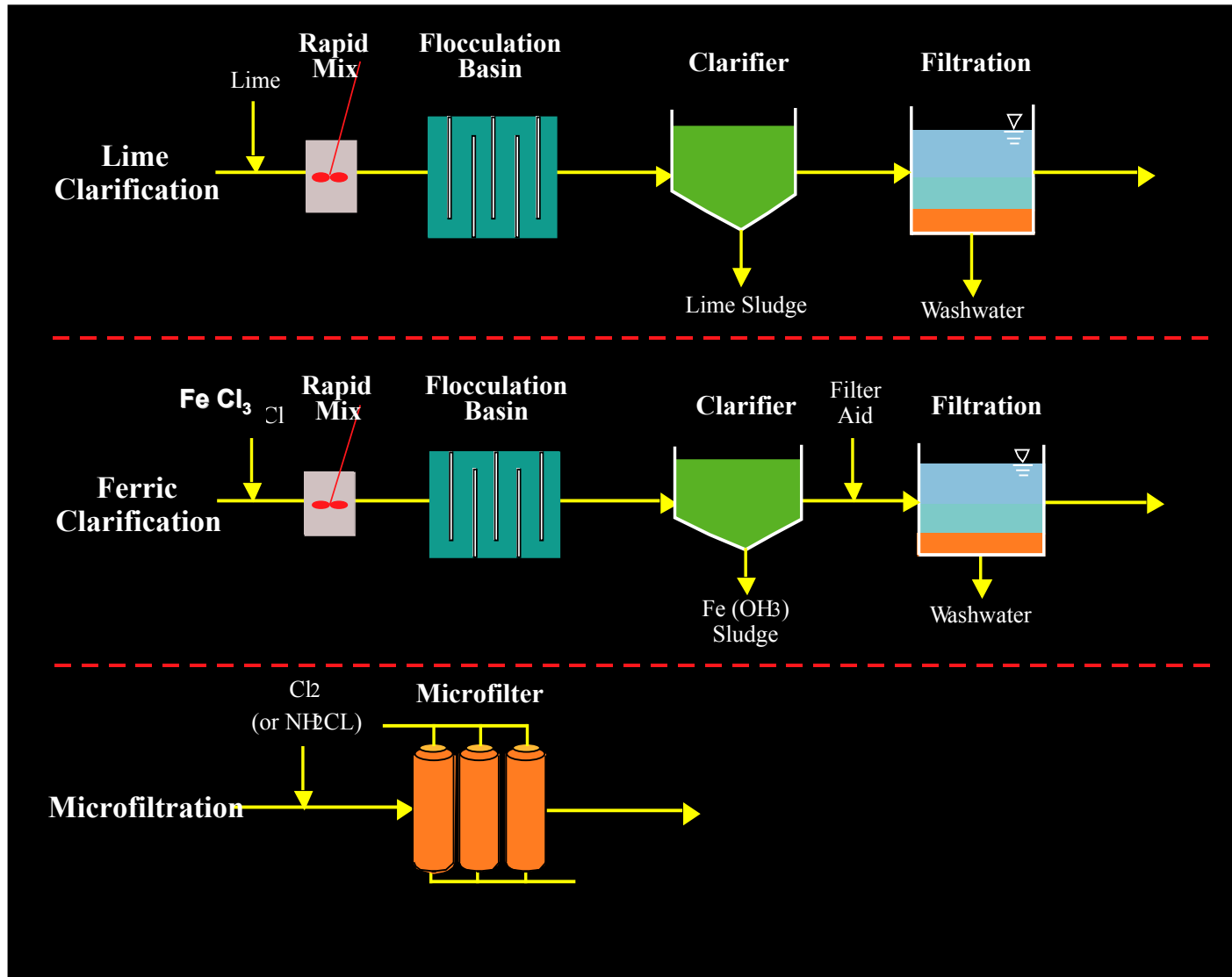
Treatment Process for Aquifer Injection



Contaminants of Concern



RO Pretreatment Options



Comparison of RO Pretreatment Options

	RO Membrane Cleaning Frequency	Effluent Turbidity (NTU)	Footprint (acres per MG)	Residuals Production (Dry Tons/Day)	RO Membrane Flux (GFD)	Cost of Treatment (\$/AF)
Lime Clarification	4 to 6 weeks	0.2 to 0.3	0.1	35	10.2	\$421
Ferric Chloride Clarification	2 to 3 weeks	0.2 to 0.4	0.1	5	10.2	\$220
Microfiltration	8 to 12 weeks	0.1 to 0.2	0.04	-	12	\$181

MF Membranes at West Basin Reclamation Plant, El Segundo, CA



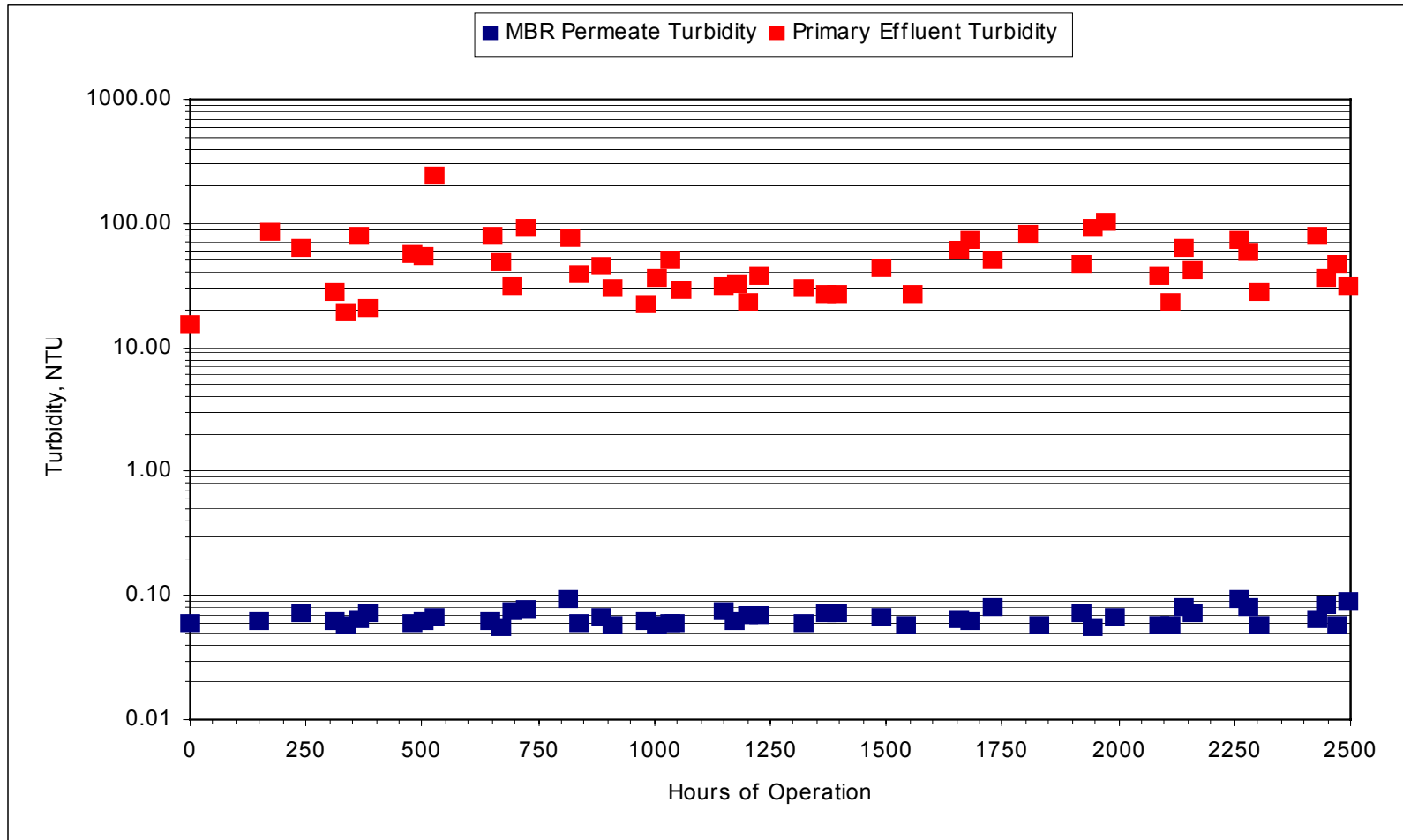
RO Membranes at West Basin Water Reclamation Plant, El Segundo, CA



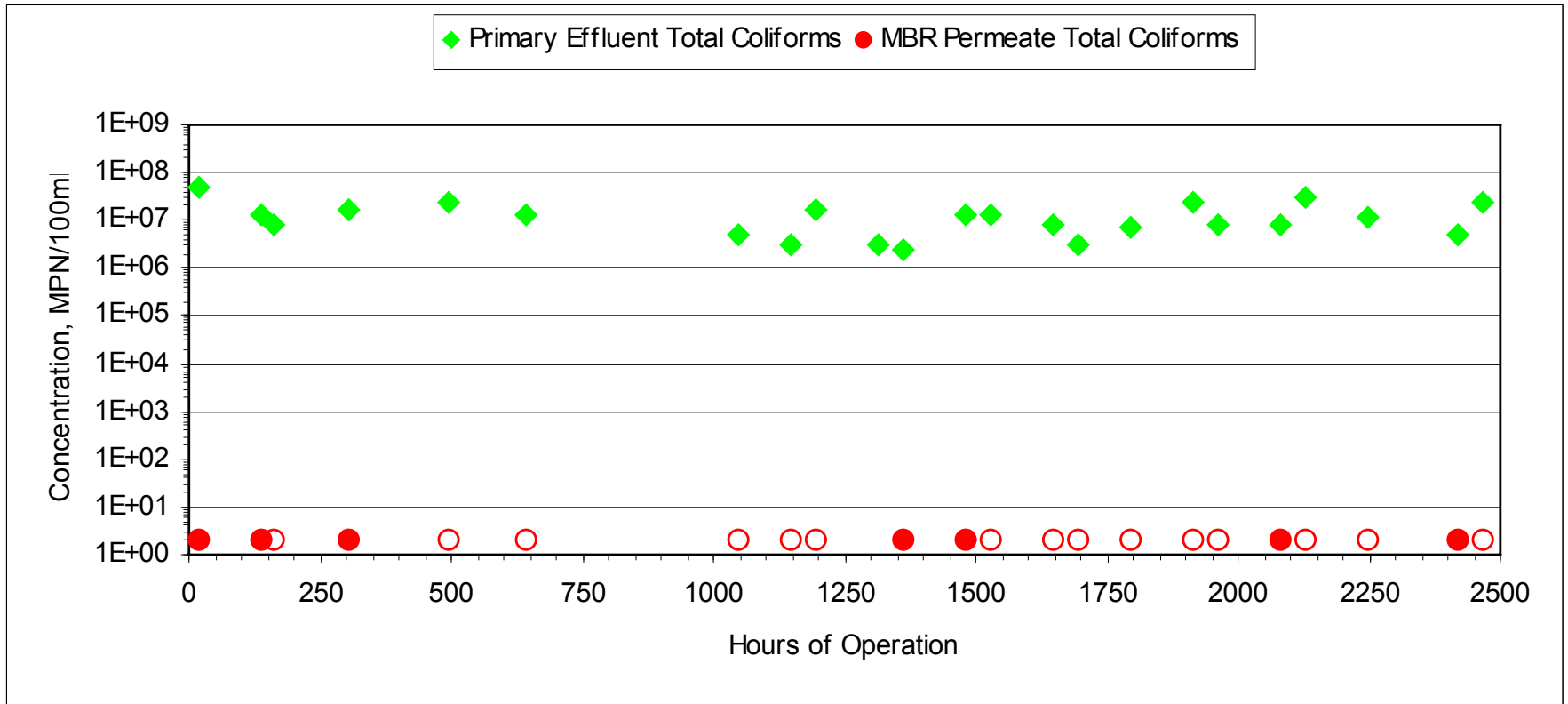
Piloting of Membrane BioReactor (MBR) at Point Loma WWTP



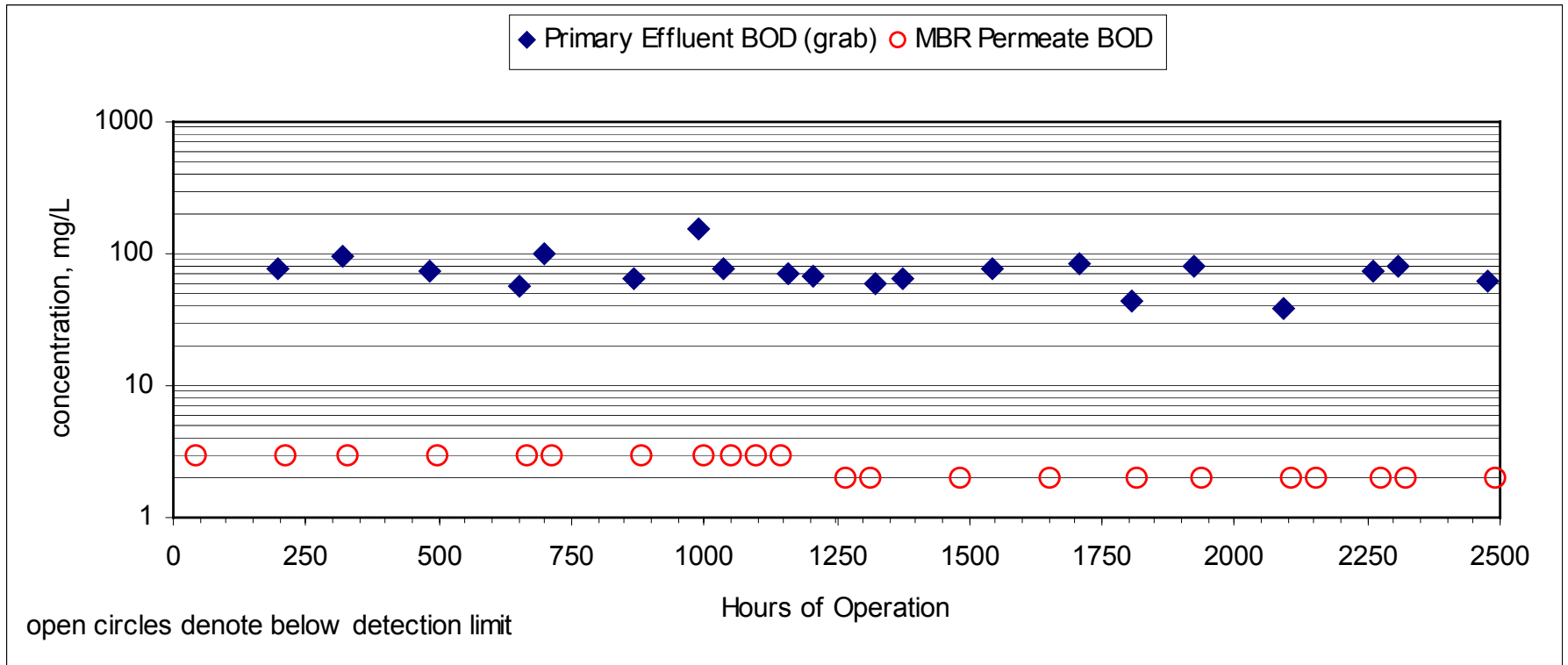
Particulate Removal by MBR Treatment



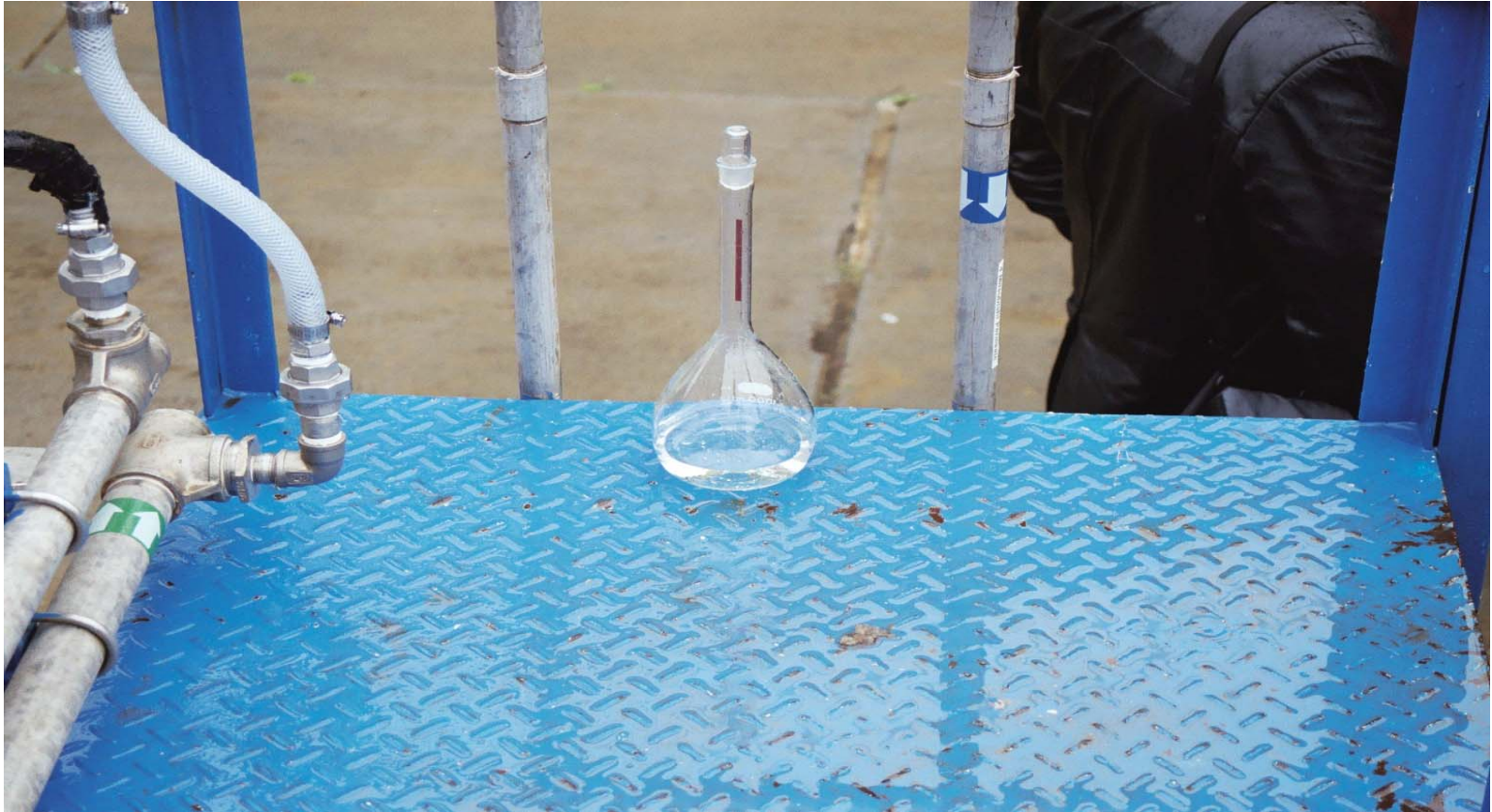
Total Coliform Removal by MBR Treatment



Organics Removal by MBR Treatment



Membrane BioReactor (MBR) Effluent



Piloting Objectives of Membrane Treatment for Water Reuse

- **Determine Integrated Membrane Treatment System Performance**
- **Evaluate Contaminant Removal & Toxic Components in Brine Solutions**
- **Evaluate Options for Brine Concentrate Disposal**



WWTP No. 1 is Well-Suited for Membrane Process Demonstration



WWTP No. 1 in Close Proximity to Industrial Use



Common Desalination Research Issues for Rio Rancho

- **Demonstration of Membrane Treatment Technologies to Address Critical Water Shortages within the Southwest Region**
- **Research Options for Brine Concentrate Management & Disposal**
- **Establish Partnerships to Research & Demonstrate the Effectiveness of Reclaimed Water Technologies**



Water Reuse Strategy Mission Statement

Rio Rancho will be a model community in the desert southwest with a reuse program that helps secure its water future

