

The Road Not Taken: Applying for coverage under the Recycled Water General Permit



Delta Diablo Sanitation District



Recycled Water Facility



- Completed in 2000
- Capacity: 12.8 mgd
- Treatment Processes:
 - Coagulation/
 Flocculation
 - Sedimentation
 - Filtration
 - Disinfection

Existing Industrial Customers



Existing Irrigation Customers SOUTHERN PACIFIC RAILROAD CENTRAL PARI DELTA VIEW AMIMU PITTSBURG RECYCLED WATER SERVICE LOCATIONS EXISTING LANDSCAPED AREAS

City Hall/City Parks







Recycled Water Permitting

- District is covered under the San Francisco Bay Regional Water Quality Control Board (Region 2) General Water Reuse Order 96-011
- Submitted Notice of Intent (NOI) and Title 22 Engineering Report
 - Region 2/DHS approved program
- Coverage since 2001
- New sites were just reported to Region 2 with annual report

Antioch Recycled Water Project



Split Regions





Permitting Options

- Allow landscape irrigation in Region 5 under the existing Region 2 General Order
 <u>– Special MOU's between Regions for other issues</u>
- Obtain master reclamation permit from Region 5
- Seek coverage under newly adopted State Water Resources Control Board General Waste Discharge Requirements for Landscape Irrigation Uses of Municipal Recycled Water (General Permit)





Agronomic Rates

- Specification 4 "Application of recycled water to the Use Area shall be at reasonable agronomic rates and shall consider soil, climate, and nutrient demand."
 - Specification 5 "The seasonal nutritive loading of the Use Area including the nutritive value of organic and chemical fertilizers and of the recycled water shall not exceed the nutritive demand of the landscape."

Agronomic Rates (cont'd)

- Required to submit water balance
 - Calculated irrigation demand using crop coefficients and ET_o values under three scenarios (drought, average and 100-year rainfall)
- Little to no historical data on nitrogen in recycled water
 - First total nitrogen result was 37 mg/L (1.0 mg/L nitrate and 36 mg/L TKN -- all ammonia)
 - SWRCB: Exclusive irrigation with recycled water would exceed the 174 lb/acre-year agronomic rate for turf grass by 100%





Results from Other Sites

Question	Current Hypotheses
Amount of N in soil	No evidence of accumulation
Form of N in the soil	Where aeration is poor, there is little nitrate
Rate of water leaching from profile	Salinity and irrigation scheduling data indicate little leaching (<10% of applied water)
Leaching of nitrate	Low porewater concentrations and rate of water leaching suggest very little nitrate leaching
N losses and transformations	Volatilization and denitrification are fast enough so that agronomic rates are maintained.
	Low nitrification and water leaching rates further limit N leachability

SMRP Requirements

• Soil Testing:

- Baseline, after 1st full year of irrigation, and after 2nd full year of irrigation
- Test for NH₄-N, NO₃-N, NO₂-N, pH,
 Exchangeable Sodium Percentage, Electrical Conductivity (EC)

Depth intervals of 0-6, 6-12, 12-24, and 24-36 inches below ground surface (bgs) for the first two years and an additional 36-48, 48-60, and 60-72 inches bgs (as feasible with manual push probe) after the second year

Soil Sampling Locations



SMRP Requirements (cont'd)

- Water Testing:
 - Test monthly at the outlet of the Recycled Water Facility
 - Test for flow, Total Dissolved Solids, NH₄-N, NO₃-N, NO₂-N, pH, EC
- Annual Report due at each year's end





Irrigation Volume





Final Results

 February 2013, District requested discontinuation of SMRP – little underlying risk to groundwater

Discontinuation granted and final NOA issued April 3, 2013

Budget/Expenses

	Permit Application	Cost
	NOI/Antideg/O&M Plan	\$19,881
	SWRCB Application Fee	\$2,759
	N Sampling/SMRP Negotiation	\$64,663
	Total	\$87,303
4.7.1		
	SMRP Requirements	Cost
	SMRP Requirements Soil Sampling & Analysis	Cost \$15,608
	SMRP Requirements Soil Sampling & Analysis Water Sampling & Analysis	Cost \$15,608 \$14,000
	SMRP Requirements Soil Sampling & Analysis Water Sampling & Analysis Results Analysis & Reporting	Cost \$15,608 \$14,000 \$25,748

Potential/Future Issues

• SMRP

- Will other applicants have to implement?

Adding sites

– Will a new NOA be issued every time?

Agronomic rates

– How is it checked and what happens if exceeded?



Contact Information



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Other Permit Issues

Issue	Outcome
Limiting Recycled Water Application	Permitted to use full 487 AFY w/conditions
Maximum Recycled Water Usage	Retained irrigation maxima, while acknowledging drought years
Supplemental Monitoring & Reporting Program Requirements	Focused on the fate of applied nitrogen
Condition B.2	Agronomic rate requirement to be provisionally met by SMRP
NOA Expiration	Expiration date removed and stated that District would be covered under the Conditional NOA until a final NOA is issued

