



**CITY OF MORRO BAY
WATER RECLAMATION FACILITY
CITIZEN ADVISORY COMMITTEE (WRFCAC)
AGENDA**

The City of Morro Bay is dedicated to the preservation and enhancement of the quality of life. The City shall be committed to this purpose and will provide a level of municipal service and safety consistent with and responsive to the needs of the public.

**Wednesday, October 8, 2014
Morro Bay Community Center - 3:00 P.M.
1001 Kennedy Way, Morro Bay, CA**

Barbara Spagnola

Bill Woodson

Dale Guerra

John Diodati

Mary (Ginny) Garelick

Paul Donnelly

Valerie Levulett

Planning Commissioner:
Richard Sadowski

Public Works Advisory Board
Member: Steven Shively

ESTABLISH QUORUM AND CALL TO ORDER
MOMENT OF SILENCE/PLEDGE OF ALLEGIANCE
ANNOUNCEMENTS/PRESENTATIONS

PUBLIC COMMENT PERIOD

Members of the audience wishing to address the Board on City business matters other than scheduled items may do so at this time. To increase the effectiveness of the Public Comment Period, the following rules shall be followed:

- When recognized by the Chair, please come forward to the podium and state your name and address for the record. Board meetings are audio and video recorded and this information is voluntary and desired for the preparation of minutes.
- Comments are to be limited to three minutes.
- All remarks shall be addressed to the Board, as a whole, and not to any individual member thereof.
- The Board respectfully requests that you refrain from making slanderous, profane or personal remarks against any elected official, commission and/or staff.
- Please refrain from public displays or outbursts such as unsolicited applause, comments or cheering.
- Any disruptive activities that substantially interfere with the ability of the Board to carry out its meeting will not be permitted and offenders will be requested to leave the meeting.
- Your participation in Board meetings is welcome and your courtesy will be appreciated.

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Public Services Department at (805) 772-6264. Notification 24 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

A. CONSENT CALENDAR

- A-1 Approval of minutes from the Water Reclamation Facility Citizen Advisory Committee meeting of September 2, 2014

Staff Recommendation: Approve minutes as submitted.

B. OLD BUSINESS

- B-1 Subcommittee Formation

Recommendation: WRFCAC to consider forming three subcommittees (Financial, Environmental and Engineering) to research, and present information back to the Committee.

C. NEW BUSINESS

- C-1 Water Reclamation Facility (WRF) Project Schedule Update - Report to be provided at or before the meeting.

Recommendation: Receive and file.

- C-2 Review and Discussion of Report by Larry Walker and Associates: Regulatory Implications of Discharge Options for the Future City of Morro Bay Water Reclamation Facility

Recommendation: Provide Comments or recommendations that will be forwarded to City Council for their consideration for final site selection.

- C-3 Review and Discussion of Draft Report by Kestrel Consulting: Initial Findings on Grants and Strategy

Recommendation: Provide comments or recommendations that will be forwarded to City Council for their consideration for final site selection.

D. COMMITTEE MEMBER CLOSING COMMENTS

E. ADJOURNMENT

Adjourn to the **special** Water Reclamation Facility Citizen Advisory Committee meeting at the **Morro Bay Community Center, 1001 Kennedy Way**, on October 22, 2014, at 3:00 p.m.

This agenda is subject to amendment up to 72 hours prior to the date and time set for the meeting. Please refer to the agenda posted at the Public Services Department, 955 Shasta Avenue, for any revisions or call the department at 772-6264 for further information.

Materials related to an item on this Agenda are available for public inspection during normal business hours in the Public Services Department, at Mill's/ASAP, 495 Morro Bay Boulevard, or the Morro Bay Library, 695 Harbor, Morro Bay, CA 93442, or online at www.morro-bay.ca.us/wrfcac. Materials related to an item on this Agenda submitted to the Committee after publication of the Agenda packet are available for inspection at the Public Services Department during normal business hours or at the scheduled meeting.

AGENDA ITEM: A-1

DATE: October 8, 2014

ACTION: _____

CITY OF MORRO BAY
WATER RECLAMATION FACILITY
CITIZEN ADVISORY COMMITTEE (WRFCAC)

SYNOPSIS MINUTES

Regular Meeting – September 10, 2014

PRESENT: Barbara Spagnola Mary (Ginny) Garelick
John Diodati Dale Guerra
Valerie Levulett Paul Donnelly
Bill Woodson Steven Shively

ABSENT: Richard Sadowski

STAFF: Rob Livick Public Services Director
Bruce Keogh Wastewater Treatment Manager
Rick Sauerwein Capitol Projects Manager
Jamie Boucher City Clerk
Kay Merrill Administrative Utilities Technician

CONSULTANT: John Rickenbach

Rob Livick announced this is the first meeting of the Water Reclamation Facility Citizen Advisory Committee (WRFCAC).

OATH OF OFFICE

Jamie Boucher administered the Oath of Office for members present.

Rob Livick stated he will facilitate the meeting until the election of officers, establish quorum and proceed with roll call. Richard Sadowski informed Rob Livick that he could not attend the meeting, but will watch the video so he can participate at the next meeting.

CALL TO ORDER

Rob Livick called the meeting to order at 3:00pm., asked for a moment of silence and led the Pledge of Allegiance.

Rob Livick asked the panel and staff to introduce themselves and present a brief background, which they did.

PUBLIC COMMENT

Rob Livick opened Public Comment period, and seeing none, closed Public Comment period.

- A. CONSENT CALENDAR - None
- B. OLD BUSINESS - None
- C. NEW BUSINESS

C-1 ELECTION OF CHAIR PERSON AND VICE CHAIR PERSON

Mary (Ginny) Garelick nominated John Diodati as Chair Person. The motion was seconded by Barbara Spagnola.

Rob Livick asked John Diodati if he would serve and he replied he would be honored. The motion passed unanimously. (8-0).

John Diodati asked for nominations for Vice-Chair Person. Bill Woodson nominated himself. The motion was seconded by Steven Shively and the motion passed unanimously. (8-0).

C-2 DISCUSSION REGARDING THE ROLE OF THE WRFCAC TO INFORM THE PROCESS OF DEVELOPING A WATER RECLAMATION FACILITY INCLUDING THE REQUISITE "BROWN ACT" REQUIREMENTS

Rob Livick stated because this is the first WRFCAC meeting, there is no staff report. This is a "Brown Act" Committee and subject to open meetings. In order to meet the "Brown Act" requirements, no more than four members may meet to discuss issues which will facilitate the formation of Sub-Committees. The role of this Committee is to act as an advising Committee to the City Council. Staff will bring information to the Committee to review and get the Committees overall impressions and the information will be brought to the City Council. The Committee will make Sub-Committees to research and provide more detail on specific issues.

John Rickenbach stated the essential role of the Committee is to be a bridge between the City Council and the general public. Council has directed staff and the consultant to prepare reports and wants feedback from the Committee. Council is looking for input relative to the big picture such as, are we on the right track, are there things in the report that should be considered or are incorrect. Focus on the big picture to help Council make a better decision.

Rob Livick turned the discussion back to the Committee.

Rob Livick clarified the following during discussion:

- The City Attorney will provide information to the Committee for the "Brown Act".
- Communication from the Committee members will be in the form of memos and a draft will be prepared to present to City Council based on the Committees discussion.
- Minutes will be approved in the next meeting.
- Discussion of meeting dates will take place In Item C-5.
- Reports will be prepared by the consultants with the Committee's recommendations and presented to City Council.
- Rob will get clarification on how the minutes will be circulated among the Committee.

Rob Livick opened Public Comment period, and seeing none, closed Public Comment period.

C-3 PRESENTATION OF AN OVERVIEW OF THE PROJECT AND COMMITTEE DISCUSSION – JFR CONSULTING

John Rickenbach presented a Project Overview:

- Summarize Project and Recent Council Actions
- Report Study of CMC Regional Option
- Next Steps and WRFCAC's Role

Goals for the New WRF are to:

- Produce Tertiary Treated Wastewater
- Reclaim Wastewater for a Variety of Purposes

- Allow for Onsite Composting
- Design for Energy Recovery
- Design to Treat for Contaminants of Emerging Concern
- Design for Other City Functions
- Ensure Compatibility with Neighboring Land Uses

Previous Public Input and City Council Direction and Recent Public Input Opportunities

- Stakeholder Interviews (July 2013)
- Public Workshop #1 (August 2013)
- Technical Presentation (September 2013)
- Public Workshop #2 (November 2013)
- First City Council Hearing (November 2013)
- City Council Recommends Sites (December 2013)
- City Council Establishes 5-Year Goal (February 2014)
- City Council Chooses Site; Directs CMC Study (May 2014)

Recent Reports and Findings

- Options Report (December 2013)
 - Narrowed 17 Sites from 2011 Screening Report to 7
 - Analysis based on relative weight of public concerns
 - Report assumed “City only”, not regional participation
 - Morro Valley (Site B) ranked highest
- Report on Reclamation and Recommended Sites (May 2014)
 - Identified Reclamation Opportunities in detail
 - Recommended Rancho Colina Site of four studied
 - Presented 5-Year Work Plan

City Council Direction

- Confirmed Goals for New WRF (December 2013)
- Established 5-Year Goal to be Operational (February 2014)
- Chose Three Preferred Sites for further study and refinement (December 2013)
 - Morro Valley (Site B)
 - Chorro Valley (Site C)
 - Giannini Property (Site G)
- Directed Staff to Report on:
 - Water Reclamation Opportunities
 - Schedule, Work Plan, and Cashflow Analysis
 - Project Management Approach
 - Technical Advisory Committee Structure
- Chose Rancho Colina Site as City’s Preferred Option (May 2014)
- Directed Investigation of Regional Option at CMC (May 2014)
- Council to Make Final Site Decision in Fall 2014

Types of Water Reuse Opportunities

- Irrigated Agriculture
- Landscaping, Parks and Golf Courses
- Streamflow Augmentation in Creeks
- Groundwater Recharge

Location of Water Reuse Opportunities

- 92 Sites identified from Cayucos to Chorro Valley
- Most (56) are in Morro Valley (mostly ag) and many have high demand
 - High demand per site can mean less distribution cost
- Only 4 are in in Chorro Valley (2 ag sites: golf course)
- Many (23) are in City (mostly parks, landscaping) but have less demand per site

Water Reuse Potential Demand

- Production could be over 1,200 AFY
- As much as 4,700 AFY demand in the Morro Bay region
- About 2,700 AFY is in Morro Valley (58%)
- Only about 1,100 AFY is in Chorro Valley (23%)
- Good reuse potential in both Morro Bay and Cayucos
- Suggests site near City on SR 41 could be regional hub

Water Reuse Quality Requirements

- Most reuse requires Disinfected Tertiary standards
 - 4,400 AF (or 93%)
 - Mostly ag (primarily avocados)
- Limited reuse at Disinfected Secondary standards
 - Includes City parks and landscaping

Streamflow Augmentation

- Nine creeks in the area are candidates
 - Morro Creek, Chorro Creek, and seven others
 - Many opportunities from Cayucos to Chorro Valley
- Permitting Requirements being investigated
- Possible uses
 - Groundwater recharge (if minimum discharge met)
 - Habitat enhancement (temperature and salinity)
 - Direct potable reuse not currently allowed

Refined WRF Site Analysis and Recommendation

2013 Options Report study Sites

- Site A – Chevron
- Site B – Morro Valley
- Site C – Chorro Valley
- Site D – CMC Wastewater Site
- Site E – Power Plant Site (southern portion)
- Site F – Panorama Site
- Site G – Giannini Property

Council Recommended Study Sites

- Morro Valley - Site B
- Chorro Valley –Site C
- Giannini Property – Site G

Refined Sites Studied in New Report

- Site 1 – Rancho Colina (part of Site B)
- Site 2 – Righetti (part of Site B)
- Site 3 – Tri-W (part of Site C)
- Site 4 – Giannini (part of Site G)

Site 1 – Rancho Colina

Overall Suitability High

- Advantages
 - Very Receptive Property Owner
 - Opportunity to replace old WWTP
 - Excellent Proximity to Reclamation
 - Previously Graded Site
 - Suitability as Regional Facility
 - Consistent with Coastal Policies
- Challenges (relative to other sites)
 - Distance up Highway 41 Could Affect Cost

John Rickenbach clarified on the Summary of Site Analysis and Findings chart that high is good and has a low impact for the different sites.

John Rickenbach stated City Council needs to choose a site and the 5-year plan cannot be implemented until a site is chosen.

Rob Livick stated there are two goals to the 5-Year Plan, first is to get the plant in operation before the end of the permit period and second, to spend as minimum as possible keeping the existing plant running noting the best way to do that is to get out of the existing plant as soon as possible.

John Rickenbach presented a slide show on the CMC Analysis:

CMC Analysis: Key Issues

- Rough Cost of Expanding Existing Site for Regional Flows
- Funding Options – Realistic Look at Grant and Loans
- Permitting Implications
- Potential Water Use Benefits to City
- Logistics of a Regional Partnership
- Implications for Morro Bay Rate Payers

Studies Underway

- Expansion-Related Cost (Carollo Engineers)
- Funding Options (Kestrel Consulting)
- Permitting for Discharge (Larry Walker Associates)
- Potential Water Use Benefits to City (Cleath-Harris)

Overview

- Summarize Project and Recent Council Actions
- Report Study of CMC Regional Option
- Next Steps and WRFAC's Role

CMC Analysis: Reporting to City Council

- September 23 – Permitting Issues (LWA)
- October 14 – Funding Options (Kestrel)
- October 28 – Water Use Benefits (Cleath-Harris)
- November 12 – Full Report to Council (JFR Consulting)

John Rickenbach clarified the purpose of the consultants preliminary reports is to get input from City Council and from the general public. Ultimately, all of the reports will come together in a series of findings to be presented to Council prior to the November 12th meeting and Council will select a site. These reports will be received and filed and comments will be taken, but no action will be taken by the City Council.

CMC Analysis: Key Questions

- Potential Cost Savings?
- Relative Water supply Benefits?
- Relative Water Reclamation Opportunities?
- Unique regional benefits at CMC?
- Relative Regulatory or Logistical Constraints?
- Physical Constraints for Expansion?
- Environmental Issues?
- Discharge limitations that affect design?
- Is City's 5-Year Goal Achievable at CMC?
- City's role in constructing and operating a regional plant?

Rob Livick stated answers to questions and details will be addressed in the reports from the consultants.

WRFCAC's Role

- WRFCAC is the bridge between the public and decision makers
- Your input is invaluable to consultant team and staff
- Advise us if we're asking the right questions
- Review Technical Reports as they are available
 - Think "Big Picture" – are they addressing the right issues?
 - Provide alternate perspectives the Council can consider
 - Question the underlying assumptions if you disagree
 - Identify Technical Errors
- Avoid (to the extent possible)
 - Focusing on tiny details, grammatical errors on format
 - Editorializing without making your assumption clear

The overall goal is to help the City Council make good decisions.

Findings of May 2014 – Purpose of the Report

- Respond to City Council Direction
- Identify Water Reclamation (Reuse) Opportunities
- Recommend a Specific Site for the New WRF
- Present 5-Year Work Plan and Cashflow Analysis
- Recommend Project Management Strategy

The Council studied several sites for the WRF, and recommended the Rancho Colina site and presented a 5-Year Work Plan.

Rob Livick clarified the 5-Year Work Plan was implemented so the project can be completed prior to the end of the permit expiring.

Studies Underway

- Expansion-Related Cost (Carollo Engineers)
- Funding Options (Kestrel Consulting)
- Permitting for Discharge (Larry Walker Associates)
- Potential Water Use Benefits to City (Cleath-Harris)

Overview

- Summarize Project and Recent Council Actions
- Report Study of CMC Regional Option
- Next Steps and WRFCAC's Role

Recommendations from these reports will be presented at the November 12, 2014 City Council meeting.

Bill Woodson requests staff forward as much information to them prior to meetings.

Rob Livick stated the reports will be posted on the City's website and encouraged the committee and the public to sign up for "Notify Me" to get recent updates, reports, agendas and minutes on the City's website.

John Diodati opened Public Comment.

Rob Kitzman asked which consultant/engineer group will address the use and validity of the outfall system.

John Rickenbach responded Mike Nunley (who works with John) will be addressing that in consultation with Carollo Engineers.

Rob Livick stated Larry Walker will be looking at permitting issues with the outfall relative to other discharge locations.

John Diodati closed Public Comment.

C-4 COMMITTEE DISCUSSION REGARDING SUBCOMMITTEE FORMATION

Rob Livick stated when forming this Committee there was discussion to form Sub-Committees. This Committee is not just for the site selection but for the overall development of the project. As the project moves forward there will be technical issues, environmental reviews, and permitting issues that the Committee will be reviewing. Suggestions for Sub-Committees were Finance, Coastal Issues and Land Use Planning, Treatment Technology, Project Delivery Method and Water Reuse.

John Diodati proposed the Committee form three Sub-Committees: Finance, Environmental, and Engineering/Water Resources. Staff will provide sub-categories for each Sub-Committee and at the next meeting elect Committee members to the Sub-Committees.

Rob Livick asked if it is the consensus of the Committee to form three Sub-Committees and all were in favor. For the next meeting staff will have a short list of subject areas for the three Sub-Committees.

John Diodati opened Public Comment, and seeing none, closed Public Comment.

C-5 SCHEDULE NEXT WRFCAC MEETING

The next WRFCAC meeting is scheduled for October 8, 2014 at 3:00pm. There will also be a meeting on October 22, 2014 and November 11, 2014 at 3:00pm. The meetings will then be held on the second Wednesday of the each month beginning December 10, 2014 at 3:00pm.

John Diodati opened Public Comment, and seeing none, closed Public Comment.

D. FUTURE AGENDA ITEMS

- The Committee will provide a list of subject areas for the three sub-committees: Finance, Environmental, and Engineering/Water Resources.
- Suggestions for future topics
- The Committee and staff will visit the proposed sites. The meeting will start early in order to visit the sites and then continue with the meeting.

MOTION: Bill Woodson moved to approve the schedule for the next WRFCAC meeting, Steve Shively seconded and the motion passed unanimously. (8-0).

E. ADJOURNMENT

The meeting adjourned at 4:45pm to the next regularly scheduled WRFCAC meeting at a location to be determined, on Wednesday October 8, 2014 at 3:00pm.

John Diodati, Chairperson

ATTEST:

Rob Livick, Secretary



Memorandum

TO: WATER RECLAMATION FACILITY CITIZEN'S ADVISORY
COMMITTEE (WRFCAC)

FROM: ROB LIVICK, PUBLIC SERVICES DIRECTOR

DATE: October 3, 2014

SUBJECT: Subcommittee Formation

At the September 2, 2014 WRFCAC meeting, the Committee discussed the formation of three Sub-Committees: Finance, Environmental, and Engineering/Water Resources to research and present information back to the Committee. Staff recommends the Committee appoint up to 4 Committee members to each Sub-Committee.



AGENDA NO: C-2

MEETING DATE: October 8, 2014

Staff Report

DATE: October 3, 2014

TO: Water Reclamation Facility Citizens Advisory Committee

FROM: Rob Livick, PE/PLS - Public Services Director/City Engineer

SUBJECT: Review of report regarding Regulatory Implications of Discharge Options for the Future City of Morro Bay Water Reclamation Facility by Larry Walker and Associates

RECOMMENDATION

Staff recommends the Water Reclamation Facility Citizens Advisory Committee (WRFCAC) review the report and provide any comments that will be transmitted to City Council and addressed in the final report at the November 12, 2014 City Council meeting.

BACKGROUND/DISCUSSION

The attached memorandum is part of a series of reports that the City Council will use in making the final decision on where the City should treat its wastewater. This report was previously presented to the City Council at their September 23, 2014 Special Meeting. Other reports will include financing implications and impacts/benefits to groundwater basins. These reports will culminate in a final decision currently scheduled for the November 12, 2014 City Council meeting.

The goal of the City is to build a new Water Reclamation Facility (WRF) that is Reclamation Ready and which will ultimately produce tertiary, disinfected wastewater in accordance with Title 22 requirements for unrestricted urban irrigation. This level of treatment is appropriate for a wide range of reuse options that are under consideration by the City. While the intent is for re-use of most of the Morro Bay WRF's effluent, an option for discharging treated effluent to surface water or land during both dry and wet weather will still be necessary.

Many sites for the Morro Bay WRF have been considered in the past; however, the City is currently focusing evaluation on two sites: Rancho Colina and the California Men's Colony (CMC). The purpose of the attached memorandum is to evaluate the regulatory implications of the discharge options associated with the Rancho Colina and CMC sites.

ATTACHMENT

Draft Report (Memorandum) from Larry Walker and Associates dated September 17, 2014

Prepared by: RL Dept. Review: RL
City Manager Review: _____
City Attorney's Review: _____

DRAFT

Memorandum



DATE: September 17, 2014

TO: Mike Nunley
Michael K. Nunley & Associates, Inc.
P.O. Box 1604
Arroyo Grande, CA 93421

Cc: Betsy Elzufon, LWA

SUBJECT: Regulatory Implications of Discharge
Options for the Future City of Morro Bay
Water Reclamation Facility

Diana Engle, Ph.D.
2151 Alessandro Drive, Suite 100
Ventura, CA 93001
805.585.1835

Airy Krich-Brinton
707 Fourth Street, Suite 200
Davis, CA 95616
530.753.6400

The City of Morro Bay-Cayucos Wastewater Treatment Plant currently operates under National Pollution Discharge Elimination System Permit (NPDES) No. CA0047881, Waste Discharge Requirements (WDR) Order No. R3-2008-0065. The current discharge to the Pacific Ocean occurs by virtue of a 301(h) exception allowing partial secondary treatment. The City of Morro Bay (City) is planning to build a new Water Reclamation Facility (Morro Bay WRF) that is Reclamation Ready and which will ultimately produce tertiary, disinfected wastewater in accordance with Title 22 requirements for unrestricted urban irrigation. This level of treatment is appropriate for a wide range of reuse options that are under consideration by the City. While the intent is for re-use of most of the Morro Bay WRF's effluent, an option for discharging treated effluent to surface water or land during both dry and wet weather will still be necessary.

Many sites for the Morro Bay WRF have been considered in the past, however, the City is currently focusing evaluation on two sites: Rancho Colina and the California Men's Colony (CMC). The purpose of this memorandum is to evaluate the regulatory implications of the discharge options associated with the Rancho Colina and CMC sites.

As discussed in more detail below, the Rancho Colina site would be used to construct an upgraded facility for the current service area, the City of Morro Bay. If the existing CMC facility was upgraded, it would likely be a regional facility that would serve California Men's Colony, other County customers, the Cayucos Sanitary District and the City of Morro Bay.

The types of permits and the governing water quality objectives that would apply to each of the potential waste discharge scenarios is summarized in Section 1 and discussed in more detail in the

remainder of the memorandum. Regulatory implications of the environmental settings and of several future state and federal regulatory actions are described. Recent effluent data from the current Morro Bay-Cayucos WWTP was screened using the suite of water quality objectives that pertains to each of the discharge scenarios. This resulted in identification of several constituents that might be assigned numeric effluent limits in the permit for the new Morro Bay WRF. The more significant regulatory implications of the discharge scenarios are summarized in a matrix. As discussed elsewhere, the regulatory requirements and other program elements associated with the anticipated recycling program are expected to be similar for the different sites with the one difference being proximity to potential recycled water customers.

1. Summary and Conclusions

The most significant regulatory factors identified in this evaluation are contrasted for the discharge options in Table 1. The implications of each regulatory option are summarized below and discussed in more detail in the following sections:

- Section 2. Current Regulatory Implications
- Section 3. Effluent Quality Evaluation
- Section 4. Considerations for the Future

The options evaluated include discharges to groundwater through land disposal (percolation ponds), discharges to inland surface water (i.e., Chorro Creek or Morro Creek) and discharges to the Ocean. When evaluating the discharge options to inland surface waters, different requirements associated with each creek are also highlighted given that Chorro Creek is tributary to Morro Bay estuary while Morro Creek flows directly to the ocean.

PERCOLATION PONDS

The process for applying for a WDR (i.e., Waste Discharge Requirements) for discharge to percolation ponds is the simplest among the discharge options and avoids involvement of USEPA. In addition, permit cycles for WDRs are indeterminate, requiring fewer rounds of reapplication. Many fewer constituents are likely to be assigned numeric effluent limits for discharge to percolation ponds. Percolation ponds are unlikely to be named a source in future TMDLs, unless contaminated groundwater affects Morro Creek. Bacteria limits and toxicity provisions are not likely in a WDR. However, there is a possibility that numeric effluent limits for total nitrogen and salts may apply to percolation ponds, which might necessitate additional treatment processes.

INLAND SURFACE WATER

Several future regulatory actions are likely to affect permits for discharges to Morro Creek or Chorro Creek that will not apply to discharges to the ocean or percolation ponds. Both the State Policy on Nutrients and the State's Implementation Plan for Biological Integrity are likely to result in lower recommended nutrient levels in streams and enclosed estuaries. In streams, eventual impairment thresholds for nitrogen are likely to be in the vicinity of 1.0 mg/L total nitrogen; limits for P may be about 1/10th the value for total N. The State Toxicity Policy has several implications for discharges to the creeks that may not apply to an ocean discharge and will not apply to percolation ponds. The new numeric toxicity criterion is highly controversial and will replace the current narrative criterion. Toxicity provisions in future permits will be more costly than in current permits and will more easily lead to violations. Acute tests will be required in addition to

chronic tests. Dischargers with no dilution credits will not be able to consider in-stream concentrations to determine compliance.

Among the inland discharges, discharge to Chorro Creek (by expansion of the CMC facility to serve the City) is accompanied by the highest regulatory burden and regulatory risk. Discharge to Chorro Creek will likely result in numeric effluent limits for total nitrogen, orthophosphorus, one or more salts, and bacteria that have implications for treatment. Discharge to Chorro Creek will likely require consideration of governance options since it would involve partnering with other agencies to form a regional facility. Compared to the Morro Valley Basin, Salt and Nutrient Management Plan (SNMP) development for the Chorro Valley Basin may be complicated by a larger number of stakeholders (that may include regulatory agencies such as NOAA Fisheries and CDFW) and the need to account for more diverse land uses in a larger watershed.

Discharges to Chorro Creek will be scrutinized regarding potential downstream effects on high profile, state-protected estuarine habitat of national significance that provides habitat for dozens of listed species. Chorro Creek itself is officially named as critical habitat for federally listed steelhead and California red-legged frog. Actions that affect flow in Chorro Creek may attract the attention of state and federal resource agencies and petitions to remove discharge from the creek in the future (e.g., as reclaimed water demand increases) will require a Change Petition to the SWRCB Division of Water Rights and will be complicated by water rights issues and Biological Opinions. Requirements to maintain a minimum flow has been a challenge for the City of San Luis Obispo (SLO) in implementing its recycled water program. Due to the presence of steelhead trout, SLO has dedicated a portion of its Water Reclamation Facility effluent to maintain a minimum flow of 2.5 cfs in San Luis Obispo Creek for in-stream beneficial uses, in-stream habitat uses in particular. This minimum dedicated discharge is included in SLO's Water Reuse Project's SWRCB permit and is a required term and condition of the Biological Opinion issued by NOAA Fisheries. Consequently, SLO cannot fully utilize the reclaimed water generated as part of the Water Reuse Project.

Owing to the future regulatory actions named above, Chorro Creek may be subject to impairment evaluations that may result in more stringent nutrient regulations. The reopener provision in the Chorro Creek Nutrient Total Maximum Daily Load (TMDL) provides an opportunity for regulators to exercise new screening tools arising from the state policies on nutrients and biointegrity to revise POTW allocations downward.

Discharge to Morro Creek is accompanied by many of the same regulatory risks as discharge to Chorro Creek. Morro Creek will be similarly affected by the Biological Integrity assessment procedures and the Nutrient Policy for wadeable streams. The Toxicity and Bacteria policies will apply to both Creeks. However, Morro Creek does not discharge to a large, sensitive estuary, and has not previously been listed as impaired on the 303(d) list. There are no TMDLs for Morro Creek that can potentially be reopened and revised with unpredictable outcomes for dischargers.

Identification of constituents that might require numeric effluent limits for new types of discharges (Morro Creek, Chorro Creek, and percolation ponds) was based on a review of current effluent data. In addition, projected effluent quality based on planned upgrades to the treatment process was considered for ammonia, nitrogen, and total coliform. Salts data available from the *2012 Recycled Water Feasibility Study* (Dudek, Draft March 9, 2012) were also used for the evaluation.

OCEAN

The most significant benefits of maintaining the current ocean outfall for wet weather discharges, at a minimum, are (1) dilution will be granted in the permit resulting in less stringent effluent limits, (2) effluent limits for nutrients (nitrogen and phosphorus) and salts will be avoided, and (3) there is less risk from future regulatory actions planned by the SWRCB or from environmental sensitivity of receiving water. There would be no minimum flow requirements that could restrict the quantity of water that can be used for recycling. The Bacteria Policy would result in a revision to the Ocean Plan, but the enterococcus limits that are being proposed so far are not significantly different than the limits in the current Ocean Plan. In addition, the current ocean outfall presents opportunities for brine disposal to support local or regional solutions addressing water supply and salt and nutrient management.

Table 1. Comparison of Significant Regulatory Factors for Discharge Scenarios

	Rancho Colina			California Men's Colony
	Ocean Discharge	Discharge to Surface Water	Discharge to Land	Discharge to Surface Water
	Existing Ocean Outfall	Morro Creek	Percolation ponds	Chorro Creek
Type of Permit Needed	NPDES	NPDES	WDR	Modification of existing NPDES permit or issuance of new NPDES permit
Agencies that Approve the Discharge Permit	Regional Water Quality Control Board (RWQCB), USEPA	RWQCB, USEPA	RWQCB	RWQCB, USEPA
Permit Cycle	5 years	5 years	indefinite	5 years
Would Dilution be Granted?	Yes (Minimum of 133:1; additional dilution may be available)	No	No	No
Other Agencies that might evaluate the effects on Beneficial Uses in some contexts	unlikely	CDFW, NMFS	N/A	CDFW, NMFS
Beneficial Uses Assigned to Receiving Water ¹	REC1, REC2, IND, NAV, MAR, SHELL, COMM, RARE, WILD, MIGR	MUN, AGR, GWR, REC1, REC2, WILD, COLD, WARM, MIGR, SPWN, RARE, EST, FRESH, COMM	AGR, MUN	MUN, AGR, GWR, REC1, REC2, WILD, COLD, WARM, MIGR, SPWN, RARE, FRESH, COMM, BIOL
Will existing TMDLs affect the permit?	No	No	No	<u>Nutrient TMDL</u> : yes, N removal might be required and phosphate limits are likely. TMDL may be reopened in 2016. <u>Sediment TMDL</u> : maybe, if stream erosion is increased <u>Bacteria TMDL</u> : maybe (Title 22 bacteria limits may apply to discharge to stream)
Constituents in current effluent data set that may require an effluent limit	total cadmium, total copper, cyanide, nickel (salts), total zinc, dioxin,	antimony, total copper, cyanide, mercury, ammonia, dioxin, bis(2-ethylhexyl) phthalate	antimony, total nitrogen (based on ammonia data), bis(2-ethylhexyl) phthalate, total coliform	antimony, total copper, cyanide, mercury, ammonia, dioxin, bis(2-ethylhexyl) phthalate total nitrogen exceeds POTW allocation in Nutrient TMDL
Will numeric limits for Salts be applied?	No	Probably, if salts objectives are exceeded in effluent. Regional Board may make allowances for imported water quality.	Probably, if salts objectives for receiving groundwater are exceeded in effluent	Probably for one or more constituents. Regional Board may make allowances for imported water quality.

¹ See Attachment 2 for definitions of Beneficial Uses

	Rancho Colina			California Men's Colony
	Ocean Discharge	Discharge to Surface Water	Discharge to Land	Discharge to Surface Water
	Existing Ocean Outfall	Morro Creek	Percolation ponds	Chorro Creek
Would SNMP requirement apply?	Yes – if permit to recycle water is also requested	Yes	Yes	Yes. There may be opportunities for regional partners. SNMP process may be more complex.
Environmental Sensitivity	TBD	Morro Creek is designated Critical Habitat for federally listed south Central California coast DPS steelhead and California red-legged frog. Lower portion of creek is habitat for federally listed tidewater goby.	TBD	Chorro Creek is designated Critical Habitat for federally listed south Central California coast DPS steelhead and California red-legged frog. Chorro Creek discharges into a national "Estuary of Significance", and two State Marine Protected Areas. Estuary supports dozens of listed species. Oyster farming occurs in Morro Bay.

2. Current Regulatory Implications of Discharge Scenarios

The discharge options associated with the Rancho Colina and CMC sites involve different receiving waters as shown in Table 2. Three potential methods for disposal of effluent were considered for the Rancho Colina site: use of the existing ocean outfall, discharge into Morro Creek, and discharge to percolation ponds. Only one method of disposal was considered for the CMC site: expansion of the existing CMC treatment facility and outfall with discharge to Chorro Creek. This would provide the most direct benefit to the City of Morro Bay via augmentation of streamflow in Chorro Creek and recharge of City groundwater.

Table 2. Discharge Scenarios for the Morro Bay WRF and Associated Receiving Waters

Site/ Treatment Plant	Method of Discharge	Receiving Water
Rancho Colina/ New Reclamation Ready Treatment Plant	Existing Ocean Outfall	Estero Bay (Pacific Ocean)
	Outfall into Creek	Morro Creek
	Percolation Ponds	Morro Valley Groundwater Basin
CMC/ Expansion and upgrade of existing Treatment Plant	Outfall into Creek	Chorro Creek

PERMIT CATEGORIES

For regulatory purposes, discharges in California can generally be divided into the discharge of pollutants to surface waters (i.e., rivers, creeks, streams, lakes, ocean, etc.) or discharges to land (discharges that affect groundwater). Discharges to surface waters are regulated by permits issued under the National Pollutant Discharge Elimination System (NPDES) program under the Clean Water Act. Discharges to land are permitted through Waste Discharge Requirements (WDR) under the Porter-Cologne Act. NPDES permits require approval by the USEPA; WDRs do not require USEPA approval. In addition, for NPDES permits, serious violations pertaining to effluent limitation exceedances and failure to submit reports are subject to Mandatory Minimum Penalties (MMPs, e.g., \$3000/violation) as described in the California Water Code Section 13385. Permit violations for WDRs are not subject to MMPs.

Details regarding the process and information required to apply for an NPDES permit or a WDR are provided in **Attachment 1**. NPDES permits are generally reissued every five years. WDRs have no predetermined renewal interval, and sometimes remain unaltered for long periods. Discharge through the existing ocean outfall or to either Morro Creek or Chorro Creek would require an NPDES permit. Discharge to percolation ponds would require a WDR.

In addition to the current 2008 Morro Bay-Cayucos WWTP Permit and the August 2013 Report of Waste Discharge (ROWD) for the Morro Bay-Cayucos WWTP, three recent permits from Region 3 were consulted, owing to their potential to shed light on permitting practices in Region 3:

- 2012 California Men’s Colony Wastewater Treatment Plant, (ORDER No. R3-2012-0027/NPDES No. CA0047856), (2012 CMC Permit)
- 2011 Waste Discharge/Recycled Water Requirements for the Los Osos Water Recycling Facility (Order No. R3-2011-0001), (Los Osos WDR)
- 2012 Waste Discharge Requirements for the Tres Pinos Water District Wastewater Treatment Facility (Order No. R3-2012-0015), (Tres Pinos WDR)².

BENEFICIAL USES AND APPLICABLE WATER QUALITY OBJECTIVES

The water quality standards that apply to the receiving waters are described in several regulatory documents:

- Region 3, Central Coast Basin Plan (Basin Plan)
- Water Quality Control Plan for Ocean Waters of California (Ocean Plan)
- Drinking water standards in Title 22 of the California Code of Regulations (Title 22)
- California Toxics Rule (CTR)
- Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan)
- TMDLs that set targets and allocations for Chorro Creek:

The beneficial uses assigned to the four receiving waters and the applicable water quality objectives are outlined in **Attachment 2**. The sources of applicable water quality objectives for the discharge scenarios are compared in Table 3.

Table 3. Sources of Applicable Water Quality Objectives for Discharge Scenarios

	Ocean	Percolation Ponds	Morro Creek	Chorro Creek
Source of Applicable Water Quality Objectives	Basin Plan Ocean Plan Thermal Plan	Basin Plan Title 22	Basin Plan Title 22 CTR	Basin Plan Title 22 CTR 3 TMDLs

Numeric objectives are discussed in this section for a subset of constituents (bacteria, salts, and nutrients) which may have implications for treatment processes (e.g., nitrogen removal, disinfection, desalination), and thus create potentially significant contrast between the discharge options. In the fourth section of the memorandum (Effluent Quality Evaluation), applicable numeric water quality objectives are compared to effluent data (based on current data or projected data for the upgraded plant) to determine if an effluent limit would be needed under each discharge scenario. It should be noted that an exceedance of a water quality objective does not necessarily correspond to an exceedance of an effluent limit. This especially true for the ocean discharge

² While the Tres Pinos facility is located in San Benito County, it is indicative of current WDR permitting policy for the Central Coast Region.

scenario where effluent limits are determined by applying a dilution factor of 133 to the water quality objective.

TMDLs

Three TMDLs have been adopted that contain targets for Chorro Creek, which is a 303(d) listed impaired water body according to the federal Clean Water Act:

- 2005 TMDL for Nutrients and Dissolved Oxygen in Chorro Creek (Nutrient TMDL)
- 2003 TMDL for Pathogens for Morro Bay and Chorro and Los Osos Creeks (Pathogen TMDL)
- 2003 TMDL for Sediment including Chorro Creek, Los Osos Creek and the Morro Bay Estuary (Sediment TMDL)

The Nutrient TMDL has targets for nitrogen and phosphorus species, and allocations for the CMC WWTP, that have implications for the scenario in which the regional treatment facility discharges to Chorro Creek. These implications are explained below in the Nutrients subsection. The Nutrient TMDL also established targets for TDS and Sodium (Na), however they are equivalent to the Basin Plan objectives for Chorro Creek for TDS and Na, and are thus not particularly significant. The Pathogen TMDL resulted in total coliform targets for Chorro Creek. However, the numeric effluent limits for total coliform in the 2012 CMC Permit were stricter than the Pathogen TMDL targets and are consistent with Title 22 bacteria objectives for urban irrigation. The Sediment TMDL assigned numeric targets for turbidity (expressed as NTU) for Chorro Creek, and allocations for sediment flux (expressed as annual loads) to classes of erosional features (including stream banks) and land uses in the Morro Bay watershed. This TMDL did not affect the 2012 CMC Permit. It is possible that an increase in surface flow in Chorro Creek (e.g. owing to additional discharge from the City) could affect erosion of the stream banks; the combined discharge would approximately double the volume of water discharged to Chorro Creek.

No TMDLs have been adopted for Morro Creek or for Estero Bay, and there are no currently unaddressed water quality impairments for Morro Creek, Chorro Creek, Morro Bay, or Estero Bay on the 303(d) list.

Objectives that May Influence Treatment Options

Discharge options that involve surface water or groundwater may result in effluent limits for bacteria, nutrients (N and P), and salts that have significant implication for treatment options. The potential issues for each constituent group are summarized below.

Pathogens

Discharge to either Morro Creek or Chorro Creek will result in numeric effluent limits for pathogen indicators (i.e., bacteria). The bacteria limits in the 2012 CMC Permit were carried over from a previous permit (Order No. R3-2006-0032)³ and are as follows:

³ The 2006 CMC Permit is not posted on the Region 3 website along with other 2006 Orders and Resolutions. Consequently, it was not possible at this time to review the reasoning behind the apparent assignment of the Title 22 bacteria standards for urban irrigation as numeric effluent limits *for discharges to the creek* (as opposed to requirements for recycled water only).

- Total coliform: 2.2 MPN/100 mL (7-day median)
- No more than one sample shall exceed 23 MPN/100 mL in any 30-day period;
- No sample shall exceed 240 MPN/100 mL.

The 7-day median total coliform effluent limit in the 2012 CMC Permit is much stricter than the Ocean Plan limits for total coliform.⁴ They are equivalent to the Title 22 standards for recycled water for urban irrigation; the 7-day median limit for total coliform bacteria is also equivalent to the Basin Plan MUN objective for groundwater.

It is not clear whether the Regional Board would apply all of the Title 22 standards for recycled water to creek discharges by combined WWTP or the Morro Bay WRF, as they did in the 2012 CMC WWTP, or whether only the 7-day median for total coliform (for the groundwater MUN use) would be applied.

Salts

If the regional CMC facility continues to discharge to Chorro Creek, it is likely that the Regional Board will assign numeric effluent limits for one or more salt constituents. The Basin Plan establishes water quality objectives for salts for Chorro Creek as follows:

Basin Plan Objectives for Surface Water in Chorro Creek (annual means)

- TDS 500 mg/L (also a target in the Chorro Creek Nutrient TMDL)
- Cl 50 mg/L
- SO4 50 mg/L
- B 0.2 mg/L
- Na 50 mg/L (also a target in the Chorro Creek Nutrient TMDL)

In the 2012 CMC Permit, the Regional Board assigned a numeric effluent limit for SO4 (125 mg/L; 1,251 lbs/day) that exceeded the Basin Plan objective for Chorro Creek. The sulfate limit was intended to account for high background salt concentrations and salt loading from the water supply in facility influent, and was carried over from the previous 2006 permit.⁵

Although percolation ponds in the Chorro Valley Basin are not currently a discharge scenario under consideration, the groundwater objectives for salts and nitrogen for Chorro Valley Basin may inform Regional Board expectations for groundwater quality in the Morro Valley Basin, and are as follows:

Chorro Valley Groundwater Basin Objectives for Salts

- TDS 1,000 mg/L

⁴ Ocean Plan total coliform limits are 1,000/100 mL (30-day geomeans) (REC1); 10,000/100 mL (single sample maximum) (REC2)

⁵ The sulfate effluent limit is justified in the Fact Sheet (Attachment F) of the 2012 CMC Permit as follows: “Typically, waste discharge requirements incorporate the Basin Plan’s specific, numeric WQOs as effluent limitations. Although convention generally sets effluent limitations at the Basin Plan’s WQOs, the previous Order does not use Table 3-7 Basin Plan numeric WQOs as effluent limitations. Instead, the existing effluent limitation (for sulfate) is greater than WQOs in Basin Plan Table 3-7 to account for high background salt concentrations and uncontrollable salt loading from the water supply in Facility influent. Consistent with the previous Order, this Order shall establish a limitation for sulfate that is characteristic of the natural receiving water.”

- Cl 250 mg/L
- SO4 100 mg/L
- Na 50 mg/L
- B 0.2 mg/L

Although the Basin Plan does not currently include groundwater objectives for salts specific to Morro Valley Basin, the Regional Board may establish them in the future. The June 8, 2011, edition of the Basin Plan includes a priority list for future Regional Board tasks, established in 1988 (referred to as the “Triennial Review List”). “Establishment of Morro Valley Basin ground water objectives” appears as item 40 out of 49 tasks. The evaluation of current groundwater quality in Morro Valley Basin with respect to salts and nutrients, and the quantification of the effects on groundwater of future discharges to land or surface water in the Morro Valley Basin (including application of reclaimed water), would be elements of a Salt & Nutrient Management Plan⁶ that the Regional Board is likely to require if a permit is sought to apply reclaimed water to land overlying the Morro Valley Basin.

There is recent precedent for assignment of numeric effluent limits for salts for percolation ponds in Region 3. The 2012 Tres Pinos WDR for discharge to percolation ponds included numeric effluent limits for three salt constituents:

- TDS 1,200 mg/L
- Na 200 mg/L
- Cl 200 mg/L

The ponds discharge to the San Juan subbasin of the Gilroy-Hollister Basin. This subbasin is not assigned specific salt objectives in the Basin Plan.

The 2011 Los Osos WDR, which also addresses discharge to groundwater (via leach fields and recycled water) does not contain numeric effluent limits for salts, and the Los Osos Valley groundwater basin is not assigned salt objectives in the Basin Plan. However, based on information in the Los Osos WDR regarding data through 2010, sea water intrusion is an issue in the lower aquifer into which the leach fields discharge, so this permit may not provide a good analogy for a scenario in which a new Morro Bay WRF would discharge to percolation ponds in the Morro Valley Basin.

Nutrients

Discharge to either creek, and to percolation ponds, will result in effluent limits for one or more nitrogen species. Discharge to Chorro Creek may result in effluent limits for orthophosphorus. Discharge to the ocean outfall will not result in effluent limits for nutrients. Additional background on applicable objectives and recent Region 3 permit limits for nutrients is provided below.

Discharge to Chorro Creek. If the existing CMC facility is expanded and discharge to Chorro Creek is increased, it is likely that the Regional Board will assign numeric effluent limits for total nitrogen (TN) and “orthophosphorus.”⁷ The impetus for the limits would be the targets in the

⁶ Salt and Nutrient Management Plans are discussed later in the document.

⁷ Based on the 2012 CMC Permit Fact Sheet, the Regional Board is interpreting “orthophosphorus” to be “phosphate” + “orthophosphate”.

Chorro Creek Nutrient TMDL.⁸ The TMDL targets are compared to the corresponding TMDL allocations for the CMC WWTP and numeric effluent limits in the 2012 CMC Permit in Table 4.

Table 4. Comparison of Nutrient TMDL Targets for Nitrate and Orthophosphorus with Effluent Limits in the 2012 CMC Permit.

	TMDL In-Stream Target	CMC WWTP Allocation in the TMDL	CMC Permit Limit
N	Nitrate-N: 1.5 mg/L Determined as a rolling median May-Sept. measured in half-mile reach upstream from South Bay Boulevard crossing.	“The monthly maximum nitrate-N concentration of effluent shall not exceed 10 mg/L-N.”	Total Nitrogen: 10 mg/L (monthly maximum) 100 lbs/day (based on 1.2 MGD design flow) No ammonia limit
P	“Orthophosphorus- P”: 0.4 mg/L Determined as a rolling median May-Sept. measured in half-mile reach upstream from South Bay Boulevard crossing	“Median orthophosphorus-P concentration of effluent from May through September shall not exceed current levels, as measured by a comparison to effluent concentration from 2004 and 2005.”	Orthosphosphate-P: A cap based on effluent concentration 2004-2005. The Fact Sheet of the 2012 CMC Permit identifies median May-Sept. orthophosphorus as 2.4 mg P/L.

It is possible that increased loading of TN and phosphate to Chorro Creek due to the additional flow from a regional facility may result in a change in effluent limits. The justification for assigning generous limits for TN and orthophosphorus in the 2012 CMC permit appeared to hinge on natural attenuation of nitrate and phosphate downstream from the CMC outfall. It is worth noting that the Regional Board carried over the TN limit from the 2006 CMC Permit with the expectation that treatment upgrades at the CMC WWTP would achieve single-digit nitrate concentrations in the future.⁹

Based on limited data for total ammonia, the concentration of TN in the current effluent from the Morro Bay/Cayucos WWTP is over 20 mg N/L (at least two times higher in terms of nitrogen content than the effluent limit for TN in the 2012 CMC Permit). However, no nutrient removal is performed at the Morro Bay/Cayucos WWTP whereas the CMC facility does perform nitrogen

⁸ The Regional Board arrived at the nitrate and orthophosphorus allocations for the CMC WWTP by determining that although the CMC discharge elevated nutrient concentrations in the stream above the TMDL targets below the outfall, there was sufficient in-stream attenuation below the outfall to achieve the TMDL targets at the compliance point for the TMDL further downstream (the half-mile reach upstream from South Bay Boulevard). The determination was made by comparing stream concentration data from monitoring sites, and not by evaluating assimilative capacity directly (for example by using a water quality model).

⁹ “Note that achieving the nitrate-N and orthophosphorus-P allocations at the point of discharge will result in achieving the TMDLs for these constituents in the lower reaches of Chorro Creek. Also note that although the nitrate-N allocation is 10 mg/L-N, the technology of the plant upgrade for the CMC facility is expected to result in single digit nitrate-N concentration in the discharge. It is also anticipated that the plant upgrade will result in reduced effluent orthophosphorus-P concentration.” (TMDL Project Report, p. 35)

removal. The daily maximum load of TN allowed in the CMC 2012 Permit was based on a final effluent limitation of 10 mg N/L and a design flow of 1.2 MGD. Discharge to Chorro Creek is expected to require expansion of nitrogen removal (nitrification/denitrification) at the CMC facility to treat additional flow from the City. By similar reasoning, the Regional Board may consider additional significant orthophosphorus loading to Chorro Creek to be inconsistent with the goals for controlling benthic algal cover and dissolved oxygen concentrations in the lower reaches of Chorro Creek.

Discharge to Morro Creek. If the Morro Bay WRF discharges to Morro Creek, the surface water objectives that would currently govern expectations for nutrient concentrations would be the narrative objective for biostimulatory substances, and the following drinking water objectives for nitrate and nitrite:

- Nitrate (as NO₃): 45 mg/L (Basin Plan MUN and Title 22)
- Nitrate + Nitrite (as N): 10 mg/L (Title 22)
- Nitrite (as N): 1 mg/L (Title 22)

Discharge to Groundwater. If the Morro Bay WRF discharges to percolation ponds in the Morro Valley Basin, the MUN objective for nitrate (10 mg/L nitrate-N) would likely be the governing objective. However, the neighboring Chorro Valley groundwater basin has an objective of 5 mg/L TN. The available recent permits for discharge to groundwater in Region 3 resulted in different types of numeric effluent limits for nitrogen species, as follows:

Los Osos WDR:

- Total Nitrogen: 10 mg N/L (daily maximum), 7 mg N/L (30-day average)

Tres Pinos WDR (final limits, by 2016):

- Nitrate: 5 mg/L as N (30-d ave.)
- Ammonia: 5 mg/L as N (30-d ave.)

As was noted above in the case of salts, the percolation ponds regulated by the Tres Pinos WDR discharge to a groundwater basin (the San Juan subbasin) that has not been assigned specific nitrate or TN objectives in the Basin Plan. The Los Osos Valley groundwater basin is identified in the Basin Plan, but not assigned nitrate or TN objectives.

OTHER CURRENT REGULATORY CONSIDERATIONS

Salt and Nutrient Management Plans

In November 2008 the SWRCB adopted the Statewide Recycled Water Policy, which requires the development of regional or sub-regional salt and nutrient management plans (SNMPs) for groundwater basins in California by 2014 (with the potential for a two year extension if substantial progress towards development of a plan is being made). SNMPs will be adopted by Regional Boards as Basin Plan amendments. According to the state policy, SNMPs must include the following components:

- Basin/sub-basin wide monitoring plan
 - Assess groundwater quality, preferably by sampling existing wells
 - Focus on groundwater near large recycling and recharge projects and near water supply wells

- Target where appropriate ground and surface water in areas of connectivity
- Annual monitoring for contaminants of emerging concern (CECs)
- Water recycling and stormwater recharge/use goals and objectives
- Salt and nutrient source identification, loading estimates, assimilative capacity, and fate and transport
- Implementation measures to manage salt and nutrient loading in the [groundwater] basin on a sustainable basis
- Antidegradation analysis

In Region 3, this SNMP requirement is being implemented by inclusion of provisions in WDRs or NDPEs permits for facilities which use reclaimed water for irrigation. In the 2012 CMC Permit, *Section (a) Salt and Nutrient Management* (in the Best Management Practices and Pollution Minimization Program) describes in great detail required elements of a salt and nutrient management program specific to the facility, and then provides the option to alternatively satisfy the detailed requirements through participation in a regional salt and nutrient management plan.

Required elements of Central Coast SNMPS are detailed in a February 2014 document available on the Region 3 website.¹⁰ Based on a September 13, 2013, Salt and Nutrient Management Plan Update (powerpoint presentation by the Region 3 Staff for the Central Coast Forum), a regional SNMP effort was tentatively underway at the time for the Los Osos Valley, but not the Chorro Valley.

Because the Morro Bay WRF will involve a significant reclaimed water component, a requirement to either perform a facility-specific salt and nutrient management program or to participate in a regional salt and nutrient management plan is a guaranteed element of the eventual permit regardless of the site of the wet weather discharge. However, it is possible that by the time the Morro Bay WRF or the expanded CMC facility is built, a regional SNMP might be underway in the Chorro Valley and that some economy of effort could be achieved by the City of Morro Bay participating in the regional planning effort with partner agencies.

Environmental Sensitivity of Receiving Waters

Discharges to Chorro Creek, in particular, may be subject to regulations associated with presence of sensitive habitat and species. Morro Bay is one of only 28 estuaries nationwide that have been designated as “estuaries of national significance” and supports more than two dozen endangered species. Chorro Creek terminates in the Morro Bay Estuary which is afforded additional protection by virtue of the Morro Bay State Marine Recreational Management Area and the Morro Bay State Marine Reserve. Within these protected areas fishing and take of all living marine resources is prohibited except that in a northern portion of the Bay, recreational fishing and aquaculture of oysters, pursuant to a valid State water bottom lease and permit, is permitted. Oysters are commercially farmed in Morro Bay by the Morro Bay Oyster Company and the Grassy Bar Oyster Company. Both Morro and Chorro Creeks are designated Critical Habitat for federally listed South Central California Coast DPS steelhead and California red-legged frog. Lower portions of both creeks are habitat for federally listed tidewater goby. Downstream from the CMC WWTP

¹⁰ Informational Document: Salt and Nutrient Management Plan Development. February 2014. Available at http://www.waterboards.ca.gov/centralcoast/water_issues/programs/nutrient_mgmt/index.shtml.

discharge, approximately two miles of Chorro Creek flows through the Chorro Creek Ecological Reserve.

Regionalization Issues

If discharge to Chorro Creek occurs through establishment of a new regional facility, there will be additional complexity related to the formation of a joint powers authority (JPA) or similar governing body able to receive influent from more than one sanitary district with a single NPDES permit issued for a regional facility. This added layer of regulatory complexity would be avoided if discharge occurs to one of the other receiving waters.

3. Effluent Quality Evaluation

Effluent data from semi-annual sampling reports and conductivity/TDS monitoring data for the current Morro Bay-Cayucos WWTP were reviewed as an initial assessment of potential water quality issues under the four discharge scenarios. This data did not include all constituents of potential concern because not all monitored constituents were found in this report as described below. Because effluent quality is expected to improve with the proposed upgrades, it is anticipated that a subset of the constituents identified in this analysis would require effluent limits. Therefore, this analysis provides a preliminary comparison of constituents that could require effluent limits under the different discharge scenarios.

In accordance with the method in the SIP for determining “reasonable potential” (Reasonable Potential Analysis, or RPA) for inland surface waters, the maximum detected concentrations for constituents in effluent were compared with the lowest water quality criteria from the applicable suite of objectives for the creek and percolation pond scenarios. RPA for the ocean outfall scenario followed the procedure identified in the Ocean Plan. Effluent was compared with the suites of objectives pertaining to the following scenarios:

1. Discharge to fresh surface water (using objectives from CTR, Basin Plan, Title 22)
2. Discharge to fresh surface water using potential future CTR objectives (based on the revised USEPA criteria described above)
3. Discharge to ocean (using objectives from the Ocean Plan and Basin Plan)
4. Discharge to land (using Basin Plan groundwater objectives)

The effluent dataset included semi-annual sampling data from January 2010 through January 2014 and daily conductivity/TDS monitoring from July 2012 through July 2013. The constituents reported included organics, inorganics (metals), toxicity, nitrate-N, ammonia-N, coliform, pH, and TDS. Inorganics, nitrate and toxicity were generally monitored semi-annually (9 data points each), while organics were monitored annually (4 data points each). Ammonia is sampled monthly and total coliform is sampled 5 days per week. The maximum concentrations for these constituents were obtained from the August 2013 ROWD. Data for salts were from six 24-hour composite samples taken between February 8, 2012 and February 14, 2012 (*2012 Recycled Water Feasibility Study*, Dudek, Draft March 9, 2012). The data reports evaluated did not provide results for total nitrogen and dozens of Title 22 and CTR constituents. Several inorganics applicable to Basin Plan objectives for AGR, WARM/COLD, SPWN were also not screened. A table of these unscreened constituents is provided in **Attachment 3**. Constituents for which there are applicable water quality objectives, but which were not detected in any of the effluent data screened, are also provided in **Attachment 3**.

DISCHARGE TO SURFACE WATER

Both Chorro Creek and Morro Creek are assigned the MUN use, so Title 22 MCLs were included in the suite of objectives for RPA. Concentrations of ten constituents in effluent exceeded the lowest applicable objective. Hardness was assumed to be 150 mg/L. Ammonia-N exceeds the total nitrogen limit in the 2012 CMC Permit (10 mg/L total nitrogen) but expansion of nitrogen removal processes at CMC is expected as part of the regionalization effort. Detailed results are provided in **Attachment 3**.

Updated human health CTR criteria were proposed for 90 constituents in 2014. Only three of the updated constituents that are monitored in effluent were detected (cyanide, bis(2-ethylhexyl) phthalate, toluene), concentrations for two of them exceeded the proposed updated criterion (cyanide, bis(2-ethylhexyl) phthalate). However, concentrations of these two constituents exceed the *current* CTR criteria and it is not likely that these concentrations would be lowered as a result of the planned upgrades to the treatment process. Therefore, there would be no difference in reasonable potential in the case of these two constituents should the 2014 proposed criteria be adopted.

DISCHARGE TO OCEAN

The Ocean Plan RPA is very different from the RPA for inland surface waters. A tool called RPCalc2.0 is used on each individual constituent's dataset, with a dilution of 133 for this discharge and ambient concentrations from the Ocean Plan. Three endpoints are possible: 1=reasonable potential, 2=no reasonable potential, 3=inconclusive, continue collecting data. Three constituents had reasonable potential with Ocean Plan objectives, while 11 had an inconclusive result, and 8 had a result of "no reasonable potential." Detailed results are provided in **Attachment 3**.

DISCHARGE TO LAND

Concentrations of seven constituents in effluent exceeded the lowest applicable objective, including four salts (boron, chloride, sodium, and TDS) and ammonia-N at current concentrations. However, ammonia concentrations would be reduced as by the projected plant upgrade or as a result of expansion of the CMC facility. Detailed results are provided in **Attachment 3**.

SUMMARY

Table 5 summarizes the criteria exceeded by effluent concentrations for detected constituents (or showing reasonable potential under the Ocean Plan) under the various discharge scenarios. In addition, although there was no data for total nitrogen in the dataset screened, ammonia-N exceeds the basin plan objective for groundwater for Chorro Valley Basin (5 mg/L total nitrogen), and the total nitrogen limit in the 2012 CMC Permit (10 mg/L total nitrogen). In addition, the maximum 7-day median total coliform value in the screened data set (50 MPN/mL) exceeds the 7-day median total coliform effluent limit MUN limit assigned to groundwater in Region 3 (2.2 MPN/L), which was assigned to the creek discharge in the 2012 CMC Permit. However, ammonia, total nitrogen, and coliform bacteria concentrations are expected to be reduced by the projected plant upgrade or as a result of expansion of the CMC facility.

While a similar set of effluent limits would be required for an ocean discharge or surface water discharge, the effluent limits for the ocean discharge would be much higher due to the dilution credit of 133:1.

Table 5. Summary of Constituents Likely to Have Effluent Limits for Discharge Scenarios

Constituent	Units	Detected Effluent Maximum ^[a]	Freshwater			Ocean		Groundwater
			Basin Plan Objectives	CTR	Title 22 MCLs	Ocean Plan RPA	Basin Plan Objectives	Basin Plan Objectives & Title 22 MCLs
<i>Constituents with concentrations likely to change based on the plant design/upgrades:</i>								
Ammonia (as N)	mg/L	ND ^[b]						
Nitrogen	mg/L	10 ^[b]						X
Total Coliform	MPN/ 100mL	2.2 ^[b]						
<i>Constituents with concentrations that may incidentally change due to upgrades:</i>								
Antimony	µg/L	11			X			X
Cadmium, Total	µg/L	0.64	[c]				X	
Copper, Total	µg/L	22	[c]	X		X	X	
Cyanide	µg/L	94		X		X		
Mercury	µg/L	0.088		X				
Nickel, Total	µg/L	4.3					X (salts)	
Zinc, Total	µg/L	71	[c]				X	
2,3,7,8-TCDD (dioxin)	µg/L	1.8E-07		X		X		
Bis(2-ethylhexyl) Phthalate	µg/L	8.2	X	X	X			X
pH	SU	7.3-7.9	[d]					
<i>Constituents with concentrations that are not expected to change due to plant upgrades:</i>								
Boron	mg/L	0.4 ^[e]	X					X
Chloride	mg/L	369 ^[e]	X		X			X
Sodium	mg/L	223 ^[e]	X					X
TDS	mg/L	1,077 ^[f]	X		X			X
Total				10			6	7

[a] Based on data in annual and semi-annual reports unless noted otherwise

[b] Adjusted based on anticipated future effluent quality from new WRF (Tertiary-2.2 for unrestricted reuse per Title 22 Regulations). Projected concentrations of ammonia and total coliform do not exceed the water quality objectives but may receive effluent limits nevertheless.

[c] Basin Plan objectives for “soft” water (hardness < 100 mg/L) would trigger exceedances with the maximum effluent concentration.

[d] pH levels are currently very stable, however this could change with the treatment plant upgrade.

[e] Data are from six 24-hour composite samples taken between February 8, 2012 and February 14, 2012 (2012 Recycled Water Feasibility Study, Dudek, Draft March 9, 2012)

[f] Data from daily conductivity/TDS monitoring were provided from July 2012 through July 2013.

4. Future Considerations

Several regulatory actions at either the state or federal level are anticipated in the near future that may affect permit requirements or the regulatory burden associated with some of the discharge scenarios. The actions are briefly described below.

Biological Integrity Assessment Implementation Plan

Starting in 2010, the SWRCB has been engaged in technical and stakeholder processes to develop a consistent methodology for using bioassessment data (indices of biological integrity, or IBIs) for impairment listings and identification of controllable pollutants causing biological community impairment that can be addressed by TMDLs, waste discharge permits, and other regulations. The SWRCB will adopt standardized metrics and monitoring protocols, and adopt statewide *guidance* for Regional Boards to interpret the biological data for 303(d) listing purposes, TMDL development and permit writing.¹¹ The SWRCB is beginning by addressing benthic invertebrates in streams, but intends to consider other types of community indices, such as for microalgae.

The SWRCB has already proposed: (1) the metric that will be used to interpret bioassessment data for stream benthic invertebrates (the California Stream Condition Index, or CSCI), (2) a reference stream data set and methods for defining reference conditions, (3) a stressor-identification framework (Causal Assessment), and (4) at least one tool for causal assessment (CADDIS) proposed for use in assigning responsibility for benthic community impairment to one or more pollutants (such as sediment or nutrients) or non-chemical stressors (such as hydromodification). The framework for implementation is still being developed (for example, addressing controversial issues such as expectations for modified stream channels).

The implementation of the CSCI in the regulatory setting is controversial and has implications for dischargers to wadeable streams. The “stressor ID” process has been demonstrated in case studies and at least one TMDL in Region 4 (2013 Malibu Creek and Lagoon TMDL for Sedimentation and Nutrients to Address Benthic Community Impairments) to provide a rationale for stringent nutrient regulation. In the case of the Malibu TMDL, benthic invertebrate index data and Causal Assessment were used as a basis for revising POTW nutrient allocations significantly downward from those promulgated in a previous (2003) nutrient TMDL (new allocations were 1.0 mg /L TN and 0.1 mg /L TP during summer months).

Proposed Policy for Nutrients for Inland Surface Waters

The State Water Board is developing a nutrient policy for inland surface waters. The State Water Board intends to develop narrative nutrient objectives, with numeric guidance to translate the narrative objectives. This numeric guidance could include the “Nutrient Numeric Endpoint” (NNE) framework which establishes numeric endpoints based on the response of a water body to nutrient overenrichment (e.g. algal biomass, dissolved oxygen, etc.).

¹¹ The currently applicable background information, technical documents, and advisory group information is available at http://www.waterboards.ca.gov/plans_policies/biological_objective.shtml.

Disjunct but overlapping processes have been underway since 2006 to evaluate approaches for regulating nutrient discharges to four different classes of inland water bodies:

- Streams and Lakes
- Coastal estuaries
- San Francisco Estuary (SFE, includes Suisun Bay)
- Sacramento-San Joaquin Delta

Much of the technical foundation for establishment of NNEs for wadeable streams had been developed with SWRCB funding and oversight, but without stakeholder involvement, prior to June 2014. The NNE process for inland water bodies (other than those for the SFE and the Delta, which appear to be continuing on separate tracks) was recently “reset”, and a formal stakeholder process for NNEs for inland waters (initially to address wadeable streams) began in June 2014.¹² The recent scientific work products produced by SCCWRP (expected for public release in August 2014) indicate that nutrient thresholds for wadeable streams derived using correlational approaches and statewide monitoring databases, if applied as effluent limits, would be unattainable without reverse osmosis. Consequently there is a recognition that alternative regulatory pathways may be important for establishing NPDES permit limits for N and P for POTWs. This possibility is part of the discussion between dischargers and regulators in the newly formed “Inland Water NNE SAG”. If offered in a formal framework, the alternative pathway may require dischargers to sponsor site-specific studies of nutrient responses in stream watersheds or conduct expensive modeling of the impacts on beneficial uses of management actions on watershed scales.

Although the current SWRCB website for the Nutrient Policy qualifies the *current process* as one that *excludes* enclosed bays and estuaries, much of the technical work to support NNE development for enclosed estuaries took place already through the California Estuarine Nutrient Numeric Endpoint Project¹³ with the involvement of a technical team lead by SCCWRP, a regulatory advisory group (“STRTAG” comprised of SWRCB, Regional Board, USEPA and resource agency staff), and a Coastal Stakeholder Advisory Group (Coastal SAG) that had been meeting since 2009. The Coastal Estuary nutrient process appears to have been put on hold temporarily, and the SWRCB has prioritized development of an NNE policy for wadeable streams. However, as shown in the tentative schedule in Table , estuaries will be addressed in the Nutrient Policy in the next five years.

¹² http://www.waterboards.ca.gov/plans_policies/nutrients.shtml

¹³ <https://californiaestuarinenneproject.shutterfly.com/>

Table 6. Tentative Schedule for Nutrient Policy Development in California.*

Task	Science	Regulatory Amendments	
		Development	Adoption
Conceptual Approach	2014	2015	2017
Wadeable Streams	2014	2015	2017
Lakes	2014-2017	2017	2018
Estuaries and Non-wadeable streams/rivers	2014-2018	2018	2020

*Timelines for the SFE and Delta have not been determined.

The Nutrient Policy creates significant regulatory uncertainty and risk for dischargers to wadeable streams. In addition, owing to potential application of new indicators of nutrient impairment in estuaries (such as new screening values for DO, pH, and benthic macroalgae or new IBIs for benthic infauna or sensitive fish), Morro Bay Estuary might become listed in the future for nutrient-related impairment. In that case, nutrient discharges to Chorro Creek might be reevaluated in the context of their effect on the estuary downstream. Regardless of conditions in the Morro Bay Estuary, the Chorro Creek Nutrient TMDL is subject to a reopening in July 2016. The Regional Board has the discretion to adjust nutrient allocations for POTWs in the TMDL if the targets for benthic algae and dissolved oxygen are unattained at that time. As part of the recent NNE-related technical work described above, SCCWRP is proposing that thresholds for impairment for benthic algal biomass should be much lower than those applied during the early “test runs” of the Benthic Biomass Tool. This may result in Regional Boards establishing lower nutrient targets in TMDLs across the state, and could affect the targets in the Chorro Creek Nutrient TMDL at some point in the future. Finally, although Morro Creek is not currently on the 303(d) list for nutrient-related impairments, its status might change if monitoring data are screened using NNEs recommended by the SWRCB.

State Policy for Toxicity Assessment and Control (Toxicity Policy)

SWRCB Resolution 2005-0019 required revisions to the toxicity provisions in the SIP. In June 2010, the SWRCB released a draft “Policy for Whole Effluent Toxicity Assessment and Control” which included a new methodology for calculating toxicity (Test of Significant Toxicity, or TST) that had been described in a June 2010 document released by USEPA. Following public outreach and comments, peer review, and other steps, the SWRCB issued a revised draft policy in June 2012 that would promulgate new water quality objectives for toxicity for all inland surface waters, enclosed bays, and estuaries of the state. The new objectives would supercede the current toxicity control provisions in the SIP and all toxicity testing provisions in individual Basin Plans. The draft policy includes the following types of provisions:

- Numeric objectives for chronic and acute toxicity
- Chronic and acute toxicity limits
- Reasonable potential analysis and test species screening
- Accelerated monitoring and TRE implementation

The draft policy elicited significant concern from POTWs that discharge to inland waters. A partial list of POTW concerns follows.

Numeric Limits versus Triggers. Currently, most NPDES permits contain narrative objectives for toxicity and numeric triggers that prompt additional sampling and source investigation (e.g., Toxicity Reduction Evaluations, or TRE). This policy would result in numeric limits for toxicity, and dischargers would be considered to be in violation of their permits before there is a chance to determine the cause of the toxicity.

New Statistical Method for Defining Toxicity. The TST is a new probability-based method for calculating toxicity, based on a null hypothesis that a sample is toxic. Stakeholders have compared the performance of the TST and existing approaches (i.e., calculation of acute toxicity Toxic Units Acute (TUa) and Toxic Units Chronic (TUc)) using WET testing data. They argue that a high false positive error rate is inherent using the TST, and that use of the TST will lead to 303(d) listings for a high percentage of non-toxic waters.

Dischargers with no Dilution. Consideration of the true In-Stream Waste Concentration (IWC) is disallowed during the determination of “pass” or “fail” for dischargers that have no mixing zone or dilution credits.

Immediate Non-Compliance. The draft policy mandates that POTWs without dilution must produce effluent that is free of toxicity at all times. The draft policy includes a maximum daily effluent limitation (MDEL) that would result in an effluent limitation violation as a result of a single sample exceedance.

Higher Costs of Individual Tests. The TST is highly sensitive to the variability of test organism survival in test and control water. Consequently, in order to avoid invalid “fail” results, dischargers may have to pay for an increased number of replicates during routine toxicity tests.

Acute Toxicity Tests. The draft policy creates potential that Permits will contain requirements to conduct acute toxicity tests in addition to (more sensitive) chronic toxicity tests.

Reasonable Potential. The draft policy stipulates that all POTWs with average daily flow above 1 MGD have reasonable potential to cause toxicity *by rule*.

State Policy on Bacteria

The SWRCB is proposing a statewide control program to protect recreational users from the effects of pathogens in California water bodies. The program would be adopted as amendments to both the Inland Surface Water, Enclosed Bays and Estuaries Plan and the California Ocean Plan. Significant proposed program elements may include: new water quality objectives for both fresh and marine waters based on the recently released (2012) USEPA recreational use criteria; a reference beach/natural source exclusion process and high flow exemptions; and revised beach notification requirements.

The USEPA’s 2012 recreational water quality criteria recommends use of either enterococci and *E. coli* for freshwater and only enterococci for marine water. Recommended criteria are provided in Table 7.

Table 7. USEPA 2012 Recommended Recreational Use Standards for Bacteria.*

	Enterococci		E. coli	
	30-day geomean	single sample threshold	30-day geomean	single sample threshold
Marine	30-35 cfu/100 mL	110-130 cfu/mL	N/A	N/A
Fresh	30-35 cfu/100 mL	110-130 cfu/mL	100-126 cfu/mL	320-410 cfu/mL

*Ranges apply to different illness rates.

Preliminary considerations related to the Morro Bay WRF discharge options are as follows:

Ocean Outfall

- Receiving water limitations
 - Receiving water limitations for total coliform related to the REC uses might be dropped from future permits. However, the SHELL use objectives in the Ocean Plan (for fecal coliform) may not change as a result of the Bacteria Policy, and could remain as receiving water limitations.
 - Receiving water limitations for enterococcus will likely remain. The 2012 USEPA 30-day geomean standards are similar (30-35 cfu/100 mL, depending on the risk level chose) to those that are already in the Ocean Plan.
 - Following the 2012 USEPA recommendation, enterococcus in 10% of samples within a 30-day period should not exceed 110-130 cfu/100 mL. This objective is slightly more lenient than the current “single sample maximum” for enterococcus of 104/100 mL in the Ocean Plan.
- Estero Bay is not currently listed as impaired for pathogens on the 303(d) list. If that changes in the future, the new Bacteria Policy may provide clarity to the Regional Board regarding whether to apply natural source exclusion in a TMDL.

Discharge to Chorro Creek

- Bacteria limits for the CMC WWTP discharge are equivalent to the Title 22 standards for recycled water, and are not governed by the (more lenient) current REC1 and REC2 Basin Plan objectives for fecal coliform. The Bacteria Policy does not set out to alter the Title 22 standards.
- Chorro Creek and downstream Morro Bay Estuary are already subject to the bacteria targets in the Pathogen TMDL. However, the targets are for fecal coliform. The Bacteria Policy may replace fecal coliform with E. coli as the REC1 and REC2 indicator test organism. Depending on how the SWRCB implements the Bacteria Policy, the Pathogen TMDL might have to be reopened to revise the targets and allocations.

Discharge to Morro Creek

- The new USEPA criteria for E. coli might supercede the Basin Plan objectives for fecal coliform for REC1 and REC2, and might become the governing objectives.

High flow exemptions

- High flow exemptions might shield the Morro Bay WRF from bacteria exceedances during some of the conditions when they expect to need a discharge option.

Percolation Ponds

- The Bacteria Policy would not affect a WDR for percolation ponds.

Proposed Revision of US EPA Human Health Criteria

USEPA recently updated its national recommended water quality criteria for human health for 94 chemical pollutants to reflect newer scientific information and EPA policies, including updated fish consumption rates.¹⁴ The new recommended criteria are significantly lower, in some cases, than the current criteria and higher, in some cases. In order for these new criteria to be implemented in NPDES permits in California, they would need to be incorporated into the California Toxics Rule.

The updated criteria were compared to the current Morro Bay/Cayucos effluent data. Only three of the subject constituents that are monitored in effluent were detected (i.e., cyanide, bis (2-ethylhexyl) phthalate, and cyanide) and concentrations for two of them exceeded the proposed criterion. However, concentrations of the same two constituents exceed the *current* CTR criteria, so there would be no difference in constituents requiring effluent limits should the 2014 proposed criteria be adopted.

Water Rights

There may be regulatory implications associated with a WRF discharge that increases surface flow in either Morro or Chorro Creek with the expectation that effluent can be diverted from the stream later as capacity to reclaim water is developed. Under California Water Code Section 1211, changes in the discharge or use of treated wastewater that result in decreasing the flows in a portion of a watercourse must be approved by the SWRCB Division of Water Rights. Review of a “Change Petition” will be conducted pursuant to Water Code Section 1700 et seq. The petitioner must include sufficient information to demonstrate a reasonable likelihood that the proposed change will not injure any other legal user of water and must include information about measures to protect fish and wildlife. State and federal resource agencies will evaluate the Change Petition regarding impacts of the diversion on state or federally listed species or their habitat. The origin of the water to be diverted (foreign or natural) bears upon the legal analysis of water rights in Change Petitions. It may be advisable for the City to consider whether a water rights decision (i.e., conferring rights to the effluent) is necessary before commencing to discharge to either Creek. The legal analysis of water rights will be more complicated if the facility influent represents a combination of extracted groundwater (i.e., from city wells) and imported water.

Challenges faced by the City of San Luis Obispo (SLO) in implementing their recycled water program serves as an example of this issue. As discussed above, SLO has dedicated a portion of its Water Reclamation Facility effluent to maintain a minimum flow of 2.5 cfs in San Luis Obispo Creek for in-stream beneficial uses, in-stream habitat uses in particular. This minimum dedicated discharge is included in SLO’s Water Reuse Project’s SWRCB ‘Permit for Change in

¹⁴ The supporting technical information for each of the affected constituents is available on an interactive website table at <http://water.epa.gov/scitech/swguidance/standards/criteria/current/hhdraft.cfm>.

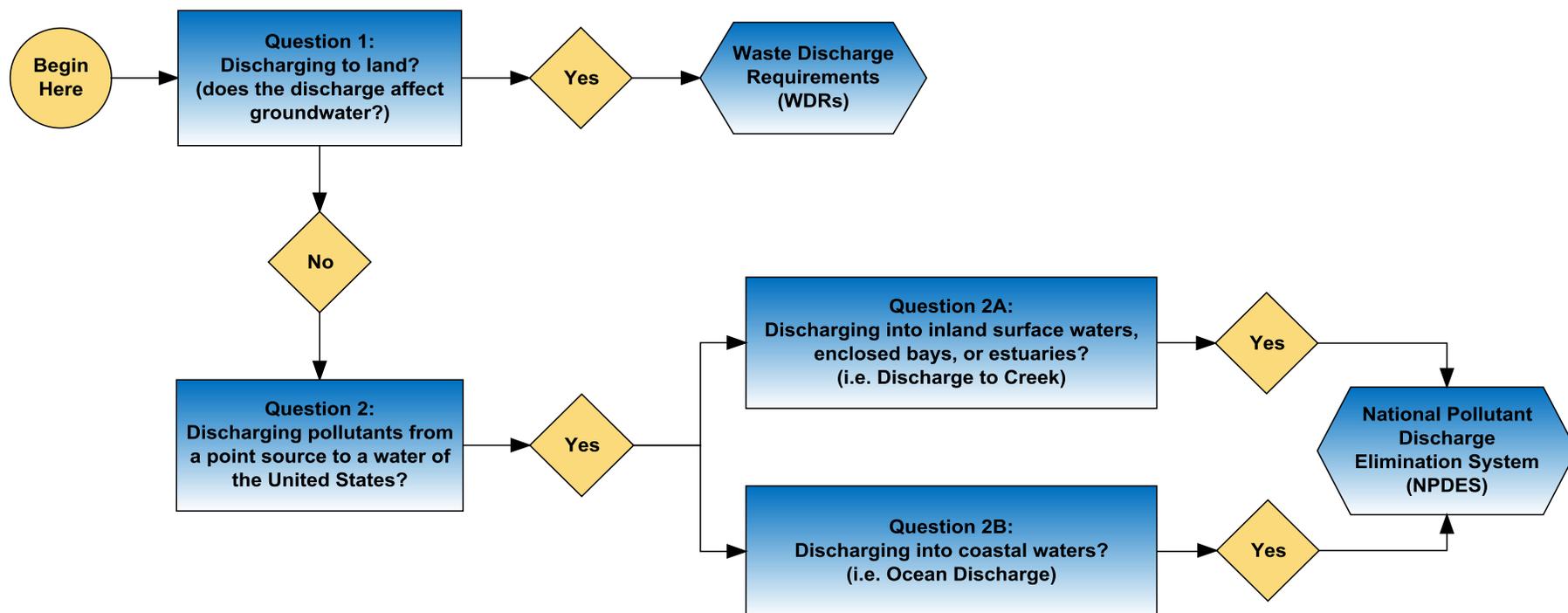
Place and Purpose of Use' and is a required term and condition of the Biological Opinion issued by NOAA Fisheries. SLO and several other agencies, including DFG and NMFS, have completed studies on the creek examining habitat and the abundance of federally threatened anadromous steelhead (*Oncorhynchus mykiss*). A study completed for SLO in 2004 as part of their Water Reuse Project found steelhead in greater abundance than was observed in previous surveys. The results of this study supported an increase in the dedication of a minimum discharge to San Luis Obispo Creek from 1.7 cfs to 2.5 cfs for in-stream beneficial uses, in-stream habitat uses in particular. Consequently, SLO cannot fully utilize the reclaimed water generated as part of the Water Reuse Project.

Attachment 1: Permit Application Procedures

CATEGORIES OF PERMITS

Discharges can be generally divided into the discharge of pollutants to surface waters or other types of discharges (i.e. waste discharges to land or discharges that affect groundwater). Discharges to surface waters are regulated by permits issued under the National Pollutant Discharge Elimination System (NPDES) program while discharges of other types are permitted through Waste Discharge Requirements (WDR) under the Porter-Cologne Act. The figure below illustrates the distinction between the two categories of permits.

“Which Permit Do I Need?”



WASTE DISCHARGE REQUIREMENTS (WDR)

Under the Porter Cologne Act, WDRs are required for types of discharges that affect groundwater, mainly the discharge of waste to land. Dischargers of pollutants must file a Report of Waste Discharge (ROWD) with the Regional Water Board to apply for Waste Discharge Requirements (WDRs) for these types of discharges. The application process for a WDR is discussed in this section.

Required Information

Information that is required during the application process with a submittal of a ROWD for WDRs includes, but is not limited to, the following:¹⁵

- Facility information: the names, addresses, and telephone numbers of the facility owner(s), facility operator(s), and the owner(s) of the land;
- Reason for filing, such as whether the applicant proposes to change an existing discharge or create a new one;
- Location of the facility and discharge point, including the Assessor's Parcel Number(s) as well as the latitude and longitude;
- Description of the discharge by type and a complete characterization
 - a complete characterization includes, but is not limited to, design and actual flows, water supply, a list of constituents and the discharge concentration of each constituent, a list of other appropriate waste discharge characteristics, a description and schematic drawing of all treatment processes, a description of any Best Management Practices (BMPs) used, and a description of disposal methods
- Site map, identifying the location of the facility;
- Planning information such as flood protection, erosion control, surface water control, and spill plan;
- Information and documents pertaining to the California Environmental Quality Act (CEQA), including the CEQA document, Environmental Impact Report, or Negative Declaration, if applicable; and
- Certification by the owner of the facility or the operator of the facility.

Application Process

The entire process for developing and adopting the requirements normally takes about three months.¹⁶ The steps to obtain WDRs are:

¹⁵ California Regional Water Quality Control Board, Central Coast Region. *Wastewater Permitting*
http://www.waterboards.ca.gov/centralcoast/publications_forms/forms/docs/form_200.pdf

¹⁶ State Water Resources Control Board, Central Valley Region. *National Pollutant Discharge Elimination System (NPDES) - Individual Permits Information*.
http://www.waterboards.ca.gov/water_issues/programs/npdes/individual_permits.shtml

- i. File the Report of Waste Discharge (Form 200) with the necessary supplemental information with the Regional Water Board at least 120 days before beginning to discharge waste.
- ii. Regional Water Board staff reviews the application for completeness and may request additional information.
- iii. Once the application is complete, Regional Water Board staff determines whether to propose adoption of the WDRs, prohibit the discharge, or waive the WDRs.
- iv. If WDRs are proposed, staff prepares draft WDRs and distributes them to persons and public agencies with known interest in the project for a minimum 30 day comment period. Staff may modify the proposed WDRs based upon comments received from the discharger and interested parties.
- v. The Regional Board holds a public hearing with at least a 30 day public notification. The Regional Water Board may adopt the proposed WDRs or modify and adopt them at the public hearing by majority vote.

NATIONAL POLLUTANT DISCHARGER ELIMINATION SYSTEM

As authorized by the CWA, the NPDES program protects water quality by regulating point sources that discharge pollutants directly into the waters of the United States, such as a lake, river, or ocean.

An individual NPDES permit is a permit specifically tailored to an individual facility. After receipt of a complete application, the permitting authority develops a permit for a particular facility based on the information contained in the application (e.g., type of activity, nature of discharge, receiving water quality). The permitting authority issues the permit to the facility for an effective period not to exceed five years. The discharger must reapply at least 180 days prior to the expiration date. The Regional Water Boards issue most of the individual permits in California while the State Water Board issues general permits that apply statewide and individual permits on a few occasions.

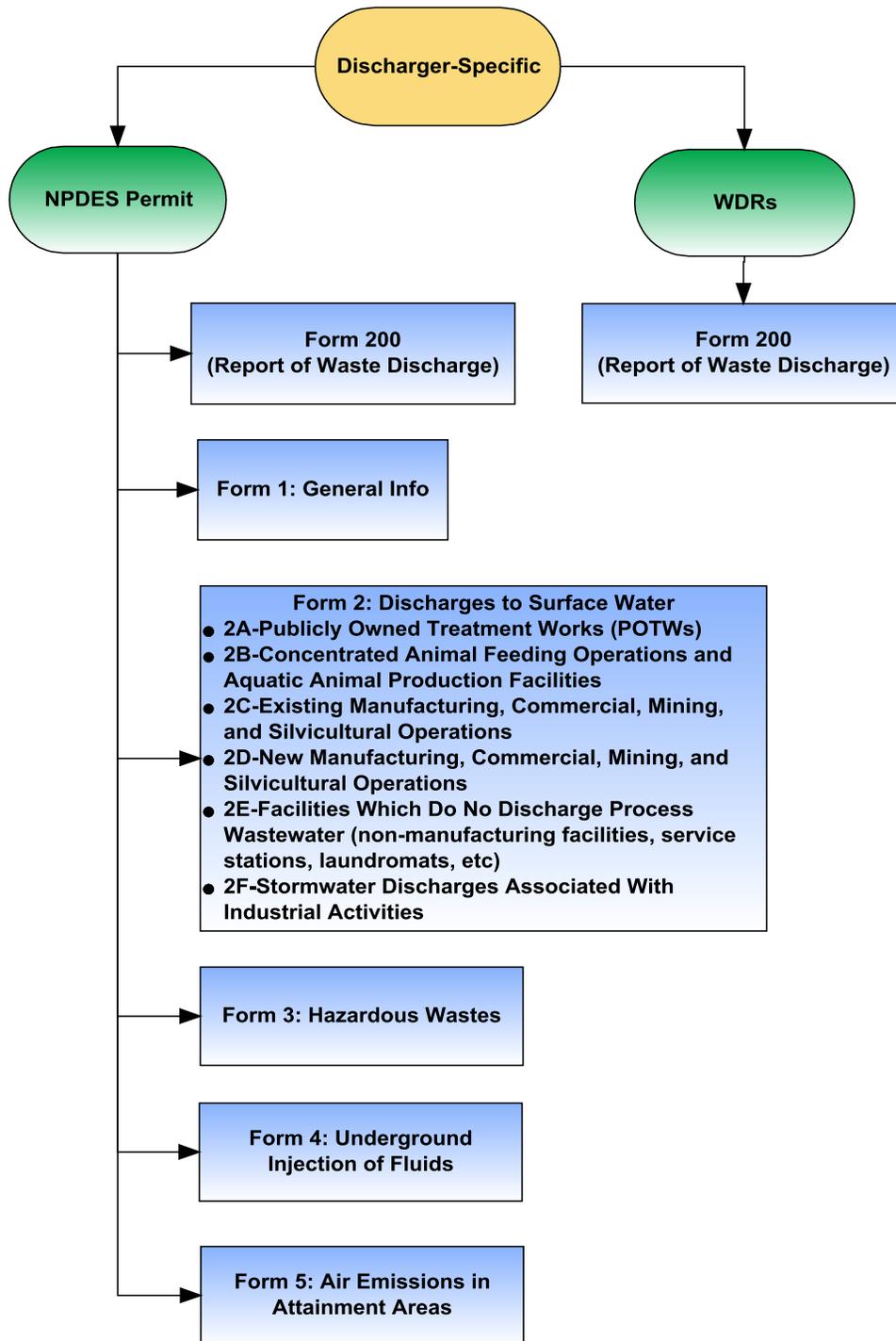
Required Information

Submittal of an ROWD begins the application process for both WDRs and NPDES permits.¹⁷ In addition to submitting the ROWD required information detailed in Section 2.1, a discharger applying for an NPDES permit must provide the following information:

- Site map identifying the surface water into which the discharge is proposed; and
- In addition, the discharger may be required to complete one or more of the following Federal NPDES permit application forms: Form 1, 2A, 2B, 2C, 2D, 2E, 2F, 3, 4, 5, Short Form A, and Standard Form A (see figure below).

¹⁷ California Regional Water Quality Control Board, Central Coast Region. *Wastewater Permitting*
http://www.waterboards.ca.gov/centralcoast/publications_forms/forms/docs/form_200.pdf

“Which Forms Do I Need?”¹⁸



¹⁸ California Regional Water Quality Control Board, Central Valley Region. “Do I Need a Permit-What Forms Do I Need?” *Water Boards*. Last updated 1/02/2013.

APPLICATION PROCESS

The process for application review and permit issuance by the Regional Water Board takes approximately six months, but may take longer depending upon the nature of the discharge. The typical steps to obtain an NPDES permit are:

- i. File Form 200 and the appropriate federal NPDES application forms with the Regional Board. Anyone proposing to discharge must file a complete application at least 180 days before beginning the activity.
- ii. Regional Board staff reviews the application for completeness and may request additional information
- iii. Once the application is determined to be complete, Regional Board staff forwards it to the US Environmental Protection Agency (USEPA) within 15 days. USEPA has 30 days to review the application for completeness and to request additional information from the discharger. After the request for additional information is met, USEPA has 30 days to forward comments to the Regional Board.
- iv. Regional Board staff determines if they should issue the NPDES permit or prohibit the discharge. If a permit should be issued, Regional Board staff prepares a proposed permit and forwards a copy to USEPA for review.
- v. USEPA review the application and has 30 days to object or submit comments to the Regional Board. USEPA may request an additional 60 days to review the proposed permit.
- vi. Following USEPA's review, Regional Board staff prepares a "Notice of Public Hearing" and mails it to the discharger with instructions for circulation. Regional Board staff also mails the public notice and proposed permit to persons and public agencies with known interest in the project. Regional Board staff may modify the proposed permit prior to the public hearing based on comments received from the discharger and interested parties.
- vii. The discharger must publish the notice for one day and submit proof of having complied with the instructions to the Regional Board within 15 days after the posting or publication.
- viii. The Regional Board holds a public hearing with at least 30 day public notification. The Regional Board may adopt the proposed permit or modify it and adopt it at the public hearing by majority vote. USEPA has 10 days to object to the adopted permit, and the objection must be satisfied before the permit becomes effective.

Attachment 2: Beneficial Uses of Potential Receiving Waters and Applicable Water Quality Objectives

Water Quality Objectives that Pertain to the Ocean Outfall (Estero Bay)

The beneficial uses of selected coastal waters in Region 3 are provided in Table 2-2 of the Basin Plan. The existing ocean outfall discharges into Estero Bay. The beneficial uses assigned to Estero Bay are as follows:

REC1	Water Contact Recreation
REC2	Non-Contact Water Recreation
SHELL	Shellfish Harvesting
IND	Industrial Service Supply
NAV	Navigation
MAR	Marine Habitat
COMM	Commercial and Sport Fishing
RARE	Rare, Threatened, or Endangered Species
WILD	Wildlife Habitat
MIGR	Migration of Aquatic Organisms

Ocean Plan Objectives. The Basin Plan assigns all current and future provisions of the Ocean Plan and the Thermal Plan¹⁹ to all open coastal waters in their jurisdiction. Consequently the majority of the water quality objectives that governs discharges to Estero Bay are contained in the Ocean Plan. With the exception of REC1, REC2, and SHELL, water quality objectives in the Ocean Plan are not explicitly assigned to the beneficial uses listed above. The constituent classes addressed by the Ocean Plan are listed below.

Physical Characteristics (narrative objectives)

- Floating particulates²⁰
- Oil and Grease⁵
- Light
- Deposition of inert solids

Chemical Characteristics (narrative objectives)

- DO, pH⁵, dissolved sulfide (allowable change from natural conditions)

¹⁹ The Thermal Plan is not addressed in this memorandum.

²⁰ Section III. *Program of Implementation* of the Ocean Plan assigns numeric effluent limits for POTWs for Grease & Oil, Settleable Solids, Turbidity, and pH.

- Sediment quality (several metals and organics, ammonia, toxicity, radioactivity)
- Nutrients (disallows “objectional aquatic growths” or degradation of indigenous biota)
- Protection of Marine Aquatic Life²¹ (numeric objectives)
 - Inorganics (arsenic, cadmium, chromium, copper, lead, nickel, selenium, silver, zinc, cyanide, total chlorine residual)
 - Ammonia
 - Toxicity
 - Organic compounds (5 constituents)
 - Radioactivity
- Protection of Human Health²² (numeric objectives)
 - Noncarcinogens (20 constituents)
 - Carcinogens (42 constituents)

Biological Characteristics (narrative objectives)

- Three objectives addressing degradation of marine communities and quality of fish and shellfish for human consumption)

Radioactivity (narrative objective)

Basin Plan Objectives for Ocean Water. The Basin Plan assigns objectives for dissolved oxygen, pH and radioactivity to all ocean waters that differ from those in the Ocean Plan. In addition, the Basin Plan identifies specific numeric objectives for the MAR and SHELL beneficial uses.

Objectives for all Ocean Waters

- DO (numeric range)
- pH (numeric range)
- Radioactivity (narrative objective)

Objectives for MAR

- pH (allowable range)
- DO (numeric threshold)
- Metals (numeric objectives for 7 metals)

Objectives for SHELL

- Chromium (numeric objective)
- Bacteria (numeric objectives for total coliform)

²¹ Expressed as 6-month medians, daily maxima, and instantaneous maxima

²² Expressed as 30-day averages

Water Quality Objectives that Pertain to Creek Discharge

Beneficial uses for inland surface waters in Region 3 are provided in Table 2-1 of the Basin Plan, and are tabulated below. The beneficial uses assigned to Chorro Creek and Morro Creek are slightly different. The EST use is assigned to Morro Creek, but not Chorro Creek. It is not clear why the EST use is assigned to Morro Creek as there is no apparent estuarine habitat at the mouth of Morro Creek. Although Chorro Creek itself is not assigned the EST beneficial use, discharges to Chorro Creek would be evaluated with respect to their potential downstream effects on Morro Bay Estuary. This apparent disconnect could be discussed with Regional Board staff if one of these discharge scenarios were to be implemented. The BIOL use is assigned to Chorro Creek, but not Morro Creek.

Beneficial Uses Assigned to Morro and Chorro Creeks in the Region 3 Basin Plan

USE		Morro Creek	Chorro Creek
REC1	Water Contact Recreation	X	X
REC2	Non-Contact Water Recreation	X	X
MUN	Municipal and Domestic Supply	X	X
AGR	Agricultural Supply	X	X
COMM	Commercial and Sport Fishing	X	X
RARE	Rare, Threatened, or Endangered Species	X	X
COLD	Cold Freshwater Habitat	X	X
WARM	Warm Freshwater Habitat	X	X
SPWN	Spawning, Reproduction, and/or Early Development (Fish)	X	X
MIGR	Migration of Aquatic Organisms	X	X
WILD	Wildlife Habitat	X	X
FRESH	Freshwater Replenishment	X	X
GWR	Ground Water Recharge	X	X
EST	Estuarine Habitat	X	
BIOL	Preservation of Biological Habitats of Special Significance		X

California Toxics Rule (CTR). Numeric objectives for several dozen “Priority Pollutants,” that apply to all inland waters, enclosed bays, and estuaries in California, were promulgated by USEPA in 2000 in the CTR²³. CTR criteria are divided into several categories reflecting water quality required to avoid (1) acute and chronic toxicity for aquatic organisms, and (2) human health impacts from consumption of water and/or aquatic organisms; separate aquatic life criteria were developed for freshwater (streams, lakes) and salt water (enclosed bays and estuaries). The categories of criteria in the CTR that pertain to *freshwater with the MUN use* are pertinent to discharges to Morro Creek or Chorro Creek and are as follows:

- Freshwater Aquatic Life: Acute (32 constituents)

²³ Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule Federal Register / Vol. 65, No. 97 / Thursday, May 18, 2000 / Rules and Regulations. Adding Section 131.38 to 40 CFR

- Freshwater Aquatic Life: Chronic (30 constituents)
- Human Health: Consumption of Water & Organisms (90 constituents)

CTR criteria are implemented using the procedures described in the 2005 Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, also known as the State Implementation Policy (SIP). The SIP addresses matters such as monitoring requirements, test procedures and other compliance determinations, compliance schedules, water effect ratios (WER), metal translators, dilution and mixing zones, and derivation of effluent limits.

Basin Plan Objectives. The Basin Plan assigns Title 22 drinking water standards to all surface waters with the MUN use. Consequently discharges to either Morro Creek or Chorro Creek will be evaluated with regard to whether they cause exceedances of the Maximum Concentration Limits (MCLs) from Title 22 in receiving water. In addition, the Basin Plan assigns three other categories of objectives that are pertinent to discharges to one or both of the creeks: (1) general objectives that apply to all inland waters, (2) specific objectives for several other beneficial uses (AGR, REC1, REC2, COLD, WARM, SPWN), and (3) surface water objectives for salts that apply specifically to Chorro Creek. These Basin Plan objectives are outlined below.

General Objectives

- Color (allowable change from natural)
- Narrative objectives (prohibiting nuisance or adverse effect on beneficial uses)
 - Taste and Odors, Floating material, Suspended matter, Settleable Material, Biostimulatory Substances, Suspended Sediment
 - Temperature (narrative applies only to inland surface water)
 - Toxicity
 - Pesticides (narrative, except that total OC pesticides must not be detectable)
- pH (allowable range)
- Dissolved oxygen (numeric limit)
- Unionized ammonia (numeric limit)
- Other organics (numeric limits for methylene blue activated substances, phenols, PCBs and phthalate esters)

Objectives for MUN

- pH (allowable range)
- Title 22 Primary and Secondary Maximum Concentration Limits (MCL)
- Phenol (numeric limit)

Objectives for AGR

- pH (allowable range)
- Dissolved oxygen (numeric limit)

- Irrigation Supply (numeric limits for 18 inorganics)
- Livestock Watering (numeric limits for 16 inorganics)

Objectives for REC1 and REC2

- pH (allowable range)
- Fecal coliform (numeric limits)

Objectives for COLD and WARM

- pH
- Dissolved oxygen (numeric limit)
- Temperature (allowable change from natural)
- Toxic metals (cadmium, chromium, copper, lead, mercury, nickel, zinc)

Objectives for SPWN

- Cadmium (numeric limit)
- Dissolved oxygen (numeric limit)

Surface Water in Chorro Creek

- TDS, Cl, SO4, B, Na (annual means)

Water Quality Objectives that Pertain to Groundwater

Discharge to percolation ponds would be considered by the Regional Board as a discharge to groundwater. Table 2-3 and Figure 2-2 in the Basin Plan identify the groundwater basins in Region 3. Morro Creek is in the Morro Valley Basin (Basin 3-41). Chorro Creek is in the Chorro Valley Basin (Basin 3-42). The beneficial uses assigned to *all groundwater* in Region 3 (except to the Soda Lake Sub-basin) are as follows²⁴:

MUN	Municipal and Domestic Supply
AGR	Agricultural Supply
IND	Industrial Service Supply

In addition to the MUN and AGR objectives, the Basin Plan assigns objectives for salts and nitrogen (*total nitrogen*, not nitrate) to selected groundwater basins in the Central Coast Region; the Chorro Valley Basin is one of these basins. Although at the time of this writing, discharge to percolation ponds in the Chorro Valley Basin was not being considered; the groundwater objectives for the Chorro Valley Basin are included in the list below.

Objectives for MUN (for groundwater)

²⁴ The Basin Plan does not include a table assigning beneficial uses to individual groundwater basins (as it does for many coastal and inland waters). Instead, at the beginning of Chapter 2, the Basin Plan indicates in a narrative that all groundwater in Region 3 is suitable for the MUN, AGR, and IND uses.

- Bacteria (7-day median for coliform bacteria)
- Title 22 Primary and Secondary Maximum Concentration Limits (MCL)

Objectives for AGR

- pH (allowable range)
- Dissolved Oxygen (numeric limit)
- Irrigation Supply (numeric limits for 18 inorganics)
- Livestock Watering (numeric limits for 16 inorganics, including for “Nitrate+Nitrite” and “Nitrite”)²⁵

Objectives for Chorro Valley Basin

- TDS, Cl, SO₄, B, Na, N (numeric limits, medians based on “data averages”)

²⁵ The Livestock Watering limits in Table 3-4 of the Basin Plan for “Nitrate+Nitrite” and for “Nitrite” are 100 mg/L and 10 mg/L, respectively.

Attachment 3: Effluent Water Quality Evaluation

Effluent water quality was compared to water quality objectives for each type of receiving water (surface water, ocean, percolation ponds) to determine which constituents would have effluent limits in each type of discharge permit. An exceedance would mean that an effluent limit would be required. For discharges to Chorro or Morro Creek, effluent limits would be very similar to the water quality objective because there would be no dilution available. However, effluent limits for the Ocean discharge would be much higher than the water quality objectives due to a dilution factor of at least 133:1 being applied.

DISCHARGE TO SURFACE WATER

Both Chorro Creek and Morro Creek are assigned the MUN use, so Title 22 MCLs were included in the suite of objectives for RPA. Concentrations of ten constituents in effluent exceeded the lowest applicable objective. Hardness was assumed to be 150 mg/L.

Comparison of Effluent Data with Water Quality Objectives Pertinent to Discharges to Creek

Constituent	Units	Detected Effluent Maximum	Basin Plan						Title 22	CTR ^[a]			Lowest Objective	Exceeds
			MUN	Irrig Supply	Live-stock	WARM & COLD	SPWN	Chorro Creek	MCL	Acute	Chronic	HH		
<i>Constituents with concentrations likely to change based on the plant design/upgrades:</i>														
Ammonia (as N)	mg/L	ND ^[b]	0.03	-	-	-	-	-	-	-	-	-	0.025	Basin Plan MUN (unionized)
Nitrate + Nitrite (as N)	mg/L	10 ^[b]	-	-	100	-	-	-	10	-	-	-	10	MCL
<i>Constituents with concentrations that may incidentally change due to upgrades:</i>														
Antimony	µg/L	11	-	-	-	-	-	-	6	-	-	14	6	MCL X
Arsenic, Total	µg/L	1.5	50	100	200	-	-	-	10	340	150	-	10	MCL
Beryllium	µg/L	1.2	-	100	-	-	-	-	4	-	-	-	4	MCL
Cadmium, Total	µg/L	0.64	10	10	50	30	3	-	5	7.1	3.4	-	3	SPWN ^[c]
Chromium III, Total	µg/L	1.8	-	100	1,000	-	-	-	50	2,420	289	-	50	MCL
Chromium Total	µg/L	2.6	50	100	1,000	50	-	-	50	2,420	289	-	50	MCL

Constituent	Units	Detected Effluent Maximum	Basin Plan						Title 22	CTR ^[a]			Lowest Objective Exceeds	
			Table 3.4						MCL	Acute	Chronic	HH		
			MUN	Irrig Supply	Live-stock	WARM & COLD	SPWN	Chorro Creek						
Chromium VI, Total	µg/L	2.6	-	100	1,000	-	-	-	10	16	11	-	10	MCL
Copper, Total	µg/L	22	-	200	500	30	-	-	1,300	21	13	1,300	13	CTR Chronic X
Cyanide	µg/L	94	-	-	-	-	-	-	150	22	5.2	700	5.2	CTR Chronic X
Lead, Total	µg/L	1.8	50	5,000	100	30	-	-	15	137	5.3		5.3	CTR Chronic
Mercury	µg/L	0.088	2	-	10	0.2	-	-	2	-	-	0.05	0.05	CTR HH X
Nickel, Total	µg/L	4.3	-	200	-	400	-	-	100	661	74	610	74	CTR Chronic
Selenium, Dissolved	µg/L	2.7	10	20	50	-	-	-	50	-	5.0	-	5	CTR Chronic
Selenium, Total	µg/L	2.7	10	20	50	-	-	-	50	-	-	-	10	MUN
Silver, Total	µg/L	4.6	50	-	-	-	-	-	100	8.2	-	-	8.2	CTR Acute
Zinc, Total	µg/L	71	-	2,000	25,000	200	-	-	5,000	169	169	-	169	CTR Chronic ^[d]
2,3,7,8-TCDD (dioxin)	µg/L	1.8E-07	-	-	-	-	-	-	3E-05	-	-	1.3E-08	1.3E-08	CTR HH X
Bis(2-ethylhexyl) Phthalate	µg/L	8.2	4	-	-	-	-	-	4	-	-	1.8	1.8	CTR HH X
Toluene	µg/L	0.28	-	-	-	-	-	-	150	-	-	6,800	150	Primary MCL
Halomethanes ^[e]	µg/L	0.25	-	-	-	-	-	-	80	-	-	-	80	Primary MCL
Radionuclides – gross alpha	pCi/L	3.79	-	-	-	-	-	-	15	-	-	-	15	Primary MCL

Constituent	Units	Detected Effluent Maximum	Basin Plan						Title 22	CTR ^[a]			Lowest Objective	Exceeds	
			Table 3.4						MCL	Acute	Chronic	HH			
			MUN	Irrig Supply	Live-stock	WARM & COLD	SPWN	Chorro Creek							
Radionuclides – gross beta	pCi/L	19	-	-	-	-	-	-	[f]	-	-	-	[f]	Primary MCL	
pH	SU	7.3-7.9	6.5-8.5						-	-	-	-	6.5-8.5	Basin Plan [g]	
<i>Constituents with concentrations that are not expected to change due to plant upgrades:</i>															
Boron	mg/L	0.4 ^[h]	-	0.75	5	-	-	0.2	-	-	-	-	0.2	Chorro Ck	X
Chloride	mg/L	369 ^[h]	-	-	-	-	-	50	250	-	-	-	50	Chorro Ck	X
Sodium	mg/L	223 ^[h]	-	-	-	-	-	50	-	-	-	-	50	Chorro Ck	X
Sulfate	mg/L	-	-	-	-	-	-	50	250	-	-	-	50	Chorro Ck	
TDS	mg/L	1,077 ^[i]	-	-	-	-	-	500	500	-	-	-	500	Chorro Ck	X

[a] CTR metals criteria for cadmium, chromium III, copper, lead, nickel, silver, and zinc were calculated assuming a creek hardness of 150 mg/L. This is greater than the Basin Plan limit for “soft” water (100 mg/L), therefore “hard” Basin Plan objectives were applied.

[b] Adjusted based on anticipated future effluent quality from new WRF (Tertiary-2.2 for unrestricted reuse per Title 22 Regulations).

[c] Cadmium in effluent would exceed the “soft” Basin Plan objective for SPWN of 0.4 µg/L.

[d] Zinc in effluent would exceed the “soft” Basin Plan objective for WARM & COLD of 4 µg/L.

[e] Halomethanes are defined in the Ocean Plan as the sum of bromoform, methyl bromide (bromomethane), and methyl chloride (chloromethane). However, the MCL of 80 µg/L is for trihalomethanes, defined in Title 22 as the sum of bromoform, chloroform, dibromochloromethane, and dichlorobromomethane.

[f] The Title 22 primary MCL for radionuclides – gross beta is 4 mrem/yr, while the effluent data are in units of pCi/L. The individual emitters must be converted from pCi/L to mrem/yr before this comparison can be made.

[g] pH levels are currently very stable, however this could change under the new treatment system.

[h] Data are from six 24-hour composite samples taken between February 8, 2012 and February 14, 2012 (2012 Recycled Water Feasibility Study, Dudek, Draft March 9, 2012).

[i] Data from daily conductivity/TDS monitoring were provided from July 2012 through July 2013.

DISCHARGE TO OCEAN

As noted above, data are compared to water quality objectives to determine if an effluent limit would be warranted. Effluent limits would actually be much greater than the objectives for this scenario since a dilution factor of 133:1 would be included in the effluent limit calculation.

Comparison of Effluent Data with Water Quality Objectives in the Ocean Plan.

Constituent	Units	Detected Effluent Maximum	Chronic Toxicity Estimate	Human Health 30-Day Average	Marine Life 6-Month Median	Daily Max	Instant. Max	Lowest Objective	RP ^[a]
<i>Constituents with concentrations likely to change based on the plant design/upgrades:</i>									
Ammonia (as N)	mg/L	ND ^[b]	4	-	0.6	2.4	6	0.6	Marine Life 6-Month Med. [c]
Total Coliform	MPN/100mL	2.2 ^[b]	-	-	-	-	10,000	1,000	REC1 30-day 5-sample average [c]
Chronic Toxicity	TUc	10	-	-	-	1	-	1	Daily Max
<i>Constituents with concentrations that may incidentally change due to upgrades:</i>									
Antimony	µg/L	11	-	1,200	-	-	-	1,200	HH 30-Day Average
Arsenic, Total	µg/L	1.5	19	-	8	32	80	8	Marine Life 6-Month Med.
Beryllium	µg/L	1.2	-	0.033	-	-	-	0.033	HH 30-Day Average
Cadmium, Total	µg/L	0.64	8	-	1	4	10	1	Marine Life 6-Month Med.
Chromium III, Total	µg/L	1.8	-	190,000	-	-	-	190,000	HH 30-Day Average
Chromium VI, Total	µg/L	2.6	18	-	2	8	20	2	Marine Life 6-Month Med.
Copper, Total	µg/L	22	5	-	3	12	30	3	Marine Life 6-Month Med. X
Cyanide	µg/L	94	10	-	1	4	10	1	Marine Life 6-Month Med. X
Lead, Total	µg/L	1.8	22	-	2	8	20	2	Marine Life 6-Month Med.
Mercury	µg/L	0.088	0.4	-	0.04	0.16	0.4	0.04	Marine Life 6-Month Med.
Nickel, Total	µg/L	4.3	48	-	5	20	50	5	Marine Life 6-Month Med.
Selenium	µg/L	2.7	-	-	15	60	150	15	Marine Life 6-Month Med.
Silver, Total	µg/L	4.6	3	-	0.7	2.8	7	0.7	Marine Life 6-Month Med.

Constituent	Units	Detected Effluent Maximum	Chronic Toxicity Estimate	Human Health 30-Day Average	Marine Life 6-Month Median	Daily Max	Instant. Max	Lowest Objective	RP ^[a]
Zinc, Total	µg/L	71	51	-	20	80	200	20	Marine Life 6-Month Med.
2,3,7,8-TCDD (dioxin)	µg/L	1.8E-07	-	3.9E-09	-	-	-	3.9E-09	HH 30-Day Average X
Bis(2-ethylhexyl) Phthalate	µg/L	8.2	-	3.5	-	-	-	3.5	HH 30-Day Average
Chloroform	µg/L	0.61	-	130	-	-	-	130	HH 30-Day Average
Non-Chlorinated Phenolics ^[d]	µg/L	3.3	-	-	30	120	300	30	Marine Life 6-Month Med.
Toluene	µg/L	0.28	-	85000	-	-	-	85,000	HH 30-Day Average
Halomethanes ^[e]	µg/L	0.25	-	-	-	-	-	130	REC1 30-day 5-sample average

[a] The reasonable potential analysis was performed following the Ocean Plan method.

[b] Adjusted based on anticipated future effluent quality from new WRF (Tertiary-2.2 for unrestricted reuse per Title 22 Regulations). The current effluent maximum is 900 MPN/100mL with a 7-day median maximum of 50 MPN/100mL. These levels are expected to diminish with the treatment plant upgrades.

[c] The maximum concentrations are insufficient to perform the Ocean Plan RPA. Individual data points are necessary.

[d] Non-chlorinated phenolics include 2,4-Dimethylphenol, 4,6-Dinitro-2-Methylphenol, 2,4-Dinitrophenol, 2-Nitrophenol, 4-Nitrophenol, and Phenol.

[e] Halomethanes are defined in the Ocean Plan as the sum of bromoform, methyl bromide (bromomethane), and methyl chloride (chloromethane).

Basin Plan objectives for ocean water (MAR and SHELL uses) were compared to effluent data with and without the Ocean Plan RPA procedure. The Basin Plan objective for cadmium was lower than that in the Ocean Plan, and exceeded by the effluent maximum concentration, however there was no reasonable potential for cadmium following the Ocean Plan method. It is unclear whether the metal nickel is appropriate to compare with a “nickel salts” objective from the Basin Plan. None of the Basin Plan objectives for MAR and SHELL uses would trigger reasonable potential following the Ocean Plan method.

Comparison of Effluent Data with Basin Plan Objectives for the Ocean

Constituent	Units	Detected Effluent Maximum	Basin Plan MAR use	Basin Plan SHELL use	Notes	RP ^[a]
<i>Constituents with concentrations likely to change based on the plant design/upgrades:</i>						
Total Coliform	MPN/100mL	2.2 ^[b]	-	70	Lower than Ocean Plan	[c]
<i>Constituents with concentrations that may incidentally change due to upgrades:</i>						
Cadmium, Total	µg/L	0.64	0.2	-	Lower than Ocean Plan	
Chromium Total	µg/L	1.8	50	10		
Copper, Total	µg/L	22	10	-		
Lead, Total	µg/L	1.8	10	-		
Mercury	µg/L	0.088	0.1	-		
Nickel salts	µg/L	(4.3 nickel)	2	-		
Zinc, Total	µg/L	71	20	-		

[a] The reasonable potential analysis was performed following the Ocean Plan method.

[b] Adjusted based on anticipated future effluent quality from new WRF (Tertiary-2.2 for unrestricted reuse per Title 22 Regulations).

[c] The maximum concentration is insufficient to perform the Ocean Plan RPA. Individual data points are necessary.

DISCHARGE TO LAND

There were no effluent data to compare to the Basin Plan objectives for Chorro Valley Groundwater Basin (boron, nitrogen, TDS, sulfate, chloride, sodium). However, the maximum sum of ammonia-N and nitrate-N in the effluent dataset of 24 mg N/L (occurring in January 2011) would exceed the Basin Plan objective for nitrogen.

Comparison of Effluent Data for Detected Constituents with Objectives Pertinent to Discharge to Groundwater (via Land)

Constituent	Units	Detected Effluent Maximum	Basin Plan			Title 22	Lowest Objective	Exceeds	
			Chorro Ground	Irrigation Supply	Livestock Watering	MCL			
<i>Constituents with concentrations likely to change based on the plant design/upgrades:</i>									
Nitrogen	mg/L	10 ^[a]	5	-	-	-	5	Basin Plan Chorro Groundwater	X
Nitrate + Nitrite (as N)	mg/L	10 ^[a]	-	-	100	10	10	Primary MCL	
Total Coliform	MPN/100mL	2.2 ^[a]	-	-	-	-	2.2	Basin Plan MUN 7-day median	
<i>Constituents with concentrations that may incidentally change due to upgrades:</i>									
Antimony	µg/L	11	-	-	-	6	6	Primary MCL	X
Arsenic, Total	µg/L	1.5	-	100	200	10	10	Primary MCL	
Beryllium	µg/L	1.2	-	100	-	4	4	Primary MCL	
Cadmium, Total	µg/L	0.64	-	10	50	5	5	Primary MCL	
Chromium III, Total	µg/L	1.8	-	100	1,000	50	50	Primary MCL	
Chromium VI, Total	µg/L	2.6	-	100	1,000	10	10	Primary MCL	
Copper, Total	µg/L	22	-	200	500	1,300	200	Irrigation Supply	
Cyanide	µg/L	94	-	-	-	150	150	Primary MCL	
Lead, Total	µg/L	1.8	-	5,000	100	15	15	Primary MCL	
Mercury	µg/L	0.088	-	-	10	2	2	Primary MCL	
Nickel, Total	µg/L	4.3	-	200	-	100	100	Primary MCL	
Selenium	µg/L	2.7	-	20	50	50	20	Irrigation Supply	
Silver, Total	µg/L	4.6	-	-	-	100	100	Secondary MCL	
Zinc, Total	µg/L	71	-	2,000	25,000	5,000	2,000	Irrigation Supply	

Constituent	Units	Detected Effluent Maximum	Basin Plan			Title 22	Lowest Objective		Exceeds
			Chorro Ground	Irrigation Supply	Livestock Watering	MCL			
2,3,7,8-TCDD (dioxin)	µg/L	1.8E-07	-	-	-	3E-05	3E-05	Primary MCL	
Bis(2-ethylhexyl) Phthalate	µg/L	8.2	-	-	-	4	4	Primary MCL	X
Toluene	µg/L	0.28	-	-	-	150	150	Primary MCL	
Halomethanes ^[b]	µg/L	0.25	-	-	-	80	80	Primary MCL	
<i>Constituents with concentrations that are not expected to change due to plant upgrades:</i>									
Boron	mg/L	0.4 ^[c]	0.2	0.75	5	-	0.2	Basin Plan Chorro Groundwater	X
Chloride	mg/L	369 ^[c]	250	-	-	250	250	Basin Plan Chorro Groundwater	X
Sodium	mg/L	223 ^[c]	50	-	-	-	50	Basin Plan Chorro Groundwater	X
Sulfate	mg/L	-	100	-	-	250	100	Basin Plan Chorro Groundwater	
TDS	mg/L	1,077 ^[d]	1,000	-	-	500	500	Secondary MCL	X

[a] Adjusted based on anticipated future effluent quality from new WRF (Tertiary-2.2 for unrestricted reuse per Title 22 Regulations). The current effluent maximum is 900 MPN/100mL with a 7-day median maximum of 50 MPN/100mL. These levels are expected to diminish with the treatment plant upgrades.

[b] Halomethanes are defined in the Ocean Plan as the sum of bromoform, methyl bromide (bromomethane), and methyl chloride (chloromethane). However, the MCL of 80 µg/L is for trihalomethanes, defined in Title 22 as the sum of bromoform, chloroform, chlorodibromomethane, and dichlorobromomethane.

[c] Data are from six 24-hour composite samples taken between February 8, 2012 and February 14, 2012 (*2012 Recycled Water Feasibility Study*, Dudek, Draft March 9, 2012).

[d] Data from daily conductivity/TDS monitoring were provided from July 2012 through July 2013.

NON-DETECTED CONSTITUENTS IN EFFLUENT

Constituents for which all Sample Results were Non Detects

Thallium	Bis(2-chloroethyl)Ether	gamma-BHC (Lindane)
1,1,1-Trichloroethane (1,1,1-TCA)	Bis(2-chloroisopropyl)Ether	Heptachlor
1,1,2,2-Tetrachloroethane	Carbon tetrachloride	Heptachlor epoxide
1,1,2-Trichloroethane (1,1,2-TCA)	Chlordanes (total) ^[a]	Hexachlorobenzene
1,1-Dichloroethylene (1,1-DCE)	Chlorinated Phenolics ^[b]	Hexachlorobutadiene
1,2-Dichloroethane (1,2-DCA)	Chlorobenzene	Hexachlorocyclopentadiene
1,2-Diphenylhydrazine	Chlorodibromomethane	Hexachloroethane
1,3-Dichloropropene	DDTs (total) ^[c]	Isophorone
1,4-Dichlorobenzene (p-DCB)	Dichlorobenzenes ^[d]	Methylene Chloride
2,4,6-Trichlorophenol	Dichlorobromomethane	Nitrobenzene
2,4-Dinitrophenol	Dieldrin	N-Nitrosodimethylamine (NDMA)
2,4-Dinitrotoluene	Diethyl Phthalate	N-Nitrosodi-n-Propylamine
2-Methyl-4,6-Dinitrophenol	Dimethyl Phthalate	N-Nitrosodiphenylamine
3,3-Dichlorobenzidine	Di-n-Butyl Phthalate	PAHs (total) ^[e]
Acrolein	Endosulfan I	PCBs (total) ^[f]
Acrylonitrile	Endosulfan II	Tetrachloroethylene (PCE)
Aldrin	Endosulfan Sulfate	Toxaphene
Benzene	Endrin	Tributyltin
Benzidine	Ethylbenzene	Trichloroethylene (TCE)
Bis(2-Chloroethoxy)Methane	Fluoranthene	Vinyl Chloride

[a] Total chlordanes include a-chlordane, a-chlordene, cis-nonachlor, gamma-chlordane, gamma-chlordene, oxychlordane, and trans-nonachlor.

[b] Chlorinated phenolics include 2-chlorophenol, 2,4-dichlorophenol, 4-chloro-3-methylphenol, pentachlorophenol, and 2,4,6-trichlorophenol.

[c] DDTs includes 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.

[d] Dichlorobenzenes includes 1,2-Dichlorobenzene and 1,3-Dichlorobenzene.

[e] PAHs includes Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(a)Pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluorene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene.

[f] Total PCBs include aroclors 2016, 1221, 1232, 1242, 1248, 1254, and 1260.

OBJECTIVES FOR WHICH EFFLUENT DATA WERE NOT AVAILABLE

It should be noted that not all of these constituents are required for compliance determination, and many are not commonly monitored by dischargers.

Constituents with Applicable Criteria/Objectives and No Effluent Sample Data in Semi-Annual Reports

Constituent	Drinking Water		Basin Plan				CTR	Proposed CTR	Ocean Plan
	Title 22	PHG	MUN	AGR Irrigation/ Livestock	WARM & COLD/ SPWN	Chorro Crk			
Bacterial^[a]									
Enterococcus							X		X
Inorganics									
Asbestos	X	X						X (MUN)	
Aluminum	X	X	X	X					
Barium	X	X	X						
Cobalt				X					
Fluoride	X	X		X					
Iron, dissolved	X			X					
Iron, total				X					
Lithium				X					
Manganese, dissolved	X			X					
Manganese, total				X					
Molybdenum				X					
Vanadium				X					
Arsenic, Dissolved	X	X	X	X				X ^[b]	X
Cadmium, Dissolved	X	X	X	X	X			X ^[b]	X
Chromium III, Dissolved	X			X				X (fresh) _[b]	X
Chromium VI, Dissolved	X	X		X				X ^[b]	X
Copper, Dissolved	X	X		X	X			X ^[b]	X

Constituent	Drinking Water		Basin Plan					CTR	Proposed CTR	Ocean Plan
	Title 22	PHG	MUN	AGR Irrigation/ Livestock	WARM & COLD/ SPWN	Chorro Crk	SHELL			
Lead, Dissolved	X		X	X	X			X ^[b]		X
Nickel, Dissolved	X			X	X			X ^[b]		X
Silver, Dissolved			X					X ^[b]		X
Zinc, Dissolved				X	X			X ^[b]		X
Nitrogen										
Nitrate (as NO3) ^[c]	X		X							
Nitrite (as N)	X			X						
Nitrogen							X (ground)			
Organics										
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	X	X	X							
1,1-Dichloroethane (1,1-DCA)	X	X	X							
1,2,3-Trichloropropane	X	X								
1,2,4,5-Tetrachlorobenzene									X	
1,2,4-Trichlorobenzene	X	X							X	
1,2-Dibromo-3-chloropropane (DBCP)	X	X	X							
1,2-Dichloropropane	X	X	X					X	X	
1,2-Trans-Dichloroethylene	X							X	X	
2,4,5-TP (Silvex)	X	X	X						X	
2,4,5-Trichlorophenol									X	
2,4-Dichlorophenoxyacetic acid (2,4-D)	X	X	X						X	
2,4-Dimethylphenol ^[d]								X	X	
2-Chloronaphthalene								X	X	

Constituent	Drinking Water		Basin Plan				CTR	Proposed CTR	Ocean Plan
	Title 22	PHG	MUN	AGR Irrigation/ Livestock	WARM & COLD/ SPWN	Chorro Crk			
Benzo(b)Fluoranthene								X	X
Alachlor	X	X							
alpha-BHC								X	X
Atrazine	X	X	X						
Bentazon	X	X	X						
beta-BHC								X	X
Bis(2-chloromethyl)Ether									X
Bromoform								X	X
Butylbenzyl Phthalate								X	X
Carbofuran	X	X	X						
cis-1,2-Dichloroethylene	X	X	X						
Dalapon	X	X							
Di(2-ethylhexyl)adipate	X	X							
Diazinon									
Dinoseb	X	X							
Diquat	X	X							
Endosulfan Sulfate								X	X
Endothal	X	X							
Endrin Aldehyde								X	X
Ethylene dibromide (EDB)	X	X	X						
Glyphosate	X	X	X						
MBAS	X		X						
Methoxychlor	X		X						X
Methyl Bromide								X	X

Constituent	Drinking Water		Basin Plan				CTR	Proposed CTR	Ocean Plan
	Title 22	PHG	MUN	AGR Irrigation/ Livestock	WARM & COLD/ SPWN	Chorro Crk			
Methyl tertiary butyl ether (MTBE)	X								
Molinate	X		X						
Monochlorobenzene	X		X						
Oxamyl	X								
Phenol ^[d]			X				X	X	
Picloram	X								
Simazine	X		X						
Styrene	X								
Thiobencarb	X		X						
trans-1,2-Dichloroethylene	X		X						
Trichlorofluoromethane (Freon 11)	X		X						
Xylenes	X		X						
Radionuclides									
Radium-226 + Radium-228	X								
Strontium-90	X								
Tritium	X								
Uranium	X								
Ions									
Bromate	X	X							
Chlorite	X	X							
Perchlorate									
Sulfate	X						X		
Others									
Haloacetic Acids (five) (HAA5)	X								

Constituent	Drinking Water		Basin Plan				CTR	Proposed CTR	Ocean Plan
	Title 22	PHG	MUN	AGR Irrigation/ Livestock	WARM & COLD/ SPWN	Chorro Crk			
Dissolved Oxygen			X						

[a] Effluent data for total coliform were collected 5 days per week, however the data were not included in the semi-annual reports used for this analysis. All total coliform was assumed to be fecal.

[b] CTR criteria is promulgated for total metals, however the dissolved metals objectives are also available.

[c] The nitrate-N sampling data suffices for nitrate compliance.

[d] Non-chlorinated phenolics monitoring was performed to comply with Ocean Plan objectives, however the CTR contains criteria for the individual constituents.



AGENDA NO: C-3

MEETING DATE: October 8, 2014

Staff Report

DATE: October 3, 2014

TO: Water Reclamation Facility Citizens Advisory Committee

FROM: Rob Livick, PE/PLS - Public Services Director/City Engineer

SUBJECT: Review of the Report Regarding Initial Findings on Grants and Strategy for the Future City of Morro Bay Water Reclamation Facility by Kestrel Consulting

RECOMMENDATION

Staff recommends the Water Reclamation Facility Citizens Advisory Committee (WRFCAC) review the report and provide any comments that will be transmitted to City Council and addressed in the final report at the November 12, 2014 City Council meeting.

BACKGROUND/DISCUSSION

The attached information from Kestrel Consulting on Grants and Funding Strategy is a series of reports the City Council will use in making the final decision on where the City should build its wastewater reclamation facility. We heard a presentation on permitting implications by Walker and Associates at the last meeting; other reports still to be heard include a detailed assessment of the California Men's Colony Wastewater Treatment Facility, and impacts/benefits to groundwater basins. These reports will culminate in a final decision currently scheduled for the November 12, 2014 City Council meeting.

The goal of the City is to build the most cost effective Water Reclamation Facility (WRF) that is reclamation ready and which will ultimately produce tertiary, disinfected wastewater. In order to be the most cost effective for the rate payer, the City needs to maximize the use of outside funding sources for the project. These funding sources include low interest loans and grant opportunities. The attached report lays out the types of programs that can be used to fund the WRF as well as the likelihood of success with each of the programs.

ATTACHMENTS

Report from Kestrel Consulting dated September 15, 2014

Prepared by: RL Dept. Review: RL

City Manager Review: _____

City Attorney's Review: _____



September 15, 2014

Project: Morro Bay Water Reclamation Facility Funding Strategy

City of Morro Bay
595 Harbor Street
Morro Bay, CA 93442

Attention: Mr. Robert Livick
Public Services Director

Subject: Initial Findings on Grants and Strategy

Dear Mr. Livick:

As requested, Kestrel Consulting, Inc. conducted a review of grants and loans that may be available for planning and construction of a Water Reclamation Facility (Project) at one of two locations within San Luis Obispo County in the next 1-2 years. The goals of the Project are as follows¹:

- Produce tertiary, disinfected wastewater in accordance with Title 22 requirements for unrestricted urban irrigation
- Distribute reclaimed wastewater for public and private landscape areas, agriculture, or groundwater recharge.
- Allow for onsite composting
- Design for energy recovery
- Design to treat contaminants of emerging concern in the future
- Design to allow for other possible municipal functions

Conceptual planning for the Project is underway and will continue into 2015. Construction could occur as soon as 2016, and the City is considering alternative project delivery options, such as design-build. To inform this effort, Kestrel was charged with addressing the following questions:

- What is the maximum amount of grants to be reasonably expected?
- What grants and loans are available now for the Project?
- Are there unique funding opportunities associated with either of the two sites?
- Does alternative project delivery pose any significant constraints on availability of grants or loans?
- What is a recommended approach to grants and strategy for Morro Bay?

Qualifications

Kestrel Consulting Inc., has assisted local governments in California with grants and loans for water, energy and environmental projects since 2000. We provide strategic planning and consultation around grants and loans, and expert assistance with funding proposals. We have secured over \$43 million in state and federal grants for our clients who are primarily located in

¹ An excerpt from the Options Report (1/10/14)

coastal counties. We have also assisted clients with loans from the Clean Water State Revolving Fund and Safe Drinking Water State Revolving Fund. Our experience is focused on funding for water infrastructure, along with environmental efforts, including watershed restoration and climate change adaptation.

- **What is the maximum amount of grants to be reasonably expected?**

The short answer is not more than 25% of the total project cost, and 10% is probably more realistic.

Almost all state and federal grants require a matching contribution. The required match may be as little as 10% of the project cost, but more commonly, a required match is 50-75% of the total project cost. Note this is not a percentage of the grant amount, but rather the total project. So for example, if you had a \$50 million project and a 75% required match, the maximum grant would be \$12.5 million. However, in order for a grant proposal to be competitive, it is almost always necessary to exceed the minimum match requirement. Retroactive costs, such as planning or site acquisition, often cannot count toward the match, which is usually restricted to expenditures made during the period of the grant agreement.

- **What grants and loans are available now for the Project?**

Grants

Kestrel has done a complete assessment of state and federal grant programs that could potentially contribute to planning and/or construction of the Project, and there are very few grants available. The City of Morro Bay has the good fortune to:

- Not be economically disadvantaged
- Have low unemployment
- Be too large for “rural” eligibility
- Not be in Metropolitan Water District’s service area

These are all factors in being eligible for certain grants. Therefore, only the following grant programs are viable options for the Project.

FEDERAL GRANT PROGRAMS

US Bureau of Reclamation Title 16 Grant Program

The Title 16 grant program is the only federal grant of any significance that might be available for the City of Morro Bay. There are three prerequisites for the Title 16 construction grant: 1) the Project must be authorized by Congress for up to a specific dollar amount, 2) a feasibility study that meets specific requirements must be completed and approved by the Bureau, and 3) Congress must appropriate funds for the construction Project. This is a minimum three-year process.

The bad news is that many agencies are already in line for construction funding, *and* Congress has not authorized any new funding for construction projects since the Recovery Act of 2009. If Morro Bay were to be successful in steps 1, 2 and 3, then this grant program could potentially fund up to 25% of the project cost, up to \$20 million. The Title 16 federal grants require a minimum 75% match.

The Bureau must approve the feasibility study before a construction grant can be received. Having an approved feasibility study can also facilitate the appropriation by Congress.

Most years, the Bureau of Reclamation offers the WaterSMART: Title 16 Feasibility Study competitive grant program, which may contribute up to 50% of the cost of a feasibility study. These grants are capped at \$150,000 and require a 50% local match. Again, the bad news is that competition for these grants is tough. In the last round (2013) there were thirty applications and only 8 were funded (26%) in the 17 state western region.

Other WaterSMART Grants

The Bureau of Reclamation offers other types of WaterSMART grants most years. The majority of these grants are less than \$300,000 and they support whatever objective the Bureau is focusing on that year in the 17 western states. For example, in 2013 the focus was energy efficiency and sustainability in wastewater treatment. The Bureau awards a handful of larger WaterSMART grants each year – up to \$1,500,000 – however, Morro Bay is not likely to be competitive for these based on the size of the population, demographics and location.

As Project plans solidify, the City could potentially apply for a WaterSMART grant of up to \$300,000 for features of the Project that align with the Bureau's objectives and schedule for that particular year.

There are no other significant federal grants for construction available to Morro Bay.

STATE GRANT PROGRAMS

Most of California's major grant programs for water infrastructure originate from the sale of statewide water bonds, which have been approved by voters. Examples of these include the parks and water bonds, Propositions 40, 50, & 84. Funding from Propositions 40 and 50 has been completely exhausted, and Proposition 84 is 96% spent. A new statewide water bond, Proposition 1, will be on the ballot this November. The measure, upon voter approval, would enact the **Water Quality, Supply, and Infrastructure Improvement Act of 2014**. The \$7.15 billion bond will include funding for several grant programs that could provide some funds toward Project construction:

- \$810 million for expenditures on, and competitive grants and loans to integrated regional water management plan projects, and
- \$725 million for water recycling and advanced water treatment technology projects.
- \$2.7 billion for water storage projects - including underground storage, dams, reservoirs.

If the bond passes, then this funding would flow into two existing grant programs: the Department of Water Resources' (DWR) Integrated Regional Water Management Grant Program and the State Water Board's Water Recycling Facilities Grant Program. A new grant program would be established for the water storage funds. Grant guidelines would be revised or developed through a public process prescribed in the legislation. This would occur in early 2015, however, we might assume that the guidelines for the first two programs are likely to at least resemble their most recent iterations. In that case, it is realistic to expect that either one of these programs could potentially contribute \$1-3 million toward construction of a water reclamation facility or storage component. If voters approve the bond in November, the soonest competitive grant programs might open would be late 2015, with awards made in the first half of 2016. That is the earliest these new funds would be available.

The new water bond notwithstanding, the *only* state grant program that currently supports construction of water recycling facilities, and that *may* have construction funding available for the City of Morro Bay is the (Prop 84) Integrated Regional Water Management Grant Program. The Central Coast Region may still have up to \$6 million available in 2015 in this program, however, DWR is currently evaluating whether to award these funds to current applicants that requested drought emergency funding. It is also unclear that the Project will be at a sufficient state of readiness to be truly competitive.

Other state grants might support innovative stormwater features or public access or recreation features that might be included in a facility master plan. But these grants would likely be in the hundreds of thousands of dollars, and really depend on the design, timing and benefits of what is proposed.

California's electric utilities are required to increase the amount of renewable energy in their portfolios, including biogas from wastewater treatment. Waste-to-energy components of the Project may be eligible for Pacific Gas and Electric's Self-Generation Incentive Program, which provides a rebate per watt produced. The amount varies on the amount of energy produced and the location of the facility. The rebate program is authorized and funded through the end of 2015.

LOANS

The Clean Water State Revolving Fund (CWSRF) loan program originates from federal funds that come to the State Water Board from the USEPA. The state administers the loan program and also contributes funds. Wastewater treatment projects are financed through CWSRF at the regular rate, which is determined at the time of the loan. The rate is typically $\frac{1}{2}$ of the General Obligation bond rate. Throughout 2013 and 2014, the interest rate has been approximately 2%. The program will loan up to \$50 million per project. Communities that meet the "economically disadvantaged" criteria may be eligible for a portion of the loan principal to be "forgiven". The City of Morro Bay does not meet these criteria.

Because of California's drought, recycled water projects are currently eligible for a reduced interest rate on CWSRF loans. The interest rate is approximately 1% annually, and is available for applications submitted through December 2015. It is possible to use the CWSRF loans for both planning and construction. The application process is extensive, and completed environmental documents are required for construction loans, but applications are accepted year-round. CWSRF may also be used for loan guarantees.

The California Infrastructure and Economic Development Bank (IBank) has broad authority to issue tax-exempt and taxable revenue bonds, provide financing to public agencies, provide credit enhancements, acquire or lease facilities, and leverage State and Federal funds. The IBank's current relevant programs include the Infrastructure State Revolving Fund (ISRF) Program, Exempt Facility Revenue Bond Program, Governmental Bond Program. Infrastructure loans are available in amounts ranging from \$50,000 to \$25,000,000, with loan terms of up to 30 years. Interest rates are set on a monthly basis and currently range from 2-5%. Financing applications are continuously accepted.

- **Are there unique funding opportunities associated with either of the two sites?**

The short answer is “not likely” but it’s too soon to tell. Much depends on the final design of the Project and if the Proposition 1 water bond is approved by voters.

The two sites now in consideration are: Site B - Morro Valley Rancho Coalina and Site D - California Men’s Colony. The merits and opportunities associated with each site have been explored in the Final Options Report, and continue to be evaluated.

Generally speaking, a water reclamation facility at Site B could have a higher potential for uses of recycled water including groundwater recharge (storage). Proposition 1 includes a new competitive grant program for water storage projects. If the bond is approved, then this grant program is likely to have a preference for projects that reduce dependence on imported water. An example would be if the City of Morro Bay proposed to inject and store highly-treated recycled water in the aquifer and pump it out at a later date in-lieu of State Water Project water. With such a project and a competitive grant proposal, it is reasonable to think that the state could contribute up to 25% of the cost of construction.

A facility located at Site D might have different and potentially fewer uses for recycled water, but greater potential for cost-sharing among regional partners, as well as expanded waste to energy systems. Until this Project is defined more clearly, it is difficult to assess grants that might be site-specific.

- **Does alternative project delivery pose any significant constraints on availability of grants or loans?**

The short answer is “no.”

Most state and federal grant programs for water infrastructure do not allow private companies to receive grants directly. If suitable grants were identified, then the City would be the applicant. If funds were awarded, then the City would apply the grant toward the design-build contract costs.

The following types of organizations are eligible for CWSRF Loans: cities, counties, districts, joint powers authorities, state agencies, non-profits, and private entities indirectly. If a new organization/authority is established for the purpose of supporting a regional facility, then as long as it is one of these types of organizations, it would be eligible.

According to the State Water Board’s Policy for Implementing the CWSRF (May 2013), and confirmed by SWRCB staff, there are no limitations regarding alternative project delivery methods. The CWSRF may fund projects using the Design-Build process. In general the State Water Board looks at eligibility as “what is built”, not “how it’s built”.

I-Bank Loans are available to municipalities as well as some private businesses.

What is a recommended approach to grants and strategy for Morro Bay?

- If the project schedule allows, initiate the process for Title 16 funding by meeting with your local Representative. Meet with Bureau of Reclamation officials to discuss the project relative to their objectives. Complete a Title 16 Feasibility Study. Even if the Title 16 funds are not initially available, this program may be useful for future phases of the Project.



- Many City Councils have passed resolutions of support for Proposition 1, the Water Quality, Supply, and Infrastructure Improvement Act of 2014, to underscore the importance of this funding to local projects.
- If the Water Bond passes, it will be very important for the City to participate in development of guidelines for the key grant programs to ensure that the Project would be eligible. These meetings would occur in Sacramento in early 2015.
- Engage in the San Luis Obispo regional water management group that serves as the vehicle for Integrated Regional Water Management grants.
- Be aware of greenhouse gas emissions and energy impacts associated with different alternatives, as this is something that is evaluated and scored in almost all state funding.
- If the City would rather use a CWSRF loan than issue municipal bonds, initiate the loan application at least 9 months before funding is needed.
- Kestrel Consulting can assist with any of these steps, either in advisory capacity or more directly.

If you have any questions or need other information, please do not hesitate to call. I am looking forward to presenting this information to the City Council on October 14.

Sincerely,

KESTREL CONSULTING, INC.

Monica Reid

Principal Consultant



Things to Know About Grants for Public Works Projects

Monica Reid, Principal Consultant

Kestrel Consulting, Inc.

9/15/14

Overview of Grant Programs

Grants are generally made available by federal or state agencies for the express purpose of changing the “status quo”, “standard operating procedure”, or current behavior on a specific issue. Often grants are used to advance certain state or federal objectives, such as improving energy efficiency, reducing pollution or creating jobs. For example, grants may be offered for the purposes of removing an unsustainable imported water supply and replacing it with a more sustainable local or regional water supply. A few grant programs are more like “entitlements”, where funding is awarded to a city or a region based on a formula that might be tied to population or demographics. Most grants, however, are won through competition. Grant proposals are scored according to certain criteria. The proposals with the highest scores win.

Some state grant programs operate with a specific funding source, such as the Environmental License Plate Fund. In this case, additional fees for car registrations are collected and deposited into a special fund which is then distributed through grants to local agencies for environmental projects. However, most state grants originate from the sale of statewide bonds, which have been approved by voters. Examples of these include the parks and water bonds, Propositions 40, 50, & 84. Funding from Prop 40 & 50 has been exhausted, Prop 84 is almost gone, and the next statewide water bond, Proposition 1 will require general voter approval in November 2014.

Grant Application Process

The process of applying for and securing a grant can take a significant amount of time. Preparing a competitive grant application can take 2-6 months depending on the complexity of the project and the information required by the grant program. Reviewing, scoring, and ranking grant proposals can take between 3-8 months, with another 1-2 months needed before final decisions are made. Another 2-4 months are needed to negotiate a final grant agreement or contract, at which time the applicant can begin work on the project. Therefore, it's not unusual for the grant application process to take between 12-18 months from start to finish.

In addition, grant programs are very competitive and the odds of success are generally low. For example California state agencies frequently receive 2-4 times as many grant applications as they have available funding. Sometimes it is necessary to apply more than once. For example, if a proposal receives a high score, but not high enough to be awarded a grant, the proposal might be revised and submitted the next year. Last, many grant programs have limits on who may apply. For example, the Integrated Regional Water Management Grant Program funded by Prop 84, and potentially by Prop 1, does not allow individual cities to apply on their own, but rather they must work through a regional consortium that submits a slate of projects for consideration from that region.

Grants are not for “Business as usual”

Most grant programs aim to provide incentives to encourage cities to advance a specific objective and promote a different way of “doing business”. These programs reward projects that will demonstrate new, innovative approaches, or a new technology, or some other advancement in the field of interest. Since grants are also very competitive, an average “run of the mill” project is usually overlooked for funding. One of the best strategies for securing grants is to address a significant problem that is faced by many organizations, or to develop an innovative component to a project, or both.

Grant Costs & Management

The cost to prepare a competitive grant proposal can range from \$10,000 to \$200,000 or more, depending upon the complexities and requirements of the grant program. The applicant must also provide a financial match, which can be 20%-75% or more of the total project cost. Administration and management of a grant can be very time consuming. Most overhead charges and administrative costs are not usually eligible for reimbursement. These costs must be covered by the applicant and can amount to 10%-20% of the total project cost.

The applicant must also possess adequate cash reserves to be able to “float” project costs until the funding agency provides reimbursement. Reimbursements can take from 1-4 months to be received and only cover up to 90% of the invoiced amount. The final 10% is paid, once the project has been completed and all lingering issues, such as contractor disputes or labor compliance issues are resolved to the funding agency’s satisfaction. In some cases, this may take up to two years. Some smaller local agencies have found this cash-flow issue to be a significant limitation that affects their ability to apply for certain grants.

Finally, some grants may have on-going monitoring and reporting requirements that can extend for years after the project is completed and all grant funds have been expended. The applicant is expected to cover these costs and provide this information on an annual basis.

Kestrel Consulting Recommends This Approach

Taking into consideration all the issues and costs associated with grants, we recommend that the Public Services Department should use a systematic and strategic approach to decide when it’s appropriate to apply for a grant. First, assess what is needed by identifying a list of future projects and resource limitations. Next rely on staff and specialized consultants to stay informed on funding opportunities. When a funding opportunity appears to match up with an identified project or group of projects, an analysis should be performed at many levels to evaluate the likelihood of success and the costs and benefits of preparing an application. If the department decides to apply, the grant proposal may be developed by consultants, staff or more likely, a combination of both. If a grant is awarded to the department they may decide to manage it “in-house” or hire a contractor to manage it, depending upon the resource limitations of the department at that time. In conclusion, we recommend a strategic, thoughtful, systematic approach to identify needs, evaluate grant opportunities, and clearly weigh the likelihood of success before applying for grants.

CFDA Number	Title	Agency/Office	Assistance Type	Median Award	Notes from Kestrel Consulting	
1	10.054	Emergency Conservation Program	USDA/Farm Serv Agcy	C		n/a - funding and assistance to farmers to repair damaged farmland or install water conservation.
2	10.675	Nat'l Urban&Community Forestry Challenge	USDA/FS		\$180,000	n/a - focus on urban forests
3	10.693	Watershed Restoration&Enhancement Agree	USDA/Forest Service	B		n/a protect habitat and achieve USFS goals & obj
4	10.76	Water&Waste Disposal Systems for Rural Com	USDA/RUS	B,E,F	#VALUE!	Not eligible. population> 10,000
5	10.763	Emergency Community Assistance Grants	USDA/RUS	B		n/a - Drinking water program. Population >10,000
6	10.77	Water&Waste Disposal Loans&Grants	USDA/Rural Utilities Ser	B,E		Not eligible. population>10,000
7	10.901	Resource Conservation & Development	USDA/NRCS	K		n/a
8	10.902	Soil and Water Conservation	USDA/NRCS	K		n/a
9	10.923	Emergency Watershed Protection	USDA/NRCS	B	\$800,000	n/a
10	10.925	Agricultural Water Enhancement Program	USDA/NRCS	C		n/a - small grants to farmers
11	10.93	Regional Conservation Partnership Program	USDA/NRCS	B		n/a "on-farm improvements"
12	11.3	Public Works Development Facilities Program	DOC/EDA		N/A	not eligible due to low unemployment,high income
13	11.302	Planning Program&Local Tech Assist Program	DOC/EDA	B	\$83,000	does not align with EDA's current investment priorities
14	11.419	Coastal Zone Mgt Admin Awards	DOC/NOAA	A,B		only States may apply, supports Coastal Programs
15	11.42	Coastal Zone Mgt Estuarine Research Reserves	DOC/NOAA	B		not applicable for WWTP
16	11.469	Congressionally identified awards&projects	DOC/NOAA	B	N/A	n/a for water reclamation facility
17	12.101	Beach Erosion Control Projects	DOD/ACOE	K		n/a - not related to erosion
18	12.108	Snag&Clear for Flood Control (CAPsec208)	ACOE		50,000	n/a - not related to flood control
19	12.109	Protection Clearing Straightening Channels	ACOE			n/a - not related to this
20	12.13	Estuary Habitat Restoration Program	DOD/Army	B	N/A	n/a- restoration-centric
21	14.218	Community Dev Block Grants/Entitlement Gran	HUD	A	\$2.96 million	not likely due to income levels
22	14.703	Sustainable Communities Regional Planning	HUD/Office of Sustain	B		n/a - planning grants focused on multi-benefit

Assistance Type:

A: Formula Grants

B: Project Grants

C: Direct Payments for a Specified Use

D:

E: Direct Loans

F: Guaranteed Insured/Loans

G:

H:

I : Use of Property, Facilities

J:

K: Advisory Services and Counseling

	CFDA Number	Title	Agency/Office	Assistance Type	Median Award	Notes from Kestrel Consulting
23	15.504	Title XVI Water Reclamation & Reuse	DOI/BuRec	A		Yes- see memo
24	15.506	Water Desalination R&D Program	DOI/BuRec	B	N/A	n/a - unless a new technology is piloted
25	15.511	Cultural Resources Mgt	DOI/BLM	B	N/A	n/a - not a cultural resources project
26	15.53	Water Conservation Field Services Program	DOI/BuRec	B		n/a - not "water conservation"
27	15.548	Reclamation Rural Water Supply Program	DOI/BuRec	B		Focused on rural drinking water supply.
28	15.554	Cooperative Watershed Mgt Program	Bureau of Reclamation	B	\$81,609	n/a - watershed groups
29	15.554	WaterSMART	DOI/BuRec	B	\$100,000	n/a for construction, possible for later add-ons
30	15.608	Fish & Wildlife Mgt Assistance	DOI/FWS	B		n/a
31	15.614	Coastal Wetlands Planning, Protec, Restoration	DOI/FWS	B		n/a
32	15.623	North American Wetlands Conservation Act	DOI/FWS		N/A	n/a
33	15.63	Coastal Program	DOI/FWS	B	\$13,000	small grants, TE Species focus, n/a
34	15.631	Partners for Fish & Wildlife Program	DOI/FWS	B	\$25,000	small grants n/a
35	15.655	Migratory Bird Monitoring, Assessment&Consrv	DOI/FWS	B		n/a
36	15.657	Endangered Species Conservation	DOI/FWS	B	N/A	n/a
37	15.669	Cooperative Landscape Conservation	DOI/FWS	B		planning for landscape-scale conservation
38	66.041	Climate Showcase Communities Grant Program	EPA/OAR	B	\$12,600	focus on GHG Reduction programs
39	66.202	Congressionally Mandated Projects	EPA/Office of CFO	B		"earmarks" - even these move through existing programs
40	66.418	Construction Grants for Wastewater Treatment	EPA/OW	B		defunct program, now CWSRF
41	66.424	Surveys, Studies, Investigations, Demos...	EPA/Office of Water	B		env justice, drinking water focus
42	66.436	Surveys, Studies, Investigations, Demos...	EPA/Office of Water	B		env. Justice focus, surveys
43	66.439	Targeted Watershed Grants	EPA/Office of Water	B		watershed focused, smaller grants
44	66.44	Urban Waters Small Grants	EPA/Office of Water	B	\$50,000	small grants for research
45	66.456	National Estuary Program	EPA/Office of Water	B		habitat focused

Assistance Type:

A: Formula Grants

B: Project Grants

C: Direct Payments for a Specified Use

D:

E: Direct Loans

F: Guaranteed Insured/Loans

G:

H:

I : Use of Property, Facilities

J:

K: Advisory Services and Counseling

CFDA Number	Title	Agency/Office	Assistance Type	Median Award	Notes from Kestrel Consulting
46	66.458	Clean Water State Revolving Fund	EPA/Office of Water		Yes, through SWRCB, see memo
47	66.46	Nonpoint Source Implementation Grants	EPA/Office of Water	A	\$2.8 million not eligible
48	66.461	Regional Wetland Program Development Grant	EPA/Office of Water	B	n/a
49	66.462	Five-Star Restoration Program	EPA/Office of Water	B	\$25,000 n/a - small grants for restoration
50	66.472	Beaches Environ Assessment&Coastal Act	EPA/Office of Water	B	\$250,000 n/a, Grants for Monitoring Beaches
51	66.51	Surveys, Studies, Investigations and Spec Purp	EPA/ORD	B	n/a studies
52	66.611	Environmental Policy and Innovation Grants	EPA/Office of Adminis	B	small grants for env. Economics studies, no \$\$ in FY15
53	66.717	Source Reduction Assistance Grant Program	EPA		\$50,000 small grants, n/a
54	66.814	Brownfields Training, Research& Tech	EPA/OSWER	B	n/a for WRF
55	66.818	Brownfields Assessment & Cleanup	EPA/OSWER	B	possible if a Brownfield is the chosen site
56	97.039	Hazard Mitigation Grant Program	FEMA		N/A n/a
57	97.047	Pre-Disaster Mitigation Program	FEMA		N/A n/a
58		Aquatic Ecosystem Restoration (CAP sec 206)	ACOE		\$199,592 n/a
59		Beneficial Uses of Dredged Mat (CAPsec204)	ACOE		\$130,241 n/a
60		Community Based Marine Debris Preven&Rem	NOAA/MDP		\$75,000 n/a
61		Environmental Solutions for Communities	Nat'l Fish&Wildlife Foun		\$40,000 n/a
62		Land & Water Conservation Fund	DOI/NPS		\$85,000 n/a
63		Project Mods for Improvement of the Environ	ACOE		\$145,465 Only applies to ACOE structures
64		Small Flood Damage Reduc Prog (CAPsec205)	ACOE		\$191,023 n/a
65		Wetlands Program Development Grants	EPA/Office of Water		\$220,000 n/a
		<u>KESTREL ALSO RESEARCHED</u>			
		All State Water Board Grant Programs			
		All Dept. of Water Resources Grant Programs			
		All Resources Agency Programs			
		All California Energy Commission programs			
		All Cap and Trade Auction Revenue programs			
		All federal grant programs for water treatment/recycling			

Assistance Type:

- A: Formula Grants
- B: Project Grants
- C: Direct Payments for a Specified Use
- D:
- E: Direct Loans
- F: Guaranteed Insured/Loans
- G:
- H:
- I : Use of Property, Facilities
- J:
- K: Advisory Services and Counseling