

Table 2. Benchmark Evaluation Results

Water quality Regulations and Policy	Petaluma	SLO	Thousand Oaks	San Virgines	Roseville	Victor Valley	El Centro	IEUA Carbon Canyon Water Reclamation Facility	IEUA RP-5	IEUA RP-1 & RP-4	Riverside	Santa Rosa
Discharge augmentation of funding to RWQCB or DFC to expedite policy or permitting decisions (number of projects, funding amount)	None	None	55k/yr since '80 doing receiving water studies to support a Cap. Truck, Santa Valley, Camarillo, Ventura County San District, and Calleguas formed group to develop TMDLs - expect to spend \$5 million doing TMDLs for RWQCB.	no	None	None	None	None	None	None	None	\$500k for mixing zone policy development, \$200k for Laguna TMDL.
Receiving water 30M listed	Petaluma River - diazium, nickel, nutrients, pathogens	Nutrients, pathogens, priority organics. Currently studying nutrient (Nitrogen) removal for the City's Water Reclamation Facility.	Algae, Chemo, Chloroform, DDT, Sieldin, Endosulfan, Fecal Coliform, Hexachlorocyclohexane (HCH), Nitrate as Nitrite (NO2), Nitrate as Nitrogen, Nitrite as Nitrogen, PCBs, Sulfates, Total Dissolved Solids, Triphenole.	Nutrients (eutrophication) & Bacteria	Hg and toxicity	Drains are listed for pesticides, selenium, silicium. Alamo River is listed for pesticides and selenium. New River is listed for nutrients, 7 particular organic compounds, pesticides, organic matter/low DO, siltation, and trash. Mexicali, located upstream, has population of about 1 million and no sewage treatment.	Chino Creek Reach 2: high coliform count from non-point sources. Santa Ana River Reach 3: Pathogens from dairies	Chino Creek Reach 1: Nutrients and Pathogens from agriculture, dairies and urban runoff. Santa Ana River Reach 3: Pathogens from dairies	Chino Creek Reach 1: Nutrients and Pathogens from agriculture, dairies and urban runoff. Santa Ana River Reach 3: Pathogens from dairies	Chino Creek Reach 1: Nutrients and Pathogens from agriculture, dairies and urban runoff. Santa Ana River Reach 3: Pathogens from dairies	Santa Ana River listed for reach 3 - location of Ride's (discharge) for pathogens. Delisted for nutrients.	Russian River - sediment, temperature, pathogens. Santa Rosa Creek - sediment, temperature, pathogens. Laguna de Santa Rosa - low dissolved oxygen, nitrogen, phosphorus, sediment, temperature.
Status of TMDL development for receiving water of POTW effluent	scheduled to begin in FY 04-05.	TMDL draft has been completed and the City has agreed to study reducing nitrogen discharge to a 10mg-N/l limit. RWQCB staff indicated they are not considering adopting the TMDL anytime soon. City strategy is to seek guarantee of 10mg-N/l limit as the limit for the watershed for the City.	No TMDLs completed yet.	The bacteria TMDL was adopted and is currently going through modification by resolution. The nutrient TMDL was developed by the CAL EPA and is scheduled for adoption in Dec 04	no known schedule	--	New River TMDL for trash and DO currently in progress.	Santa Ana River Reach 3: Pathogen TMDL completion - 2004	Chino Creek Reach 1 & Santa Ana River Reach 3: Pathogen TMDL completion - 2004	Chino Creek Reach 1, Mill Creek & Santa Ana River Reach 3: Pathogen TMDL completion - 2004	In addition to TMDL, groundwater quality objective for nitrate of 4.2 mg-N/L. Attainment of gw objective measured at point of use (wellhead) not at infiltration location. 25 - 50% loss assumed in percolation, depending on River reach.	Nitrogen plan developed for Laguna. Others not yet scheduled for development.
Discharge Permit												
Date of issuance call permits expire 5 years after (issuance)	July 1998	May 2002	February 2003	Malibu Ct NPDES re-issued Nov 97, expired Oct 02; LA River NPDES re-issued May 99 expired Apr 04.	June 2000	application submitted in May 04, permit expires Nov '04.	March 2004	August 1, 2004	July 2003	January 2001	January 2001	March 2000
Plant flow limit?	5.2 mgd adwf	no limit	no limit	16.1 mgd adwf	no limit	no limit	no limit	no limit	no limit	no limit	no limit	21.34 mgd
Permitted discharge flow (minimum and maximum flow and dilution)	No limit, except seasonal discharge prohibition from May 1 through October 20.	No limit in NPDES permit, but NMS imposed 1 mgd minimum discharge requirement	no limit	Prohibition of all discharge to Malibu Ct from April 15 to Nov 15, unless storm event or mechanical failure. LA River discharge allowed from April 15 to Nov 15 only, up to 2 MGD max.	Each of four discharge locations has a specified max discharge volume. The sum of the discharge limits is 18 mgd adwf.	no limit	no limit	minimum flow: none, other than 17,000 AFY Prado Requirement maximum flow: mass emission rate based on calculations of 11.4 mgd	minimum flow: none, other than 17,000 AFY Prado Requirement maximum flow: mass emission rate based on calculations of 15 mgd/dilution: effluent dominated water body; discharge secondary-treated disinfected water when 20:1 dilution is met	minimum flow: none, other than 17,000 AFY Prado Requirement maximum flow: mass emission rate based on calculations of 15 mgd/dilution: effluent dominated water body; discharge secondary-treated disinfected water when 20:1 dilution is met (natural flows only)	no limit	no limit
Receiving water monitoring program	4 receiving water monitoring stations. Monthly monitoring required for 11 constituents.	8 receiving water monitoring stations. Monitoring required for 22 constituents from weekly to quarterly	permit requires participation in watershed-wide monitoring program in which other dischargers also participate. Flow, pH, temperature, dissolved oxygen, chlorine, and coliform weekly; nutrients, algae, and toxicity monthly; priority pollutants quarterly	6 stations in Malibu Ct. Monitored by weekly. No monitoring stations on LA River since discharge goes to a stream drain and is not accessible for a mile downstream.	11 stations, 5 parameters, frequency varies from weekly to annually depending on constituent. Groundwater near storage pond is monitored for 10 parameters at a frequency varying from quarterly to annually depending on constituent.	Two locations are monitored quarterly for DO, pH, residual chlorine, turbidity, temperature, nitrate, total nitrogen and ammonia. Chronic toxicity is monitored annually. Effluent monitoring includes quarterly chronic and acute tox monitoring faecal minnow and water flea, nutrients and metals monthly.	Number of receiving water monitoring stations = 2. parameters = temp, pH and hardness and DDT, frequency of monitoring = monthly except DDT = annually. Effluent monitoring includes quarterly chronic and acute tox monitoring faecal minnow and water flea, nutrients and metals monthly.	Number of monitoring stations: 2 (upstream and downstream). Parameters & Frequency: DO, pH, Temp (weekly); TIN, NO3-N (every 2 wks); TDS, Total Hardness (monthly)	Number of monitoring stations: 2 (upstream and downstream). Parameters & Frequency: DO, pH, Temp (weekly); TIN, NO3-N (every 2 wks); TDS, Total Hardness (monthly)	Number of monitoring stations: 2 (upstream and downstream). Parameters & Frequency: DO, pH, Temp (weekly)	grab samples for temp, DO and pH collected at two locations in receiving water weekly. Quarterly priority pollutant monitoring in receiving water. City does toxicity testing of upstream and downstream receiving water to protect self. N and WET measured at wetland effluent, other constituents measured at plant effluent.	multiple stations at each discharge location.
Continuous-recording monitoring equipment required?	no	no	no	no	no	no	no	no	no	no	no	yes
Approach to hardness calculation in reasonable potential analysis	no hardness being considered due to salinity of receiving water.	not yet determined	due to extremely high hardness of receiving water, the maximum hardness allowable was used in the RPA (400 mg/L).	due to extremely high hardness of receiving water, the maximum hardness allowable was used in the RPA (400 mg/L).	not yet determined	unknown	not applicable, as salt water standard was used (which is not hardness-dependent). Average tds of effluent = 2100 mg/l	unknown	unknown	unknown	Based on hardness of 5 th percentile of 4-day average of downstream River (20 mg/L).	lowest recorded hardness
Mixing zones, water-effect ratios, translators factored into effluent limits	Translator study done and currently under consideration by RWQCB	All are currently being considered by discharger.	Mixing zones not appropriate due to lack of dilution. Water effect ratios and translators being considered	All are currently being considered by discharger.	All being considered by City	CTRSIP compliance planning is in early phases and these issues have not yet been considered.	not considered	Translator developed. Mixing zones not permitted because receiving water is considered effluent-dominated.	Mixing zones not permitted because receiving water is considered effluent-dominated.	Translator developed. Mixing zones not permitted because receiving water is considered effluent-dominated.	Translator done for copper. No mixing zones because receiving stream is considered effluent-dominated.	All being considered by City
Reasonable potential evaluation approach, infeasibility standard, effluent limit setting approach	information to support reasonable potential analysis has been submitted but results of analysis by RWQCB not yet available.	Info submitted initially was considered inadequate by RWQCB for some constituents, so provision requiring more information was included in the permit. RPA is due Oct 1, 2004	RPA process followed that described in SIP. The process resulted in a reduction in the number of constituents with effluent limits relative to the previous permit.	SIP-RPA Approach using the standard model determining effluent limits by a combination of allowed effluent concentrations when blended with receiving water concentrations.	Roseville is just starting application and is conducting RPA annually for submitted to RWQCB. No credit for dilution expected. Roseville doesn't expect to be able to comply with anticipated Hg limit and doesn't yet know how it will comply. Converting to UV disinfection to avoid limits for chlorine disinfection byproducts.	RPA currently being done by RWQCB. Discharger awaiting results.	Data provided to RWQCB by El Centro. Results provided with little explanation, see permit findings 21 - 27 and Appendix A. Cu limit is based on salwater criterion. Interim (w/ 5-yr compliance schedule) and final limits imposed for Cu, Ni and Se. City does not know if they'll be able to attain. DDT and phthalate had RP, but no limit imposed.	Median total hardness of effluent flow is used to calculate T.R. Chromium	Median total hardness of effluent flow is used to calculate T.R. Copper limit	Median total hardness of effluent flow is used to calculate T.R. Chromium	Riverside's RPA was done in 2000 before SWRCB developed guidance for RBs. The provided flexibility that may no longer be exercised by some RB staff. Santa Ana Board willing to screen only data or data not found in influent. Ride demonstrated that phthalate detections were lab error/contamination.	not yet known
Enforcement Order	no	no	yes, requires particular measures (including plant improvements) to attain final limits.	Tapia was given a CDO to stop all flow to an area that was being tested as a constructed wetlands project, pending final WDR Permit approval. That permit was granted but the project is still pending a Coastal Commission approval. Also Tapia has a TSO for Malibu Creek discharge of Nitrate-Nitrite-N of 1.7mg/L daily max and 1.3 mg/L annual average, and Dichlorobromomethane of 42 ug/L.	no	no	Time schedule for CTR limits	none	none	none	none	no
Permit appeals	no	no	LVMWD and a combined Envir. Group effort appealed the 97 permit.	no	no	no	no	no	no	no	no	no
Allowance or reliance on "interim" permit limits and scope of such interim limits	Interim limits in permit for copper, mercury and byproducts, although these were imposed prior to CTR/SIP.	Interim limits established under CTR for disinfection byproducts. Studies required to determine feasibility of alternative disinfection methods to chlorine since final limits cannot be met with chlorine disinfection. Studies are due Dec 1 2004, final limits to be considered within 1 June 2005	yes	yes	no interim limits	no interim limits	yes	currently under consideration by RWQCB	no interim limits	no interim limits	no interim limits	no
Re-opens/Special Studies	no	See explanation of disinfection byproducts above	none	Nitrate limit and extension of discharge prohibition season to be considered after completion of a retrospective study conducted by Coastal Conservancy.	MTBE study required, may result in limits. Groundwater impacts study required, may result in limits.	no	no	to address: state led plans, reasonable potential pollutants; total-to-dissolved ratio; change; toxicity; bioassay; methylmercury	to address: state led plans, reasonable potential pollutants; total-to-dissolved ratio; change; toxicity; bioassay; methylmercury	to address: state led plans, reasonable potential pollutants; total-to-dissolved ratio; change; toxicity; bioassay; methylmercury	monthly phthalate monitoring to demonstrate absence.	none
Wastewater Facility												
Current flow	awaiting info from City of Petaluma	4.5 mgd, peak can be 9.0 mgd	10.4 mgd adwf	Current net flow is 9.5 MGD, peak is 15 MGD	15 mgd	10.7 mgd, 120,000 population. Regional authority	3.5 mgd, design flow = 8 mgd	adwf: 10.9 mgd, peak day: 14.5 mgd	adwf: 7.8 mgd peak day: 14.0 mgd	Please note: RP-1 effluent discharges from 001 and 002 discharge points. 002 effluent is a blend of TP-1 and RP-4 effluent. Adwf: RP-1: 34.1 mgd; RP-4: 5.3 mgd, peak day: RP-1: 44.5 mgd; RP-4: 6.9 mgd	38 mgd	approximately 16.5 mgd
Discharge flow	awaiting info from City of Petaluma	4.5 mgd, peak can be 9.0 mgd	10.4 mgd	I, A River Outfall has a 2 MGD volume limit. No minimum. Malibu Ct has an odd minimum flow requirement: discharge enough to meet provide 2 cfs at a downstream gauge station, this is a NMS requirement to address a potential "take" in the watershed when not discharging. No dilution classes.	Existing, Tertiary process with a partial MLE BNR process. Planned treatment process depends on permit outcome.	0.5 flow to Mojave R. 0.5 goes into perc ponds. Both river and ponds recharge gw. Flow extends on surface for about 6 miles. Historically, gw discharged to surface water. Gw use caused discharge to diminish, now replaced by VVW.	3.5 mgd	8.8 mgd average effluent discharge, minimum flow: 0 mgd maximum flow: 15.2 mgd dilution: <1:1 under normal weather conditions	7.2 mgd average effluent discharge, minimum: 3.9 mgd maximum: 12.2 mgd dilution: <20:1 under normal weather conditions	RP-1: 37.2 mgd; RP-4: 5.3 mgd (average effluent discharge), minimum flow: RP-1: 26.0 mgd; RP-4: 1.2 mgd, maximum flow: RP-1: 47.8 mgd; RP-4: 7.3 mgd, dilution: under normal weather conditions	38 mgd	varies, receiving stream flow-dependent
Type of treatment—existing and planned	Secondary system with oxidation ponds. New plant, with tertiary treatment of irrigated recycled water, is currently being designed. This system is expected to include wetlands for effluent polishing.	Tertiary: Nitrification, Filtration with Effluent Cooling (5 mgd capacity, routinely chills adwf of 4.5 mgd. Cooling system has been in operation for about 10 years to protect salmonid fish).	conventional activated sludge with filtration and chlorine disinfection. Upgrade underway to provide ammonia removal and denitrification.	Existing, Tertiary process with a partial MLE BNR process. Planned treatment process depends on permit outcome.	tertiary with effluent cooling. Capital cost of cooling 16.5 mgd = \$3 million. O&M unknown because construction only recently completed.	Tertiary.	Conventional secondary with chlorination and dechlorination	tertiary with chlorination and dechlorination	tertiary with chlorination and dechlorination	tertiary with UV, chlorination and dechlorination	Tertiary, with 14 mgd routed through a wetland for nitrogen removal	tertiary
Discharge method	Direct outfall to Petaluma River	Direct outfall discharge to San Luis Obispo Creek. San Luis Obispo Creek is a cold water/freshwater steelhead trout habitat. San Luis Obispo Creek is also effluent dependant	direct to local stream	Direct to outfalls in Malibu Ct or LA River stream drain	direct at four locations. Effluent sometimes is 100 percent of stream/flow	direct and indirect to Mojave River. The River rapidly disappears into permeable desert soil.	Direct into Chino Creek Reach 2	Direct into Chino Creek Reach 1	001 discharge pt - Prado Park Lake discharges into unnamed tributary to Chino Creek and thence Santa Ana River Reach 3 002 discharge pt - Cucamonga Creek, Reach 1, flows to Mill Creek and thence to Chino Creek tributary to Santa Ana River Reach 3	direct to Santa Ana River	Direct at multiple locations	
Annual reuse volume (million gallons) and percentage of treatment flow	flow during the discharge prohibition season is land-applied.	Water will be used for parks, schools and parkway irrigation. I20 is planned use in 2005. Plant still under construction, which is delaying reuse. Distribution system already in place. Other uses are being explored. Ultimately we are looking at providing 1,200 acre feet/year of reclaimed water from the project.	Agreement with downstream water agency to divert flow for ag irrigation in Oxnard Plain. For each AF discharged recycled water used, city gets 0.5 AF credits for supply elsewhere. Downstream agency pays \$0.756 million each year for the discharged water. DIO&R. This is a foreign water (SWP import). 10.4 TAF discharged in 10/2003 - 9/04, effluent is also diverted through a created wetland. Created wetland provides habitat for southwestern pond turtle (a federally protected species)	67% of flow is reused	has separate Master Reclamation Permit. New addendum incorporates new incidental runoff policy. Immediately appealed by Delta Keeper. Concerned about nutrients and pesticides from golf course.	0%	10%	7%	6.50%	currently negligible. Considering developing 3-3 mgd reuse in address water supply issues (groundwater contamination NDMA)	75% of flow is reused	
Summary of reuse options	Urban and agriculture. City intends to expand urban irrigation	Mostly parks and schools, we hope to initially reuse approximately 120 acre feet per year when the project comes on line next year. We are currently completing our water reuse master plan and have identified up to 600 acre feet year of eligible locations for water reuse	no additional projects being contemplated	Landscape irrigation, golf courses, schools parks and green belts.	1500 AF/yr, planned 4500 AF/yr	planned reuse will take growth flow in skimming plants 10 mgd. Only solids expansion at current plant. The recycled water will perc to groundwater. Huge overdraft problem currently. \$100 million cap program.	no plans to recycle, CTR could face this. pretreatment program. Adding one staff to implement pretreatment program, program expenses should be funded by local industry.	Mostly irrigation	Mostly irrigation	Mostly irrigation, industrial	urban	Urban, ag, steamfields
Effluent and receiving water limit compliance history	Petaluma paid \$9,000 penalty for coliform, chlorine and settleable matter effluent limit violations in 2003 covering the period Nov '01 through March '03.	SLO paid \$48,000 in effluent violations in 2001. Please refer to the attached summary of violations, section 1 from the City's annual reports, for a list of all the violations	no	coliform is only violation recently (11/2003), no penalties, didn't reach ramp threshold. Jan 93 wiped out sewer, fine.	coliform and violations, some disinfection, MMPs	2003: 1 coliform incident, 1 chronic toxicity >1.0 Tnc, 4 receiving water DO decrease >15% (super-saturated)	Start-up phase, exceedances of coliform and free cyanide, chronic toxicity (reproduction) failures.	2003: 2 chlorine incidents, 1 chronic toxicity >1.0 Tnc	sanitary sewer overflows have occurred but no monetary penalties. Effluent quality violations have occurred that should result in mandatory minimum penalties, but none levied yet by RWQCB	sanitary sewer overflows have occurred but no monetary penalties. Effluent quality violations have occurred that should result in mandatory minimum penalties, but none levied yet by RWQCB	sanitary sewer overflows have occurred but no monetary penalties. Effluent quality violations have occurred that should result in mandatory minimum penalties, but none levied yet by RWQCB	
Monthly rates and one-time connection fee—current and projected	awaiting info from City of Petaluma	\$26.36/month for Single Family Residential. \$3,337 with area specific "add-on" fees of \$216.00 to \$2,717.00 in certain areas for infrastructure improvements. Please see info information	\$25.80/mo and \$7,687	\$60.00/month, \$7,200 connection fee	current and projected: \$7.69 VVWRA charge per household, cities add their charges \$3 - \$8. \$1500/dec. Increases planned to handle reclamation program (\$2007)	current and projected. City is growing at 3%. Plant serves only City of EC. Average connection fee \$30.86, capacity fee = \$1100	Monthly rate varies by city / Connection fee: \$3905 (starting 7/1/04)	Monthly rate varies by city / Connection fee: \$3905 (starting 7/1/04)	Monthly rate varies by city / Connection fee: \$3905 (starting 7/1/04)	Monthly rate varies by city / Connection fee: \$3905 (starting 7/1/04)	\$49.20 per month, \$12,462 per connection	
RWQCB approach to enforcement	awaiting info from City of Petaluma	SLO considers RWQCB to be very reasonable with their enforcement approach. SLO has not been fined for a receiving water violation and has only been fined for Milden type effluent violations	Master Plan done. MP called for rate increase. Anti-growth City Council minority blocked rate increase. \$2.3 million ACI. fine for overflows occurred (reduced to \$0.3 million on remand by judge, settlement also cleared personal and public negligence liability).	2001-03: Mandatory minimum penalty paid for exceedance of effluent C12 residual, in January 2002.	considered fair and reasonable by City, per '90, relationship with RWQCB was not good (frequent enforcement, every little thing). Rick got job and developed trust and responsiveness. Rick errs on side of giving too much info to maintain trust.	2001-03: Mandatory minimum penalty paid for exceedance of effluent C12 residual, in January 2002.	Have had no enforcement actions from RWQCB for this new plant	only penalties/fines related to collection system overflows. SSOs have occurred for which fines have not been levied. Only one permit violation in last five years (chlorine), which is subject to MMP (fine eventually expected).			IRWP Master Plan	
Permit appeal and litigation history	none	No litigation, but SLO voluntarily committed to 9 TAP per year to satisfy DFG's concern that skimming plant/reclamation would diminish discharge.	None	Two threats of suit by Heal the Bay and Surfside Foundation	Permit has been appealed by Delta Keeper	none	none	none	none	none	effluent water rights	Three lawsuits related to discharge, 12 lawsuits related to CEQA documents.
CTRSIP compliance strategy	awaiting info from City of Petaluma	Currently studying costs of proposed nutrient removal and THM reduction. Strategy is to look at cost versus benefit to waterbody.	Cap projects \$100 million in last 5 years: nutrient removal driven by TMDL for nitrate human health standard and ammonia toxicity; control system, solids	Work with RWQCB to get an acceptable permit first, then appeal and litigate as needed	undetermined	none	Develop pretreatment program	requesting compliance schedule for free cyanide limit	none	none	Wetland developed to remove N and comply with N limit. 14 of 38 mgd routed through wetland. Current cap projects include: upgrade to secondary aeration blowers and diffusion, chlorine to liquid, sludge beltpresses to centrifuges.	
Local Environment												
Discharge to drinking water source?	no	San Luis Obispo creek is considered a drinking water source, (MUN) designation, as are all California waters, but there is no existing use. MUN designation not likely to be realized because all water appropriated to ag.	Recharge occurs into water supply aquifer	no	yes	Yes, effluent recharges groundwater which is drinking water supply downstream	no	yes, OCWD recharges entire Santa Ana River flow.	yes, OCWD recharges entire Santa Ana River flow.	yes, OCWD recharges entire Santa Ana River flow.	yes, OCWD recharges entire Santa Ana River flow.	yes
Water rights in issue?	no	yes, on minimum discharge rate	yes, on SWRCB D1438 rate	no	no	no	no	Yes, agency required to discharge 3.7 BCG/yr.	Yes, agency required to discharge 3.7 BCG/yr.	Yes, agency required to discharge 3.7 BCG/yr.	no	no
Sensitive species in receiving water environment	Chinook, steelhead, Delta smelt	Steelhead trout, red-legged frog. Wastewater utility is continually involved in stream habitat restoration projects to maintain relationship with NMSF.	Southwestern Pond Turtle	Discharge location is considered warm water habitat, lower creek section is considered cold water habitat, protected for Brown trout and sidewater gobies.	Chinook salmon	unknown	Pupfish	Santa Ana sucker	Santa Ana sucker	Santa Ana sucker	coho, chinook, steelhead, California freshwater shrimp, California tiger salamander	
Median household income	\$61,679	\$50,300 for San Luis Obispo County	\$60,376 for Ventura County	\$89,024 avg for Calabasas and Agoura Hills	\$49,300 for Sacramento County	\$54,760 for Victorville	\$33,161	Chino: \$55,016; Chino Hills: \$78,658; Montclair: \$39,912; Upland: \$37,405	Chino: \$55,016; Chino Hills: \$78,658; Montclair: \$39,912; Rancho Cucamonga: \$70,500; Ontario: \$49,258; Upland: \$37,405	Chino: \$55,016; Fontana: \$53,349; Montclair: \$39,912; Rancho Cucamonga: \$70,500; Ontario: \$49,258; Upland: \$37,405	\$47,134 for county	approx \$56,000