APPENDIX A: BASIN PLAN AMENDMENT PROCESS

	STEP	TOOLS/GUIDE	TIMEFRAME
1	Begin preparing Administrative Record Establish: ▪ Administrative Record (admin record) ▪ Chronological file ▪ Supporting documentation references ▪ Supporting data, organized ▪ Information considered and not relied upon ▪ California Environmental Quality Act (CEQA) references ▪ Natural Environment Study/Biological Assessment (NES/BA) references *Tip: Begin organizing all information related to the TMDL early so that compiling the "final" admin record will be easier.* *Tip: Have an "in-house" example for staff to review.*	Administrative Procedures Manual (APM), beginning on page 19. Also, see website at: http://10.0.21.9/BasinPlanning/Training/BasinPlanningTraining.asp	On-going
2	Determine if project will require a Basin Plan Amendment.	Regulatory Options flowchart- Impaired Waters Guidance	
3	Determine if your project meets the definition of project under CEQA.	CEQA PRC 15378 see website at: http://ceres.ca.gov/topic/env_law/ceqa/guidelines/art20.html	Beginning of development – 2 months
4	CEQA Scoping for project which meet the CEQA definition of "project" *Note: Projects of statewide, regional, or area-wide significance are required to have CEQA Scoping. See website link for more information.* *Tip: Scoping meetings are to assist us in determining the scope and content of the environmental document. Scoping is helpful in identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in the environmental document and in eliminating issues found not to be important from detailed study.* Distribute CEQA Scoping Notice supervisor reviewed "package" for CEQA Scoping Meeting by doing the following: ▪ Mail CEQA Scoping Meeting Notice to: (1) Any county or city that borders on a county or city within which the project is located, unless otherwise designated annually by agreement between the lead agency and the county or city. (2) Any responsible agency. (3) Any public agency that has jurisdiction by law with respect to the project. (4) Any organization or individual who has filed a written request for the notice. (c) For any entity, organization, or individual that is required to be provided notice of a lead agency public meeting, the requirement for notice of a scoping meeting pursuant to subdivision (b) may be met	4a - CEQA scoping topics 4b – Notice of CEQA scoping meeting example (Salton Sea) 4c - notice of scoping 4-10-02 4d - CEQA SCOPING FORM CEQA Scoping Meeting CEQA PRC 21083.9 see website at: http://ceres.ca.gov/ceqa/stat/chap2_6.html Functionally Equivalent Process CEQA PRC 21080.5 see website at: http://ceres.ca.gov/ceqa/stat/chap2_6.html	Beginning of development – 2 months

	by including the notice of a scoping meeting in the public meeting notice. ▪ Post on web – at least 30 days ▪ Publish CEQA Scoping Notice in appropriate newspaper(s) for 1 day *Note: The Staff Attorney sill review the CEQA Scoping Notice.* *Note: CEQA Notice of Preparation (NOP) is optional for the Functionally Equivalent Process. If not using the Functionally Equivalent process, a NOP will be required at this point in the process.*		
5	Check to see if endangered species present are in your area Keep this in mind as working through project phases – see box 7 for more detail. *Note: California Department of Fish and Game has a Natural Diversity Database (NDDB) Rarefind, which lists the locations of both federal and state endangered, threatened, fully protected and rare species. Primary contact should be made with California Department of Fish and Game and U.S. Fish and Wildlife Service regarding the potential of endangered, threatened, fully protected, and rare species being affected by the project.*	NDDB-Rarefind For more information see website at: http://www.dfg.ca.gov/endangered/special_animals.html	Beginning of development-2 months
6	Project Analysis Complete Phases 1-5 of "Impaired Water Process" ▪ Phase 1 – Definition of project, pollutant(s)/waterbody(s), justification. ▪ Phase 2 – Compile existing information, identify data needs, develop study plans, and engage stakeholders. ▪ Phase 3 – Data collection and analyses ▪ Phase 4 – Project report(s) with data and analysis findings. May include impairment assessment, source and loading analysis, implementation alternatives ▪ Phase 5 – Develop recommendations for regulatory action, compile results/findings.	Impaired Waters Guidance, which includes: "General Guidance" for TMDLs and TMDL "specific pollutant" guidance	1-4 years depending on project
7	If required because endangered species present ▪ Prepare Agency Consultation information. ▪ Prepare Natural Environment Study/Biological Assessment for impacts to endangered species, threatened species or their habitat. ▪ Coordinate with California Dept. of Fish and Game for state species and U.S. Fish and Wildlife Service for federal species. ▪ If species are listed by both state and federal agencies, coordination with both agencies should occur at the same time. This informal consultation provides the opportunity to minimize impacts, come up with mitigation, etc. ▪ Formal consultation begins with a request from USEPA to U.S. Fish and Wildlife Service to begin the Section 7 process. The Section 7 process takes 135 days, plus. ▪ Hopefully, Calif. Dept of Fish and Game concurs with the mitigation proposed by us. Otherwise there is another process (2081/2080.1). ▪ Consultation may be required with other agencies depending on the project.	7a - Attachment3ANatEnvStudy 2-28-02 7b - BA-usfws+format	8 months
8	Complete Draft of Regional Board Agenda Item Package (Staff Report) Includes: ▪ Item Summary/Cover Sheets ▪ Resolution (findings and Basin Plan amendment language) ▪ Supporting Documentation (Project Analyses Reports) ▪ CEQA Documents (Checklist, alternatives analysis, mitigation) ▪ Draft Certificate of Fee Exemption or CEQA filing fee ▪ Public Notice/Notice of Filing/CEQA Scoping ▪ Natural Environmental Study/Biological assessment, if necessary	APM http://10.0.21.9/BasinPlanning/Training/BasinPlanningTraining.asp 8a - Which TMDL Elements are Regulatory? State Board Basin Planning	

	Tip: Write concise summary of regulatory provisions in advance of preparing the staff report as an "outline" for the entire item. Does not need to be submitted until admin record goes to State Board after Regional Board Adoption. ***Important…***don't forget to include the following somewhere within your Supporting Documentation: ▪ Describe existing conditions and desired results/goals of amendment ▪ Consider reasonable alternatives to proposed amendment (CEQA – Alternatives analysis section, put behind CEQA checklist) ▪ Describe mitigation measures to minimize any potential significant impacts ▪ Explain rationale for recommended alternative and necessity for regulatory provisions ▪ Consider economics, if necessary ▪ Consider anti-degradation, if applicable *Submit to your senior for internal review before proceeding to the next step.* *Note: Include in the findings how "hot" issues were addressed by the Regional Board staff and who raised it, to provide a heads up to State Board.* *Tip: Get another staff person to review your draft package before giving it your supervisor.* *Tip: In your files, mark the date of the TMDL as the date you sent it to Peer Review for example, or label Peer Review draft, for easier identification during the compilation of the Admin Record.* *Tip: Avoid using the Microsoft Word auto date feature! It can make it very difficult in the future to differentiate between different drafts. Making a .pdf file for this step may be a good way to "freeze" the documents.*	Unit (Paul Lillebo) Guide	
9	*The following three actions may happen concurrently, but are suggested to occur 1,2,3 as shown below:* 1) Regional Board Attorney review ▪ Send email (follow with hard copy) to Regional Board attorney, including all attachments listed above in the Draft Regional Board Agenda Package. *Note: Staff Counsel will be provided with a review list* <u>2) Request Basin Plan Unit pre-review and written response</u> ▪ Send email (follow with hard copy) to Basin Planning Unit requesting pre-review and wait to move onto next step until receive written response from Basin Planning Unit. Indicate desired turn around time to meet Region's schedule. *Tip: Copy the State Board Basin Planning Section Chief and State Board Standards Development Section Chief with a "heads up" email (see tip below).* <u>3) Request Scientific State Peer Review</u> Send email (follow with hard copy) to State Board Standards Development Section Unit Chief requesting Scientific State Peer Review. <u>Include the following as attachments</u>: ▪ Letter (on letterhead) to State Board Standards Development	State Board Basin Planning Unit (Paul Lillebo) Guide External Scientific Peer Review Health and Safety Code §57004. See website at: http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=56001-57000&file=57000-57012 9a - "State and Regional Board Scientific Peer Review Process: Review and Update," from Gerald Bowes	1 month

	Section Chief requesting peer review ▪ Focus questions for the reviewers ▪ List of individuals and affiliations with the TMDL ▪ Project description (much like an executive summary) *Tip: Send a "heads up" email (include a very brief synopsis of project) to State Board Standards Development Section Chief about 2 weeks before you send him the official request so he has some notice about what type of Peer Reviewers to contact.* *Tip: Be very explicit in your list of individuals and affiliations with the TMDL so Peer Reviewers can be chosen appropriately (for example, if a certain lab analyzed all your results, name the lab because it is possible someone who works for that lab might be a State Certified Peer Reviewer on the side).* *Tip: This may be when you want to provide stakeholders with the opportunity for pre-public notice review.*		
10	Receive letter from State Board Standards Development Section naming specific Scientific Peer Reviewers Send "package" to each Peer Reviewer including: ▪ Letter (on Regional Board letterhead) describing desired outcome ▪ Supporting Documentation ▪ Item Summary/Cover Sheet ▪ Any supporting documents that might be useful to the reviewer ▪ Focus questions for the reviewer	10a - SSPR Request Cover 10b – Focus Question example	
11	Receive Peer Review comments Email Standards Development Section chief to let him/her know that comments from Peer Reviewers were received.		8 weeks
12	Revise documents with regards to comments received Respond to Peer Review ▪ Make technical edits per Peer Review comments (include technical revisions in public notice version) ▪ Prepare new section of staff report with *specific responses* to all comments (set aside, save for Agenda Package to Board; does not need public review). The specific responses to comments can be addressed: 1) In Item Summary/Cover sheet as a section identified as "Response to Peer Review" and distinct from response to comments from public. **OR** 2) In a separate attachment in the Agenda Item Package. Receive comments from attorney ▪ Incorporate changes into draft as appropriate. Receive comments from Basin Planning ▪ Incorporate changes into draft as appropriate *Tip: Comments from attorney and Basin Planning Unit do not need to have specific responses as detailed under Peer Review section above.*	12a – Region 7 example (direct response) 12b – Region 3 example (as part of item summary sheet)	4 weeks
13	Complete Revised Draft of Agenda Item Package for INTERNAL (supervisor/EO) REVIEW including: ▪ Item Summary/Cover Sheet ▪ Resolution and Amendment Language (get appropriate resolution number)	See final examples under box 15	4-6 weeks

14	▪ Supporting Documentation ▪ CEQA Documents (CEQA checklist, Alternatives Analysis and Certificate of Fee Exemption for De Minimus Finding) ▪ Public Notice/Notice of Filing/CEQA Scoping Notice ▪ Natural Environment Study for Endangered Species or habitats – *if necessary.* *Tip: Get a coworker to review your agenda item package, checking for errors, consistency, etc. before you give it to your supervisor.*		
	Distribute above supervisor reviewed "package" for public notice by doing the following: *Note: Make sure staff attorney reviewes notice before releasing for public notice.* ▪ Mail public notice to potential interested parties (including USEPA contact, Governor's Office of Planning & Research -State Clearinghouse (15 copies) and other agencies contacts not on the State Clearinghouse list, USFWS – see CEQA website), include project description, time and location of hearing or comment submittal with CEQA scoping information, web location and contact info necessary to request additional information. ▪ Post on web – at least 45 days ▪ Publish public notice in appropriate newspaper(s) for 1 day (unless recommending Prohibition, then 3 consecutive days) ▪ Place distribution lists, interested parties list, and proof of publication from the published notice into Admin Record *Logical outgrowth rule: If hearing notice states that changes may be considered consistent with the amendment's general purpose, Board need not re-notice before adopting changes that are logical outgrowths of the amendment.*	Governor's Office of Planning and Research (State Clearinghouse) website: http://www.opr.ca.gov/clearinghouse/Clearinghouse.shtml	
15	Receive all public comments and revise/finalize Agenda Item Package including ▪ Item Summary/Cover Sheet, to include changes and explanations of response to all comments (scientific peer review + any public comment) ▪ Resolution and Amendment Language ▪ Supporting Documentation ▪ CEQA Documents (CEQA checklist, Alternatives Analysis and Certificate of Fee Exemption for De Minimus Finding) ▪ Public Notice/Notice of Filing/CEQA scoping	See specific regions for examples (can we have the regions have a holding place on their websites for completed TMDLs with all attachments?)	4 weeks
16	Distribute Final Agenda Item Package ▪ Distribute public agenda/hearing notice and availability of final recommended Basin Plan Amendment to IPL list, according to your Regional Board's protocol. Make sure to keep a copy of the mail-out list for your records.		
17	Prepare Presentation to Regional Board- ▪ Prepare PowerPoint presentation. Tip: Practice at least once with a peer or senior and make sure to have backup slides at the end of your presentation to help defend contentious issues.		2 weeks
18	Present Amendment to Regional Board		
19	After Regional Board Adopts Basin Plan Amendment (Regional Board to do list) ▪ Type up minutes of hearing and submit to admin record. ▪ Submit Press release to EO the morning after the Board meeting. ▪ Get EO to sign the Adopted resolution (if Board asked for changes		

	make changes prior to getting EO's signature), CEQA checklist, Dept. of Fish and Game Exemption and Public Notice. ▪ IF the Board made any changes to any of the documents, make sure to save/file a copy of the document that was presented to them and a separate copy of the final version that the EO signs (*Tip: .pdf a copy of each so you have a final copy that won't have inadvertent changes in it)* *Tip: If your region desires, get an electronic copy of resolution added to website*		
20	<u>Prepare Administrative Record</u> Add, to existing Admin Record up to this point: ▪ Meeting Agenda ▪ Agenda Item ▪ Board Presentation ▪ Meeting transcripts (ask admin staff to obtain) ▪ Public comment submittals ▪ Change sheets ▪ Final resolution (signed copy by EO) ▪ Basin Plan Amendment (signed copy by EO) ▪ CEQA Documents (CEQA checklist, Alternatives Analysis and Certificate of Fee Exemption for De Minimus Finding, signed copy by EO) ▪ Response to new comments raised during the Board hearing ▪ Any addendum sheet, making a change/addition to the TMDL that does not affect the resolution and explanation of why changes were made. *Note: Make sure that signatures are on the items which require them, attachments are included if listed as included, and that letterheads are fully copied.* <u>Prepare Admin Record Index.</u> ▪ Copies to be paginated, with no blank pages. ▪ Complete Index with pagination (index runs from oldest to newest info… that is, tells how the "story unfolded"). ▪ Copy completed Admin Record (3 copies required - 1 for Reg. Board, 2 to Basin Planning). ▪ Compare all copies of the Admin Record to ensure that pages were not added or deleted during copying; pagination is in order, etc. <u>Preparing for Submittal of Admin Record</u> ▪ Place admin record in a three-ring binder, with Regional Board letterhead as the cover sheet in the binder. Make sure to label spine of binder as well. ▪ Write a "Clear and Concise Summary of Regulations" ▪ Prepare two (2) copies of the "interested parties" mailing list on self-adhesive labels. ▪ Write "transmittal memo" to Basin Planning ▪ Pdf a signed copy of the resolution and amendment language ▪ Pdf the TMDL support document ▪ Prepare electronic IPL list *Note: Do not include any correspondence from State or Regional Board attorneys in the Admin Record. This is confidential based on the attorney/client privilege.*	20a - ADMINRECORDINDEXNewRiverSiltir8-9-02 20b - Minor correction memo 20c – Concise summary example 20d – Transmittal memo example Per APM http://10.0.21.9/BasinPlanning/Training/BasinPlanningTraining.asp	6 - 8 weeks. Need time to receive the transcript and to make changes and respond to comments raised during the Board meeting.
21	<u>Check Admin Record</u> ▪ Have a qualified record specialist check the Admin Record for completeness. Check that any regulatory provisions added late in the process - at the hearing - are justified in the record.		2 days

	▪ Write Blue sheet addendum, if needed.		
22	<u>Send Admin Record to State Board</u> Overnight package to State Board with transmittal memo. ▪ Expect acknowledgement of receipt from SB staff, a tentative scheduling for State Board action. ▪ Send hard copy of this transmittal memo to USEPA ▪ When acknowledgement of receipt from specific State Board staff is received, email pdf copy of resolution and amendment language, pdf TMDL support document and the electronic IPL list. *Tip: When corresponding with the Basin Planning Unit regarding various issues, best to confirm the outcomes of the conversations by summarizing them in email, so as to provide clear lines of communication.*		Basin Planning Unit has 60 days to review.
23	<u>SB Hearing Process steps</u> ▪ Review State Board Agenda Item for completeness and accuracy. ▪ Let Basin Planning Unit know if the TMDL was controversial. ▪ Review amendment and Project Report prior to attending State Board Workshop and State Board Hearing. ▪ Notify your staff attorney of when the Workshop and Hearing are planned, and ask him/her to be there. ▪ Prepare to answer questions from the Board and the public. Early responses would have been faxed to you. ▪ Prepare to respond to the written responses or assist State Board staff in responding. ▪ Prepare abbreviated presentation—less than 5 minutes in length. (Do not read to the Board.) ▪ Contact Basin Planning the night before or morning of both meetings to find out if there have been written responses. You may have to respond to those letters/comments at the Workshop or Meeting.		6 - 8 weeks. Need time to receive the transcript and to make changes and respond to comments raised during the Board meeting.
24	<u>Office of Administrative Law (OAL) Process</u> ▪ State Board will submit one copy of the Admin Record to OAL. ▪ OAL will have 30 working days to review the record. ▪ Request that State Board staff let you know when they deliver the record to OAL. ▪ Mark your calendars to be available the last week before the 30 working days end, as that is usually when you will be contacted by OAL or State Board staff for changes to the Admin Record. You will be required to make those changes (if non-substantive) in the remaining time (prior to the end of the 30 day period). ▪ Deemed approved if no action in 30 days		30 working days.
25	<u>EPA Process</u> ▪ State Board will submit the Project Report, response to comments, and a copy of the implementing basin plan amendment with approving documentation (SB, OAL) to EPA. ▪ USEPA has 60 days to approve. ▪ You may be asked to make some non-substantive changes to the Project Report.		60 days
	AFTER FINAL APPROVAL		
26	<u>File Certificate of Fee Exemption or pay fee to Dept. of Fish and Game</u> ▪ Send the Certificate of Fee Exemption to the director of Fish and Game (currently Robert Hight) along with the CEQA checklist finding no adverse impact on the environment. Robert Hight Director of California Department of Fish and Game 1416 Ninth Street, 12th floor		

	Sacramento, CA 95814 Phone: 916-653-7667		
27	File Notice of Decision with Secretary of Resources and Governor's Office of Planning and Research (State Clearinghouse). Remember to include the CEQA filing fee, if your project had significant affects on the environment. ▪ Send within 30 days after the Basin Plan amendment is approved by the final approver (be it OAL or EPA). The Secretary of Resources is currently Mary Nichols. Mary D. Nichols Secretary of the California Resources Agency 1416 Ninth Street, Suite 1311 Sacramento, CA 95814 Phone: 916-653-5656 ▪ Send within 30 days after the Basin Plan amendment is approved by the final approver (be it OAL or EPA). Governor's Office of Planning & Research State Clearinghouse 1400 10th Street Sacramento, CA 95814 Phone: (916) 445-0613 CEQA Filing Fee is currently $850.00 Obtain copy of CEQA Compliance by visiting State Clearinghouse website.	27a - Notice of Decision 27b - SCHcoverletter NOD. http://www.ceqanet.ca.gov/queryform.asp?	
28	Revise the Basin Plan Follow internal procedures for physically modifying the Basin Plan		
29	Implement!!!!!		

Purple notes (e.g. 4a) can be found at the ftp site under ftp://10.0.21.8/BasinPlanningWorkgroup/Supporting Documents

General Recommendations

- If a TMDL has to be "reheard" before the Regional Board for any circumstance, it is possible that the public comment period can be less than 45 days.
- Keep in mind the APA standards of review throughout preparation of the Staff Report: Clarity, Necessity, Consistency, Authority, Reference, and Non-duplication.
- When citing Personal Communication, cite the date and time of the conversation and a description of what was discussed. If certain data was discussed in the conversation, please include that as part of the "personal communication" as well.
- For ease of finding different drafts, consider pdf'ing drafts/finals (e.g. Peer Review version, Public Comment version, Regional Board Agenda version, etc.).
- Items mentioned in green font are optional.

Acronyms List

APA	Administrative Procedures Act
APM	Administrative Procedures Manual
BA	Biological Assessment
CEQA	California Environmental Quality Act
EO	Executive Officer
IPL	Interested Parties List
NDDB	Natural Diversity Database
NES	Natural Environmental Study
OAL	Office of Administrative Law
RB	Regional Board
SB	State Board
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency

APPENDIX B: SWRCB MEMOS RELATED TO TMDL DEVELOPMENT

This appendix contains legal memorandums issued by SWRCB's Office of Chief Counsel (OCC) relating to TMDLs. Table B-1 provides a list of the memos included.

Table B-1. TMDL-related Memos Issued by OCC

Title	Date
TMDLs for Condition-Based Impairments	6/21/02
The Distinction Between a TMDL's Numeric Targets and Water Quality Standards	6/12/02
The Extent to Which TMDLs Are Subject to the Alaska Rule	1/28/02
Legal Authority for Offsets, Pollutant Trading, and Market Programs to Supplement Water Quality Regulation in California's Impaired Waters	10/16/01
Regulatory and Statutory Time Limits Implicated in Developing California's 303(d) Listing and Delisting Policy	8/2/01
Timing Requirements for Regional Board Agenda Items	7/10/01
Guidance Regarding the Extent to Which Effluent Limitations Set Forth in NPDES Permits Can Be Relaxed in Conjunction With a TMDL	1/26/01
Guidance Regarding Section 303(d) List for the 2002 Submission	12/21/00
Economic Considerations in TMDL Development and Basin Planning	10/27/99
Do TMDLs Have to Include Implementation Plans?	3/1/99
TMDL Questions (Litigation Re: Medium and Low Priority Waters)	1/7/99
Guidance on Consideration of Economics in the Adoption of Water Quality Objectives	1/4/94

Winston H. Hickox
Secretary for Environmental Protection

State Water Resources Control Board

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The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov.

F12 = SAVE AS

TO: TMDL Roundtable,
c/o Thomas Mumley, San Francisco Bay RWQCB
Statewide TMDL Manager

/s/
FROM: Michael J. Levy
Staff Counsel
OFFICE OF CHIEF COUNSEL

DATE: June 21, 2002

SUBJECT: TMDLS FOR CONDITION-BASED IMPAIRMENTS

The TMDL Roundtable has asked about the legal status of waters on the 303(d) list that are designated as impaired for conditions rather than pollutants. In short, when waters are listed as impaired for conditions that are caused by pollutants, the Regional Water Quality Control Boards must establish a TMDL for those pollutants that cause or contribute to the impairing condition.

Two subdivisions of section 303(d) of the Clean Water Act[1] are implicated in this analysis. Section 303(d), subdivision (1)(A), requires each state to identify the waters within its jurisdiction that are not attaining water-quality standards. (33 U.S.C. § 1313(d)(1)(A).) The result of that process is commonly known as the 303(d) list. The federal regulations additionally require the 303(d) list to include an identification of the pollutants causing or expected to cause violations of standards. (40 C.F.R. § 130.7(b)(1)(4).)

For the waters on the 303(d) list, section 303(d), subdivision (1)(C), requires the state to develop TMDLs for the pollutants that are impairing those waters. (33 U.S.C. § 1313(d)(1)(C).) In many instances, however, waters on the 303(d) list are not identified as impaired by a specific pollutant, but by conditions that are caused in whole or in part by pollutants. Examples of these stressors include accelerated eutrophication (typically associated with excessive nutrients), toxicity (miscellaneous toxic constituents), and temperature (thermal discharges and sediment). Subdivision (1)(A) does not prohibit identifying waters as impaired by such conditions, and the United States Environmental Protection Agency has approved this approach, for example, by approving the 1998 303(d) list. Such listings, however, do not impact the state's obligation under

[1] All references herein to any "section" are to the federal Clean Water Act, and references to "subdivision" are to specific subdivisions of section 303(d) of the Clean Water Act.

subdivision (1)(C) to develop TMDLs for the pollutants impairing those waters. Accordingly, where waters are listed as impaired for conditions commonly associated with pollutants, the Regional Water Quality Control Boards must identify the pollutants underlying or contributing to the conditions, and either establish TMDLs for those pollutants, or establish TMDLs that otherwise correct the conditions leading to the impairment. (33 U.S.C. § 1313(d)(1)(C).)

Should you have any questions about this memorandum, feel free to contact me at (916) 341-5193 or mlevy@swrcb.ca.gov.

cc: Mr. David Leland
TMDL Management Advocate
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Ken Harris, DWQ
Craig M. Wilson, OCC
All OCC WQ Attorneys

cc: (Continued)

add additional page break when the **"cc" list is continued** to this page

bc:

MJLevy/JLBashaw
06-20-02 / revised xdate
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INFORMATION

DOUBLE CLICK word(s) in red to highlight so you can:
[1] replace them with the appropriate information,
[2] use CTRL+SHIFT+h to toggle "hidden text" on/off, or
[3] mark to italicize [CTRL+i], bold [CTRL+b], etc.

Winston H. Hickox
Secretary for Environmental Protection

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The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov.

TO: Ken Harris, DWQ
Paul Lillebo, DWQ

FROM: Michael J. Levy
Staff Counsel
OFFICE OF CHIEF COUNSEL

DATE: June 12, 2002

SUBJECT: THE DISTINCTION BETWEEN A TMDL'S NUMERIC TARGETS AND WATER QUALITY STANDARDS

This memorandum is intended to explain the distinction between numeric targets in a total maximum daily load (TMDL) and water quality standards. In general, section 303(d) of the Federal Clean Water Act (CWA)[1] requires each state to establish a TMDL for waters within its boundaries for which effluent limitations are not stringent enough to implement applicable water quality standards.[2] TMDLs, in turn, must be established at a level necessary to implement the applicable water quality standards.[3] In short:

1. TMDLs require a quantitative numeric target necessary to implement existing water quality standards;
2. While a TMDL's numeric target is an interpretation of existing water quality standards, it is not a water quality standard itself, and therefore, the processes required when adopting such standards do not apply;
3. Strategies to attain water quality standards, such as TMDLs, do not change the fact that enforcement of the Clean Water Act against point source dischargers is primarily through their NPDES permits; A TMDL's numeric target is not directly enforceable against dischargers absent a corresponding permit provision.

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[1] The CWA is more accurately identified as the "Federal Water Pollution Control Act." (See 33 U.S.C. § 1251 et seq.) As used above, "section 303(d)" refers to the section number of the CWA as enacted by Congress. The same section is codified in title 33 of the United States Code in section 1313(d). Text in the body of this memorandum refers to the sections of the CWA as enacted by Congress. Corresponding citations to title 33 appear in footnotes.

[2] See generally 33 U.S.C. § 1313(d)(1)(A)-(D); see also 40 C.F.R. § 130.7.

[3] 33 U.S.C. § 1313(d)(1)(C); 40 C.F.R. § 130.7(c)(1).

I. TMDLs Require the Calculation of a Quantitative Numeric Target Necessary to Implement Water Quality Standards in Impaired Water Bodies

Section 303(d) contains two sentences regarding what a TMDL actually is. The first sentence requires establishment of the "total maximum daily load" for those pollutants suitable "for such calculation." The second sentence states that "[s]uch load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality."[4] Based on these statements, a TMDL should be based on a quantitative value, or target,[5] designed to attain water quality standards in a particular water body.

The federal regulations corroborate that TMDLs require a quantitative numeric target. First, they repeat essentially the same statements from the statute.[6] Next, they define a TMDL as the "sum" of the individual waste load "allocations" for point sources and load "allocations" for nonpoint sources and natural background.[7] Both types of allocations are based on the concept of "loading capacity," which the regulations define as the greatest "amount" of loading (i.e., the introduction of matter or thermal energy) that a water body can receive without violating water quality standards.[8] Finally, the regulations provide that TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate "measures."[9] Federal regulations, therefore, envision TMDLs (including the respective load and waste load allocations) as establishing a quantitative target for a particular water body that will assure attainment of water quality standards.

The developing body of federal case law also views TMDLs in the same way. As was recently noted by the United States District Court for the Northern District of California, "[a] TMDL defines the specified maximum amount of a pollutant which can be discharged or 'loaded' into

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[4] 33 U.S.C. § 1313(d)(1)(C).

[5] Although the term "numeric target" does not appear in the CWA, use of the phrase is a matter of convenience due to a peculiarity in the CWA vernacular. The term "TMDL" has come to have two meanings, the first of which is the numeric target, or the literal "load" referenced in section 303(d). The term "TMDL" is also used to reference not merely the load, but the allocations of the load and the implementation plan as well. For clarity, in this document the term "target" or "numeric target" refers to the "load", and the term "TMDL" is reserved to describe the culmination of the state's responsibilities under section 303(d), i.e., the load, allocations, and implementation plan.

[6] 40 C.F.R. § 130.7(c)(1).

[7] *Id.*, § 130.2(i).

[8] *Id.*, §§ 130.2(e) and (f).

[9] *Id.*, § 130.2(i).

the waters at issue from all combined sources."[10] Federal courts outside of California and the Ninth Circuit share the same view.[11]

The U.S. Environmental Protection Agency, Region IX (EPA) also views TMDLs as containing water body-specific targets necessary to attain water quality standards. According to a recent publication from EPA:

> "[a] TMDL is a written, quantitative assessment of water quality problems and contributing pollutant sources. It identifies one or more numeric targets based on applicable water quality standards, specifies the maximum amount of a pollutant that can be discharged (or the amount of a pollutant that needs to be reduced) to meet water quality standards, allocates pollutant loads among sources in the watershed, and provides a basis for taking actions needed to meet numeric target(s) and implement water quality standards."[12]

Numerous pages of that publication are devoted to explaining how TMDL targets are used to interpret narrative or numeric water quality standards and to explaining the requirement to quantify the loading capacity and allocations.[13]

In short, the Clean Water Act, federal regulations, case law, and interpretive guidance from EPA all describe TMDLs as requiring numeric pollutant targets that are established at levels necessary to achieve water quality standards in impaired waters.

II. A TMDL Implements Existing Water Quality Standards; It Does Not Create New Standards

The federal regulations specify essentially four components of water quality standards. These are use designations, water quality criteria based upon those uses, an antidegradation policy, and certain policies generally affecting the application and implementation of water quality standards.[14] Water quality criteria are defined as "elements of State water quality standards,

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[10] *Pronsolino v. Nastri* (9th Cir., 2002) --- F.3d ----, 2002 WL 1082428, p. 3, quoting *Dioxin/Organochlorine Center v. Clarke* (9th Cir. 1995) 57 F.3d 1517, 1520.

[11] See, e.g., *American Iron and Steel Institute v. EPA* (D.C.Cir. 1997) 115 F.3d 979, 1002, citing 40 C.F.R. § 132.2; *Manasota-88, Inc. v. Tidwell* (11th Cir. 1990) 896 F.2d 1318, 1321; *Scott v. City of Hammond* (7th Cir. 1984) 741 F.2d 1318, 1321.

[12] U.S. Environmental Protection Agency, Region IX, Guidance for Developing TMDLs in California (January 7, 2000), p. 1, which is available at: www.epa.gov/region09/water/tmdl.

[13] *Id.*, pp. 2-6.

[14] 40 C.F.R. §§ 131.6(a), (c), and (d); 40 C.F.R. § 131.13. Unlike TMDLs, which are specific plans to attain standards in a specific water body, section 131.13 policies are generally applicable policies, e.g., mixing zones, low flows, and variances. See Memorandum to Paul Lillebo, Basin Planning Unit Chief, Division of Water Quality,

expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use."[15] Federal law contemplates, "[w]hen criteria are met, water quality will generally protect the designated use."[16]

Similar to federal requirements, under state law, each Regional Board must establish water quality objectives that will ensure the reasonable protection of beneficial uses and the prevention of nuisance.[17] Water quality objectives are "the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area."[18] The Water Code provides that such beneficial uses include, but are not limited to: domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.[19]

Under state and federal law, therefore, water quality standards designate the uses to be made of the water and set criteria necessary to protect the uses. These standards have two functions: (1) they establish the water quality goals for a specific water body; and (2) they serve as the regulatory basis for establishing water quality-based treatment controls and strategies (such as TMDLs) beyond the required technology-based levels of treatment.[20]

Water quality objectives or criteria can be expressed in numeric terms (i.e., concentration or mass per time), or narrative terms (e.g., "no toxics in toxic amounts").[21] When adopting a TMDL for an impaired water body, sometimes the numeric criteria can be used as the TMDL target (e.g., mass-per-time criteria). More typically, however, to comply with TMDL requirements, the objective will need to be translated into another measure amenable to allocating the total load (e.g., concentration-based numeric criteria, or narrative criteria). While this translation involves articulating a new number to express the existing criteria for the purposes of section 303(d), selection of this new number does not establish a new water quality standard.

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from Michael J. Levy, Staff Counsel, Office of Chief Counsel, re: *The Extent to Which TMDLs are Subject to the Alaska Rule* (January 28, 2002) (hereinafter "*TMDLs and the Alaska Rule*").

[15] 40 C.F.R. § 131.3(b).

[16] *Ibid.;* 33 U.S.C. § 1313(c)(2)(A).

[17] Wat. Code, § 13241.

[18] *Id.*, § 13050, subd. (h).

[19] *Id.*, § 13050, subd. (f).

[20] 40 C.F.R. § 131.2.

[21] 40 C.F.R. § 131.11.

Although the assignment of a numeric value that ultimately must be implemented in NPDES permits may at first glace appear similar to establishment of a water quality standard, a comparison of the statutory requirements for TMDLs and water quality standards demonstrates they are quite distinct: section 303(c) of the Clean Water Act requires creation of the water quality standards; section 303(d) requires TMDLs to implement those standards when technology-based limits are insufficient.[22] "[T]he basic purpose for which the § 303(d) list and TMDLs are compiled [is] the eventual attainment of state-defined water quality standards."[23] TMDLs are therefore not themselves standards, but mechanisms to implement them. Unlike water quality standards, TMDLs do not designate existing or potential uses. They do not establish new criteria necessary to protect uses, but rather, interpret existing criteria. They do not establish policy guiding the circumstances under which water quality must be protected against degradation. TMDLs merely create an enforceable strategy to attain those standards (with seasonal variations and a margin of safety) that were already established but which are not yet attained in a specific water body.[24] TMDLs thus serve as a means to an end. That end is the attainment and maintenance of existing water quality standards.[25]

III. Water Code Section 13241 Does Not Apply When Establishing the Numeric Targets in a TMDL

Water Code Section 13241 establishes the requirements attendant to the Regional Boards' adoption of water quality objectives. Because "it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses," the section requires the Regional Boards to consider a number of factors when establishing objectives. These include:

a. Past, present, and probable future beneficial uses of water;

b. Environmental characteristics of the hydrographic unit, including the quality of water available to it;

c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;

d. Economic considerations;

e. The need to develop housing within the region; and

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[22] 33 U.S.C. § 1313(d).

[23] *Pronsolino v. Nastri* (9th Cir., 2002) --- F.3d ----, 2002 WL 1082428, p. 13.

[24] 33 U.S.C. § 1313(d)(1); 40 C.F.R. §§ 130.7(b)(1) and (c)(1).

[25] For a detailed analysis of how the process of creating a TMDL is distinct from and incompatible with the process of adopting a water quality standard, see *TMDLs and the Alaska Rule*, *supra* note 14.

f. The need to develop and use recycled water.[26]

The Clean Water Act similarly provides that water quality standards "shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation."[27] Considering these factors is appropriate because assignment of the appropriate level of water quality properly involves a balance between appropriate "designated" or "beneficial" uses of water, numeric or narrative water quality "objectives" or "criteria," and a host of sometimes-competing policy considerations, including economic and environmental interests.

Since TMDLs are not water quality objectives, the requirements for adopting such objectives do not apply to TMDLs. Nor should they. Numeric targets used by TMDLs to implement standards are not designed to re-balance the policy interests underlying those standards. Although the state must consider a variety of factors in establishing the different elements of a TMDL, considering the economic impact of the required level of water quality, for example, is not among them; that impact was already determined when the standard was adopted. This conclusion is not altered when a TMDL is established to implement a narrative water quality objective. The economic impact associated with maintaining ambient water quality at the level described by the narrative statement was considered when the narrative objective was adopted.[28]

While policy considerations are important in developing water quality standards, they play a smaller role in the formulation of the TMDLs that implement them. The statutory directive to adopt TMDLs to "implement the applicable water quality standards with seasonal variations and a margin of safety,"[29] is not qualified by the predicate "so long as it is economically desirable to do so." Therefore, not only would an in-depth economic analysis be redundant, it would be inconsistent with federal law.

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[26] Wat. Code, § 13241, subds. (a)-(f). Notably, section 13241 contains no dictate as to the weight the Regional Board must afford to any particular factor, only that these factors be considered.

[27] 33 U.S.C. § 1313(c)(2)(A). See also 40 C.F.R. §§ 131.10-13.

[28] That is not to say that no economic analysis is required when adopting a TMDL. Indeed, depending on the specific activity under consideration, different parts of a TMDL may require differing levels of economic considerations. Section 13241 analysis, however, is not among them. For a detailed discussion of economic analysis requirements, see Memorandum to Stefan Lorenzato, TMDL Coordinator, Division of Water Quality, from Sheila K. Vassey, Senior Staff Counsel, Office of Chief Counsel, re: *Economic Considerations in TMDL Development and Basin Planning* (October 27, 1999).

[29] 33 U.S.C. § 1313(d)(1)(C).

In short, a water quality standard defines the water quality goals of a water body by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses.[30] TMDLs, in contrast, establish numeric targets for pollutants—targets that are designed to achieve water quality standards in impaired waterbodies. TMDLs implement the existing objectives that are designed to protect designated beneficial uses and, therefore, serve as a water quality-based treatment control or strategy that necessarily rests on the established goals and balanced policy considerations embodied by water quality standards. As stated in a recent Ninth Circuit decision:

> "TMDLs serve as a link in an implementation chain that includes federally-regulated point source controls, state or local plans for point and nonpoint source pollution reduction, and assessment of the impact of such measures on water quality, all to the end of attaining water quality goals for the nation's waters."[31]

IV. Numeric Targets in a TMDL are not Directly Enforceable Against Dischargers

The difference between water quality standards and TMDLs is highlighted in the context of the "citizen suits", which are authorized by section 505 to enforce the CWA.[32] In pertinent part, section 505 authorizes "any person" to commence a "civil action" against any person who has allegedly violated "*an effluent standard or limitation*" or "an order" issued by the EPA or a "State with respect to such a standard or limitation[.]"[33] The Clean Water Act language does not support the notion that third parties can invoke the effluent provision in section 505 to directly enforce TMDL numeric targets against dischargers.

In contrast to the broad definition of "effluent limits" in section 502 of the Clean Water Act, section 505 limits citizen suits specifically to a narrower subset of effluent standards and limitations. Section 505 states, in particular, that "[f]or purposes of this section," the term "effluent standard or limitation" is limited to seven instances. Citizen suits are permitted to enforce:

a. An unlawful act, under section 301(a);

b. An effluent limitation or other limitation, under section 301 or 302;

c. A "standard of performance" under section 306;

d. A prohibition, effluent standard or pretreatment standards, under section 307;

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[30] 40 C.F.R. § 131.2.

[31] *Pronsolino v. Nastri* (9th Cir., 2002) --- F.3d ----, 2002 WL 1082428, p. 4.

[32] 33 U.S.C. § 1365.

[33] 33 U.S.C. § 1365(a)(1) (Italics added).

e. A certification, under section 401;

f. A permit or condition thereof, issued under section 402; or

g. A regulation under section 405(d).[34]

A TMDL's numeric targets do not fall within any of these provisions. Although the regulations refer to a waste load allocation as a "type of water quality-based effluent limitation,"[35] TMDLs are required by section 303(d), not sections 301, 302, or 307. Nor, for that matter, does a TMDL that establishes a total load or waste load allocation of "zero" establish a directly enforceable prohibition, unlawful act, regulation, or performance standard under sections 301, 306, 307, or 405. Again, the target is established under section 303(d). No section 303(d) limit is enumerated in section 505. Accordingly, a plain reading of the effluent limits that may be directly enforced by way of a citizen suit under the Clean Water Act does not include waste load allocations required by section 303(d).

The federal regulations reveal at least one obvious explanation for the exclusion of TMDLs from matters that can be directly enforced against dischargers. Those regulations contemplate flexibility in translating waste load allocations into permit conditions. The NPDES permitting provisions require that water quality-based effluent limits must be "consistent with the assumptions and requirements of any available wasteload allocation."[36] The provisions do not require the limit to be "identical to the wasteload allocation." This language leaves open the possibility that the Regional Board could determine that fact-specific circumstances render something other than literal incorporation of the waste load allocation to be consistent with its assumptions and requirements.[37] The regulations thus contemplate the additional step of revising applicable NPDES permits to make them "consistent with the assumptions" of the TMDL.[38]

Thereafter, it is the effluent limit set forth in the permit, and not the TMDL, that provides the potential vehicle for citizen suit enforcement under the Clean Water Act.[39] These requirements

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[34] 33 U.S.C. § 1365(f).

[35] 40 C.F.R. § 130.2(h).

[36] 40 C.F.R. § 122.44(d)(1)(vii).

[37] The rationale for such a finding could include a trade amongst dischargers of portions of their load or waste load allocations, performance of an offset program that is approved by the Regional Board, or any number of other considerations bearing on facts applicable to the circumstances of the specific discharger.

[38] Of course, if a permit is already consistent with a newly adopted TMDL, the permit need not be amended to render its terms enforceable. The permit conditions are already enforceable, including by a citizens suit. (33 U.S.C. §§ 1365(a)(1)(B), 1365(f)(6).)

[39] *Id.*

are consistent with section 402(k)'s requirement that compliance with an NPDES permit is deemed compliance that bars most enforcement actions and citizen suits.[40]

CONCLUSION

Section 303(c) of the Clean Water Act obligates the State and Regional Boards to establish water quality standards to protect appropriate designated uses of waters. Section 303(d) requires the states to establish TMDLs at levels necessary to implement those water quality standards in waters that are not attaining them. While extensive policy considerations are evaluated when adopting standards, those considerations are generally not relevant when adopting TMDLs, whose purpose is to cause the compromised waters to attain those policy-based standards.

The distinction between water quality standards and TMDLs is significant both for the manner in which they are adopted, and the manner in which they are enforced. First, because TMDLs are not water quality standards, neither federal nor state law obligates the State and Regional Boards to establish and adopt TMDLs as water quality standards. Second, the provisions of a TMDL, including its numeric targets, are not directly enforceable against dischargers by way of a citizen suit under the Clean Water Act. In general, section 505 permits such suits to directly enforce an effluent limit or standard. Because TMDLs are neither water quality standards nor a type of effluent limit addressed in section 505, TMDLs, including the respective waste load allocations, are not directly enforceable under the citizen suit provision of the Clean Water Act. The NPDES permits implementing the TMDL provide the vehicles for enforcement. The TMDL does not.

Should you have any questions about this memorandum, feel free to contact me at (916) 341-5193 or mlevy@swrcb.ca.gov.

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[40] 33 U.S.C. § 1342(k).

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TO: Paul Lillebo
Basin Planning Unit
Division Of Water Quality

FROM: Michael J. Levy
Staff Counsel
OFFICE OF CHIEF COUNSEL

DATE: January 28, 2002

SUBJECT: THE EXTENT TO WHICH TMDLS ARE SUBJECT TO THE ALASKA RULE

INTRODUCTION

This memorandum is intended to clarify which items in a Regional Water Quality Control Plan (Basin Plan) amendment that implements a total maximum daily load (TMDL) require prior approval by the United States Environmental Protective Agency (EPA) pursuant to the Alaska Rule. In summary:

?? The Alaska Rule requires states to obtain EPA's prior approval before new or amended water quality standards become effective. Water quality standards include beneficial uses, water quality objectives, an antidegradation policy, and certain policies that generally affect the implementation of the aforesaid.

?? The Alaska Rule does not apply to other items, even though they may require EPA's approval. TMDLs fall outside the Alaska Rule. TMDLs become effective under California law when promulgated, even if EPA ultimately disapproves them.

?? Where a TMDL, however, creates or revises a water quality standard, the standard itself (not the entire TMDL) is subject to the Alaska Rule.

?? Non-standards parts of a TMDL are valid and enforceable immediately upon promulgation by California.

DISCUSSION

A. The Alaska Rule Only Applies To Water Quality Standards

Historically, EPA's water quality standards regulations allowed standards to go into effect, for Clean Water Act (CWA) purposes, as soon as they were adopted and effective under state law, and to remain in effect unless and until replaced by another standard. (65 Fed.Reg. 24641, 24642.) On July 8, 1997, the United States District Court held in the matter of *Alaska Clean Water Act Alliance v. Clark* (W.D. Wash.) #C96-1762R, that the plain meaning of the CWA required that new and revised standards were not effective until approved by EPA. (*Id.*) Section 303(c)(3) states in pertinent part:

> If the Administrator, within sixty days after the date of submission of the revised or new standard, determines that such standard meets the requirements of this chapter, such standard <u>shall thereafter</u> be the water quality standard for the applicable waters of that State.[1] (22 U.S.C. § 1313(c)(3) (emphasis added).)

Accordingly, the court found that standards do not become effective until after EPA approves the standard.

Following this decision, the parties agreed to a settlement whereby EPA would amend the federal regulations relating to adoption and revision of water quality standards. This Amendment, dubbed the Alaska Rule, appears at 40 Code of Federal Regulations section 131.21(c) through (f). The Alaska Rule states:

> If a State or authorized Tribe adopts a water quality standard that goes into effect under State or Tribal law on or after May 30, 2000[, t]hen once EPA approves that water quality standard, it becomes the applicable water quality standard for purposes of the [Clean Water] Act[, u]nless or until EPA has promulgated a more stringent water quality standard for the State or Tribe that is in effect[, i]n which case the EPA promulgated water quality standard is the applicable water quality

[1] The term "applicable waters of that State" modifies the term "navigable waters", which is defined as "the waters of the United States" in CWA section 502(7). (33 U.S.C. § 1362(7).) The term "waters of the United States" is further defined in 40 CFR section 122.2. Historically, U.S. waters were interpreted quite expansively, and it was not an unfair generalization to refer to them as including most surface waters. In *Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers* (2001) 531 U.S. 159,121 S.Ct. 675, however, the Supreme Court cast a question upon the statutory reach of the CWA, especially as it may relate to isolated, non-navigable, intrastate waters. Given this development, a more precise analysis of whether a given surface water is a water of the U.S., is warranted. The CWA does not apply to water quality standards adopted for "waters of the state" (Water Code § 13050(e)) unless they are also waters of the United States.

> standard for purposes of the Act until EPA withdraws the Federal water quality standard.[2] (40 C.F.R. 131.21(c).)

Under its own terms, the Alaska Rule only applies to new or revised water quality standards. The definition of "water quality standards", therefore, dictates the scope of the Alaska Rule.

The federal regulations define water quality standards in two locations. 40 Code of Federal Regulations sections 131.6(a), (c), and (d) require that water quality standards, in addition to specific supporting material, must include at least the following:

- ?? Use designations (beneficial uses)
- ?? Water quality criteria (water quality objectives)
- ?? An antidegradation policy

To this list, 40 Code of Federal Regulations section 131.13 adds certain policies related to these standards:

> States may, at their discretion, include in their State standards, policies generally affecting their application and implementation, such as mixing zones, low flows, and variances. Such policies are subject to EPA review and approval.

While section 131.13 of the federal regulations does not itself require prior approval of such policies, the regulation does state that such policies would be part of a state's standards. Accordingly, CWA section 303(c)(3) would apply, as would the Alaska Rule, to any such "policies" that "generally affect" the "application and implementation" of standards. (40 C.F.R § 131.13.) Consistent with the above, EPA, Region IX, recently articulated with respect to the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000), that within the gambit of section 131.13 fall policies relating the application and implementation of priority pollutant criteria and objectives, mixing zones and dilution credits, compliance schedules, site-specific objectives, and exceptions (variances). (Letter from Alexis Strauss to Edward Anton, dtd. 5/1/01, pp. 2-3.)

B. TMDLS Are Not Policies As Referenced In Section 131.13

TMDLs are not policies, as referenced in section 131.13. This conclusion is drawn from the principal that while EPA has the authority to define the term "water quality standards," and to include certain types of policies in that definition, EPA's regulations implement the CWA and thus cannot be read in a manner inconsistent with the CWA itself. If a TMDL were deemed a policy under section 131.13, an irreconcilable conflict would exist between CWA sections 303(c)(3) and 303(d)(2). The former statute would require the TMDL to be approved

[2] Notably, EPA has stated that it would not object to an NPDES permit that implements a proposed, but as yet unapproved, more stringent standard, provided the NPDES permit assures compliance with the existing approved water quality standards as well. (65 F.R. at 24644.)

within 60 days (before it could be effective) or disapproved within 90 days. The latter statute, however, requires the TMDL to be approved or disapproved within 30 days:

> Each State shall submit to the Administrator. . .for his approval the. . .loads established under [section 303(d)(1)]. The Administrator shall either approve or disapprove such. . .load not later than thirty days after the date of submission. If the Administrator approves such. . .load, such State shall incorporate [it] into its current [water quality control plan]. If the Administrator disapproves such. . .load, he shall not later than thirty days after the date of such disapproval. . .establish such loads for such waters as he determines necessary to implement the [applicable water quality standards] and the State shall incorporate them into its current [water quality control plan]. (33 U.S.C. § 1313(d)(2).)

Since the legislature enacted a separate approval process for TMDLs in section 303(d)(2), EPA's regulations cannot be read to require that TMDLs be approved under the conflicting provisions of section 303(c)(3). Plainly the regulations cannot regard entire TMDLs as policies subject to section 131.13. The Legislature thus did not intend TMDLs to be deemed water quality standards, and EPA's regulations at section 131.13 cannot be interpreted to the contrary.

This same reasoning would prevent dissecting a TMDL's primary elements and deeming one or more of them to individually be standards. A TMDL in its base form is the total load, load (and waste load) allocations, and the margin of safety. Creation of these parts of the TMDL, and EPA's approval authority, emanate from section 303(d)(2), not from section 303(c)(3).

Finally, neither can a TMDL's implementation plan be deemed a water quality standard under 40 Code of Federal Regulations section 131.13. Section 131.13 regards as water quality standards "policies generally affecting" water quality standards' "application and implementation." (40 C.F.R. 131.13.) A TMDL implementation plan, however, does not so qualify, for at least three reasons. First, the implementation plan is not a policy. It is a plan or a program. Second, the implementation plan does not "generally affect" the application or implementation of water quality standards, as do policies relating to mixing zones, low flows, or variances. (See 40 C.F.R. 131.13.) To the contrary, a TMDL implementation plan "specifically affects" the implementation of specific standards in specific water segments. Finally, section 131.13 requires for the policy to be deemed a water quality standard, that the state include the policy as part of its state standards: "States may. . .include <u>in their State standards</u>." (*Id.* (emphasis added).) The TMDL implementation plan, however, is not adopted in as part of California's state standards but as part of its TMDL. Whatever federal law may ultimately require TMDLs to include the implementation plan is a function of California law attendant with the responsibilities imposed by CWA section 303(d). (See Wat. C § 13050(j)(3); Memorandum from William R. Attwater, Chief Counsel, to Gerard Thibeault, dtd. 3/1/99.) The plan is

therefore not a part of California's water quality standards (section 303(c)), but a part of California's TMDLs (section 303(d).)[3]

C. Notwithstanding The Above, Any Part Of A TMDL That Adopts Or Revises A Water Quality Standard Requires Prior EPA Approval Under The Alaska Rule

Although entire TMDLs, their primary elements, and their implementation plans are not water quality standards, in some instances other parts of a California TMDL may be standards subject to section 303(c)(3), and thus the Alaska Rule. If a TMDL implementation plan adopts a site-specific water quality objective, revises a beneficial use, or creates a mixing zone policy, for instance, clearly any of these provisions would be standards, and require prior approval pursuant to the Alaska Rule.

Other parts of a TMDL, however, plainly are not standards. Of the other standard TMDL elements in California, most are not policies and most do not generally affect the application and implementation of standards. The problem statement, source analysis, and linkage analysis, for example, are analyses and do not implicate section 131.13. Nor, for that matter, does the numeric target. The numeric target is an implementation tool used to translate existing standards (objectives or beneficial uses) and measure progress toward attainment. The numeric target does not amend or create new objectives or uses. Pursuant to the Alaska Rule, EPA already approved the existing objectives or uses when the standard was adopted.

The key inquiry is whether the basin plan amendment adopts or modifies a beneficial use or water quality objective. Furthermore, if the amendment establishes a policy as a part of state standards, that generally affects the application and implementation of the standards, then it too, falls within the purview of the Alaska Rule. However, such policies must be distinguished from plans or programs to attain or implement specific standards in specific water bodies.

D. Lack Of Application Of The Alaska Rule Does Not Deprive EPA Its Authority And Responsibility To Review And Approve Other Matters That Are Not The Adoption Or Revision Of Standards

The fact that the Alaska Rule does not apply to most parts of most TMDLs does not imply that EPA lacks any reviewing authority. The Alaska Rule only respects <u>prior approval</u> by EPA. EPA approval of TMDLs is nonetheless required, but prior approval is not. California's TMDLs (except any parts that revise standards), are <u>immediately valid</u> upon approval under California

[3] Considerable consternation across the country continues to plague the federal TMDL program. Not the least of these debates revolves around EPA's legal authority to require implementation plans for TMDLs. The new TMDL rule had required an implementation plan to be submitted with each TMDL. (65 F.R. 43586, 43668 (7/13/2000).) However, EPA postponed implementation of that rule until at least April 30, 2003. (66 F.R. 53043, 53044 (10/18/2001).) In any event, EPA also apparently considers the implementation plan to be part of a TMDL and not part of a water quality standard.

law, and may be implemented immediately. If EPA disapproves a TMDL, section 303(d)(2) requires EPA, within 30 days, to "establish such loads for such waters as [are] necessary to implement the [applicable] water quality standards." (33 U.S.C. § 1313(d)(2).) The state would thereafter be required to adopt into its applicable basin plan whatever TMDL EPA had promulgated. (*Id*.; 40 C.F.R. 130.7(d)(2).) In this respect, the state's disapproved TMDL would not be *per se* invalid. It would only be invalid to the extent it was superseded by EPA's TMDL. (33 U.S.C. § 1370.) The remainder of the TMDL's requirements would continue to have full force of law, under California's Porter-Cologne authority.

CONCLUSION

Under the Alaska Rule, EPA must approve water quality standards for waters of the United States before they are effective. While water quality standards can include certain policies generally affecting standards application and implementation, such policies are but a subset of potential state actions relating to standards. While each TMDL must be submitted to EPA for approval, unlike the standards section (CWA section 303(c)(3)) CWA section 303(d)(2) does not require approval of TMDLs as a condition precedent to enforceability. Accordingly, every part of a TMDL, except adoption of a new or revised water quality standard, is enforceable under California law, immediately upon promulgation under California law.

While some TMDLs presented to the State Board have contained a condition establishing the effective date of the TMDL to be the date upon which it is approved by EPA, such a condition is not required as a matter of state or federal law, and should be used only when it is actually the desire of the Regional Water Quality Control Board to do.

Should you have any questions about this memorandum, please contact Staff Counsel Michael J. Levy at (916) 341-5193.

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The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov.

TO: Arthur G. Baggett, Jr.
Chair

/ s /
FROM: Craig M. Wilson
Chief Counsel
OFFICE OF CHIEF COUNSEL

DATE: October 16, 2001

SUBJECT: LEGAL AUTHORITY FOR OFFSETS, POLLUTANT TRADING, AND MARKET PROGRAMS TO SUPPLEMENT WATER QUALITY REGULATION IN CALIFORNIA'S IMPAIRED WATERS

I. Introduction

This memorandum has been prepared to outline the existing legal authority to employ offsets, pollutant trading, and other market programs to supplement water quality regulation in impaired waters. While there is no fixed definition of these terms, "offsets" generally refer to unilateral abatement efforts by a discharger to remove a certain amount of pollutant discharge from existing sources to compensate for the discharger's own discharge. "Pollutant trading" generally refers to an exchange of either permitted discharge levels or required abatement levels between two or more dischargers, either in a formal "commodities" market or banking system, or a less structured exchange.

In sum, the extent to which such mechanisms may be employed varies greatly depending upon whether a TMDL has been adopted for the impaired water, although they may be permissible in either context. The analysis in this memorandum is equally applicable for any market-type mechanism, be it offsets, pollutant trading, or another analogous system that would authorize one discharger to perform (or to encourage another to perform) additional abatement or restoration in lieu of meeting an otherwise applicable or more stringent discharge limitation or prohibition.

This memorandum should not be construed as delineating the universe of possible market-scenarios that may be legal in given circumstances. Each such system must be evaluated in the context of its own circumstance. However, this document is intended to discuss some of the legal issues that will arise in considering such systems. These include at least the anti-

backsliding rule, and the extent to which the regulations authorize new or renewed permits to be issued for discharges into impaired waters.

In considering any of these approaches, Regional Water Quality Control Boards (Regional Boards) should be cognizant of the state's legal obligation to adopt and implement approximately 1400 TMDLs. Accordingly, any market system should only be contemplated under circumstances that will promote (and not forestall) TMDL development or attainment of water quality standards.

II. Irrespective of whether a TMDL exists, federal law requires each point source to be subject to applicable technology based effluent limitations (TBELs) as a floor.

Section 402(b) of the CWA requires that all NPDES permits issued by California contain applicable TBELs. (33 U.S.C. § 1342(b)(1)(A). See also 33 U.S.C. §§ 1311, 1313(e)(3)(A).) Effluent limitations based upon the best available technology are the floor and the minimum that must be required of any NPDES permitted discharge. Thus, no market system can be adopted that would afford relief from TBELs in NPDES permits, for either new or existing sources.

III. When a TMDL is in place, the Clean Water Act (CWA) and California law give wide latitude to develop creative means of achieving compliance with water quality standards (WQS), subject to certain limitations.

A. The water quality based effluent limitations (WQBELs) applicable to new or existing point sources can be adjusted in compliance with a TMDL.

NPDES permits must also incorporate "any requirements in addition to or more stringent than [TBELs] necessary to . . . [a]chieve water quality standards." (44 C.F.R. § 122.44(d)(1).) See also 33 USC §§ 1342(b), 1311(b)(1)(C).) Unlike TBELs, these water quality based effluent limitations (WQBELs) can be adjusted in contemplation of a TMDL. While the CWA's anti-backsliding provisions would ordinarily prohibit the state from permitting a less stringent effluent limitation, section 402(o) contains an express exception applicable when a TMDL is in place. (33 U.S.C. § 1342(o).) Specifically, if the water is impaired, existing WQBELs may be relaxed if "the cumulative effect of all such revised effluent limitations based on such [TMDL] or waste load allocation will assure attainment of such [WQS]." (33 U.S.C. § 1313(d)(4)(A).)

Federal regulations bolster these provisions. Under the regulations, WQBELs must be "consistent with the assumptions and requirements of any available wasteload allocation . . . ." (40 C.F.R. § 122.44(d)(1)(vii)(B).) The regulations do not require WQBELs to be "equivalent to" available waste load allocations. Accordingly, so long as the cumulative effect of all WQBELs assures attainment of WQS, hence the assumptions of the TMDL, WQBELs can be adjusted based upon whatever mechanisms the state determines is appropriate.

This regulatory structure is equally applicable to new sources. A WQBEL that otherwise would be applicable to a new source can also be adjusted based upon a TMDL, whether through the use of offsets or other appropriate measures, that insure attainment of WQS. The CWA's anti-backsliding provisions do not apply to new dischargers.

To avoid a claim that a given NPDES permit is inconsistent with a TMDL, if any such mechanisms are contemplated, it would be appropriate to incorporate pertinent details of the market-based provisions into the TMDL implementation plan. If sufficient details of potential market approaches are not known at the time the implementation plan is adopted, alternatively, Regional Boards can retain flexibility in translating WLAs into effluent limitations by articulating a provision similar to the following in the implementation plan:

> "While individual WQBELs shall be consistent with the assumptions and requirements of the available WLAs, LAs, and the TMDL, individual WQBELs need not be equivalent to corresponding allocations so long as the cumulative effect of all WQBELs assures attainment of WQS as quantified by the TMDL. (33 U.S.C. § 1313(d)(4)(A); 40 C.F.R. § 122.44(d)(1)(vii)(B).)"

Although failure to include the above language would not necessarily preclude subsequent flexibility in implementation, the better practice, given the public-participation requirements, would be to minimize surprises by disclosing up front that alternative attainment mechanisms may be employed.

Nonpoint Source Discharges

TMDLs must identify and grant allocations to all sources of pollution, including load allocations to nonpoint sources. The TMDLs therefore may disclose nonpoint sources as likely candidates to be offsets for point sources in addition to or apart from other point-source abatement. In appropriate circumstances, i.e., where load reductions can be calculated and enforceable, offsets may also be applied for the benefit of nonpoint sources as well as point sources.

Since the CWA does not directly regulate nonpoint sources, such discharges are subject to applicable limitations set forth under state law. California's primary mechanism to protect water quality for non-NPDES discharges (be they nonpoint source, or point source discharges to non-navigable waters) is through issuance of waste discharge requirements (WDRs) under Water Code section 13263. The extent to which offsets can be used in this context is derived from the state's authority to issue WDRs generally. Specifically:

> The requirements [for waste discharge] shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the

> provisions of Section 13241 [dictating matter to be considered in establishing water quality objectives]. (Water Code § 13263(a).)

Section 13241 in turn requires consideration of, among other things, "[w]ater quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area." (Water Code § 13241(c).)

Since the basin plans protect beneficial uses and articulate water quality objectives, any WDRs issued must be protective of those uses and meet the objectives. Notably, the Regional Boards are authorized (1) to not utilize the full waste assimilation capacities of the receiving waters and (2) to utilize time schedules if they determine them appropriate in their discretion. (Water Code § 13263(b) and (c).) These authorizations may be further elucidated upon or restricted in a region's applicable basin plan. Moreover, given Section 13241(c) of the Water Code, it would be appropriate in establishing WDRs for a particular discharger to consider the affect that other pollution control measures in the area could have on the water body. So long as such other measures are implemented, and the cumulative effect of such measures and the discharge meet water quality objectives, the level of abatement required in the WDRs could be adjusted accordingly.

Traditionally, California's nonpoint sources have been regulated through general WDRs or general waivers of WDRs. Waivers of WDRs are subject to the restriction that the waiver not be "against the public interest." (Water Code § 13269(a).) In its Nonpoint Source Management Plan, the state has committed to controlling nonpoint source pollution through a three-tiered approach, rather than though immediate issuance of individual WDRs. First, it will encourage self-determined pollution abatement measures. Second, it will employ regulatory incentives to achieve the desired results. Third, if the other tiers are unsuccessful, the state will issue WDRs to nonpoint source dischargers or use other direct regulatory mechanisms. (Nonpoint Source Program Strategy and Implementation Plan, 1998-2013 (PROSIP) pp. 54-60.)

The second tier is exceptionally amenable to use of conditional waivers of WDRs. Participation in an offset program that is part of a water quality attainment strategy (such as a TMDL) could be a proper condition upon which WDRs could be waived. Since the offset is part of a water quality attainment strategy, it would presumably not be against the public interest. Notably, the authority to waive WDRs is qualified by the provision that the Regional Boards must "require compliance with the conditions pursuant to which waivers are granted under this section." (Water Code § 13269(e).) It would also be permissible to incorporate an offset as a requirement in WDRs themselves, for the same purposes as set forth above.

IV. In the absence of a TMDL, offsets must be consistent with the regulations that require all discharge permits to implement WQS.

A degree of uncertainty exists about the U.S. Environmental Protection Agency's (EPA) position on whether offsets are appropriate in the absence of a TMDL. EPA proposed an offset program that was published in the Federal Register on August 23, 1999. That program would have allowed new discharges in the absence of a TMDL, provided the new discharge and offset together demonstrated "reasonable further progress" toward attainment, and therefore did not violate the antidegradation rules. At least a 1.5 to 1 offset ratio was determined to generally constitute reasonable further progress. On July 13, 2000, however, EPA published its abandonment of the rules that would have implemented the program. Notably, the program was not abandoned for illegality, but because EPA determined its offset requirement, as proposed, was not the best mechanism to achieve progress in impaired waters in the absence of a TMDL, especially given the existing regulations set forth at 40 Code of Federal Regulations (C.F.R.) sections 122.4(d)(1)(vii), and 122.4(i).

EPA's findings were directed to the utility of a nationwide fixed offset policy, and do not necessarily imply that EPA is opposed to offsets in any given or all circumstances. In fact, there are several prominent indications to the contrary. (See e.g., Draft Framework for Watershed-Based Trading, U.S. EPA Office of Water, EPA 800-R-96-001 (May, 1996); EPA Region 9 Draft Guidance for Permitting Discharges into Impaired Waterbodies in Absence of a TMDL (5/9/00).[1]) Given that no statutes or regulations directly address market-approaches to water quality regulation, any such programs must be examined within the confines of the existing regulatory structure.

<u>New Sources</u>: An NPDES permit cannot be issued to a new source if it would "cause or contribute" to a violation of WQS. In appropriate circumstances, however, a new discharge, coupled with an offset, might be deemed to not "cause or contribute" if the new discharge is not merely a substitute contributing source of pollution for the offset.

The NPDES regulations prohibit new discharges that would contribute to a violation of WQS:

> No permit may be issued … [¶ to] a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards. (40 C.F.R. § 122.4(i).)[2]

[1] Note: Since these are draft documents, they should not be relied upon as reliable authority for any position. Their inclusion here is exclusively for illustrative purposes only.

[2] Notably, this regulation is also qualified when a TMDL is in place, and requires the discharger to undertake a load assessment to demonstrate that additional assimilative capacity exists to allow the discharge. (40 C.F.R. § 122.4(i).)

While this language could be interpreted as prohibiting all new discharges into impaired waters without a TMDL, neither the U.S. Supreme Court nor EPA have adopted that position. (See *Arkansas v. Oklahoma* (1992) 503 U.S. 91, 107-108, but see *In The Matter of: Mayaguez Regional Sewage Treatment Plant Puerto Rico Aqueduct and Sewer Authority* (1993) 4 E.A.D. 772, fn. 21 [limiting *Arkansas* to its facts]. See also 65 Fed.Reg. 23640 col. 3.)[3] In fact, it can properly be argued that a new discharge does not "cause or contribute" if coupled with an appropriate offset.

Determining whether a new discharge, coupled with an offset, will "cause or contribute to" the violation of WQS involves a degree of factual analysis, and a degree of interpretation. If a new discharger, for instance, were to propose a one-to-one mass offset from other dischargers (be they existing point or nonpoint sources) for the discharger's increased waste load, the discharge would involve merely the substitution of one contributing source of impairment for another. A new contributing source that substitutes for an existing contributing source is still a contributing source. As such, a one-for-one offset scenario would probably be prohibited by the federal regulations.

Likewise, offsets in a venue remote to the proposed discharge would not offset the impairment-contribution from a new discharge, as the offset program would not yield benefits to the relevant water quality limited segment. Such a new discharge would merely be an additional contributing source of impairment. Again, this would appear to be prohibited by the same authorities.

On the other hand, if a discharger performs offsets greater than one-to-one, in a venue relevant to the new discharge, it may well properly be deemed to not "cause or contribute" to the impairment. In such circumstances, the net result is actually to improve water quality.

Given the regulatory prohibition against contributing to excursions above objectives, in the absence of a TMDL benchmark, the safest offsets would involve projects whose relevance to attainment of WQS should be apparent. Accordingly, if a new discharger were to instigate, for example, a legacy-abatement program, especially if such a program was probably necessary to attainment but would not readily be accomplished were it not for the efforts of the new discharger, a good argument would be apparent that the offset is not merely a substitute for an existing contributing source. If the legacy abatement efforts created significant quantifiable mass abatement above and beyond the new discharge, the cumulative effect of the discharge and offset can properly be viewed as improving water quality. Likewise, if a new source cannot meet concentration-based effluent limitations, an offset that achieved a sufficient reduction in background levels might fall within this category as it could provide room for dilution that might not otherwise be available.

[3] Though not relevant to the subject of this memorandum, an obvious flaw in the no-discharge position is the fact that discharges meeting criteria end-of-pipe necessarily do not contribute to excursions above criteria.

The variable in the above analysis, however, is the lack of knowledge of the relevance of the offset to the water's impaired status. Without such knowledge, it may often be difficult to determine whether the improvement from the offset will be sufficient to defensibly reach the conclusion that the discharge is not merely a substitute cause of impairment. Any offset program in the absence of a TMDL will therefore be subject to significant scrutiny, and its defensibility in the absence of knowledge of the TMDL benchmark values, will be fact-specific, and will include an evaluation of numerous factors. These will no doubt include at least an evaluation of the substantiality of the offset achieved in exchange for the discharge (offset-ratio), as well the level of certainty that the offset program will abate a sum-certain of contributing pollutants. The inquiry may properly also include a consideration of the likelihood that the source to be offset would or could be abated through other means (the less likely the source is to be abated through other means, the more compelling the need to find alternative incentives to abate it) and whether the offset generates a permanent or temporal abatement. In any event, where a definitive improvement in water quality can be shown, such offsets ought to be encouraged.

The key legal point is that since federal law prohibits new discharges that cause or contribute to violations of water quality standards, to be defensible, any offset program must do more than substitute one contributing source for another. The program should significantly drive the watershed toward attainment or otherwise toward development of a TMDL. The key practical point is that an offset program in the absence of a TMDL should be chosen carefully to maximize the chances that a reviewing court (one that may be ideologically opposed to offsets) will find the facts compelling enough to sustain despite any skepticism.

Legacy-abatement and watershed-restoration efforts, for example, seem particularly amenable to pre-TMDL circumstances for the reasons set forth above. Such efforts may yield permanent benefits to the watershed in exchange for a temporal discharge. These offsets do not merely substitute one source for another, but create assimilative capacity through improvements to the overall environmental health of the watershed. In many cases, such efforts may ultimately need to be undertaken as part of a TMDL implementation plan in any event. Accordingly, rather than forestalling TMDL development and implementation, offsets of this nature may promote the state's performance of its TMDL obligations, and may do so in advance of formal TMDL implementation.

<u>Existing Sources</u>: Whether offsets can be used to allow relief from an otherwise applicable WQBEL, without a TMDL, depends upon whether the anti-backsliding rules apply, and if not, whether the discharge is protective of WQS.

1. Anti-backsliding

A key distinction between new and existing sources is the anti-backsliding rule. The anti-backsliding rule provides that, unless certain exceptions are met:

> [A] permit may not be renewed, reissued, or modified . . . subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit except in compliance with section 1313(d)(4) of this title. (33 U.S.C. § 1342(o).)

Since an offset program by definition provides a discharger with an avenue to obtain flexibility in lieu of the application of an otherwise stringent effluent limitation, the extent to which the anti-backsliding rule applies could have significant consequences in terms of the permissibility of offsets. However, there are many circumstances in which the anti-backsliding rule does not apply.[4] The most notable of these is the limitation that the rule only applies to the "comparable effluent limitations in the previous permit." (*Id.*)

In SWRCB Order WQ 2001-06 (The Tosco Order), the State Water Resources Control Board (State Board) addressed the question of whether effluent limitations in interim permits—permits reissued prior to the adoption of a TMDL—are "comparable effluent limitations" to those in the previous permit. The Tosco Order held that the discharger's interim performance-based effluent limitation, in a compliance schedule, was not a comparable effluent limitation to that set forth in its final limit from the previous permit. The State Board reached this result for two reasons. First, the interim limit at issue was a performance-based effluent limitation, which was issued pursuant to a compliance schedule that was authorized under the applicable Regional Water Quality Control Plan. Such interim limits, the State Board held, are not designed to attain water quality, but to preserve the status quo during the term of the compliance schedule. Furthermore, if the anti-backsliding rule were deemed to apply to such limits, it would effectively prohibit compliance schedules. (Order WQ 2001-06, pp. 51-52.) Since the previously permitted final effluent limitation was a WQBEL, and the interim limitation was performance based, the two effluent limitations were not "comparable" as they were not derived with the same considerations in mind. Instead, the "comparable limit," the State Board held, would be the alternative final (water quality based) limit, not the interim (performance based) limit. Since the two effluent limits were not comparable, the fact that the interim limit was less stringent than the previous final effluent limit did not violate the anti-backsliding rule.[5]

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[4] 33 U.S.C. section 1342(o)(2) contains five exceptions to the anti-backsliding rule, that may render it inapplicable to a given discharge. While these are not discussed separately in this memorandum, if any of these exceptions apply, the analysis that follows would also apply.

[5] This theory would apply whenever a compliance schedule may authorize an interim discharge in excess of limits established in a prior permit. Other authorities provide for compliance schedules in appropriate, instances, most notably, EPA's California Toxics Rule (CTR) and the state's policy that implements it, authorizes a compliance schedule as to CTR criteria pollutants when a discharger shows that immediate compliance with criteria is infeasible, and the discharger had committed to support and expedite development of a TMDL. (Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California § 2.1.1 (2000).)

This finding has been challenged by a writ petition to the superior court. In that proceeding, the petitioner contends the term "comparable limit" refers to the permitted levels of pollutant discharge, not to the way the levels were derived. If the petitioners prevail, there will be far less permitting flexibility for interim permitting of existing facilities. Assuming the State Board's finding is affirmed, however, those regions whose applicable water quality control plans authorize compliance schedules may, if they choose, adopt offset requirements in conjunction with an interim permittee's compliance schedule. In cases where the interim limit is deemed comparable to the previous limit (be it on the basis of the Tosco reasoning or a subsequent judicial interpretation), section 402(o) may be an impediment to relaxing the effluent limitation to accommodate an offset in the absence of a TMDL.

2. Potential situations where the anti-backsliding rule may not apply

a. Bubbling of NPDES permitted sources

In the 1970s, the U.S. EPA endorsed permit "bubbling" for stationary sources subject to the federal Clean Air Act. Bubbling entailed treating multiple sources as though they were a single source, with an aggregate emissions limit. Since there was a total limit based on the bubble output, the individual sources within a given bubble could allocate the emissions amongst themselves, provided the sum of all emissions did not exceed the bubble limitation. This concept is similar to the mechanisms employed by the Grassland Bypass Project, which controls selenium in nonpoint source agricultural discharges to levels sufficiently protective that the San Luis Drain could be reopened. The San Luis Drain is treated as one outfall for purposes of the Project. As long as the Drain output attains standards, the dischargers may determine for themselves who may discharge what amount.

As noted, anti-backsliding applies only to "comparable effluent limitations in the previous permit." Nothing in the Clean Water Act prohibits issuing a single NPDES permit that regulates several sources. Certainly the limitations set forth in such a super-permit are not "comparable" to prior limitations imposed on individual sources now subject to the super-permit. At most all that could be said is that the super-permit is comparable to the totality of all the super-permittees' individual permits. Thus while such a super-permit could not properly expand the universe of what was individually permissible by the collective, individuals should not be deemed to backslide if the total output of the bubble does not exceed the cumulative total of the individuals. Of course, when using any bubbling mechanism, care must be taken to insure criteria are attained at all points within the bubble. A market system cannot authorize participants to discharge in a manner that would cause or contribute to excursions above criteria. (40 C.F.R. § 122.4(i); 40 C.F.R. § 122.44(d)(1)(vii)(A).)

b. Mini- or Partial TMDL

Although a TMDL may not have been created, often the major sources of impairment are well known. Frequently, abatement of these sources may be regarded as essential to any TMDL implementation plan even though such a plan is not yet being developed. Under such circumstances, it may be possible to create a mini- or partial TMDL that assigns preliminary LAs or WLAs to dischargers who undertake or participate in abatement of these sources in advance of the final TMDL. Since these LAs or WLAs would be assigned in exchange for abatement necessary to the success of the ultimate TMDL, they are plainly either "based on a [TMDL] or other waste load allocation." (33 USC § 1313(d)(4)(A).) The CWA, which thus contemplates that WLAs can be created apart from a final TMDL, supports this interpretation. Note that, as above, even with a TMDL, local excursions above criteria must be prevented.

3. Similar to new permits, existing permits must insure compliance with WQS.

Irrespective of anti-backsliding, interim permits must protect applicable WQS. 40 C.F.R. section 122.44(d) requires that NPDES permits contain any more stringent requirements necessary to achieve water quality standards. Specifically, when WQBELs are developed, the permitting authority "shall ensure that:"

> The level of water quality to be achieved by limits on point sources established under this paragraph *is derived from, and complies with all applicable water quality standards*. (40 C.F.R. § 122.44(d)(1)(vii)(A) (emphasis added).)

Moreover, permits shall incorporate "any more stringent limitation, including those necessary to meet water quality standards" or those "required to implement any applicable water quality standard established pursuant to this chapter." (33 U.S.C. § 1311(b)(1)(C). See also 40 C.F.R. § 122.44(d)(5).)

The extent to which the above language authorizes or prohibits offsets in the absence of a TMDL is not clear. While it appears to be somewhat less proscriptive than the companion "cause or contribute" requirement applicable to new sources (see 40 C.F.R. § 122.4(i), supra), in practice they appear to have the same effect. (See e.g. 40 C.F.R. § 122.44(d)(1)(i).) Accordingly, the analysis set forth in section IV.A., supra, would be equally applicable here.

Variances

Similar to compliance schedules, which grant extensions of time to comply with criteria, the federal regulations authorize the use of variances in the State's discretion, subject to EPA's approval. (40 CFR § 131.13.) Where variances are authorized, Regional Boards may grant such variances in consideration of, or condition them upon, the performance of an appropriate offset which helps guarantee that protection of beneficial uses will not be compromised or that the

public interest will be served. (See Water Code § 13269.) Variances are authorized in certain circumstances, e.g., in section III.I of the California Ocean Plan (2000), as well as in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California at section 5.3, for categorical and case-by-case exceptions to CTR criteria for resource and pest management, and for drinking water. Individual Regional Water Quality Control Plans may also authorize variances for conventional pollutants as well. Notably, Water Quality Order No. 2001-12-DWQ, the recent statewide general NPDES permit for the discharge of aquatic pesticides, grants such a categorical exception.

V. Conclusion

The use of offsets, pollutant trading, or other market-based mechanisms to supplement water quality regulation in impaired waters is clearly appropriate when implemented in the context of a TMDL, in which case, substantial flexibility exists to achieve WQS. For impaired waters for which no TMDL has yet been created, the anti-backsliding rules must be considered. However, when considered in the context of regulating multiple sources with a single NPDES permit (bubbling), staged TMDL efforts, or other scenarios, the anti-backsliding rules may not be a restraint on the use of market-based regulation.

For new and existing sources, the federal regulations provide that new discharges may not "cause or contribute" to violations of WQS, and that existing discharges must be "derived from and comply with" all applicable WQS. However, significant legacy abatement programs or another large-scale offsets, may well meet regulatory scrutiny depending upon fact-specific circumstances that lead the Regional Board to conclude that, even in the absence of a TMDL, the offset coupled with the discharge, creates a watershed-based improvement of a magnitude that justifies a finding that the discharge does not contribute to impairment, and is consistent with WQS. As noted above, even in the absence of a final TMDL there may nonetheless be significant flexibility in certain circumstances, which must be evaluated within the context of the facts presented.

In any event, given the scope of California's obligations under CWA section 303(d), specifically the roughly 1400 TMDLs that must be adopted, as a practical matter, care should be taken that creative mechanisms, in advance of a TMDL, should be promotive of TMDL development or attainment of criteria generally.

Should you have any questions about this memorandum, please contact me at 341-5150, or Staff Counsel Michael Levy at 341-5193 or mlevy@exec.swrcb.ca.gov.

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The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov.

TO: Valerie Connor
Division of Water Quality

/S/

FROM: Michael J. Levy
Staff Counsel
OFFICE OF CHIEF COUNSEL

DATE: August 2, 2001

SUBJECT: REGULATORY AND STATUTORY TIME LIMITS IMPLICATED IN DEVELOPING CALIFORNIA'S 303(d) LISTING AND DELISTING POLICY

I. INTRODUCTION

This summary is developed in response to your request for an identification of timelines of relevant activities implicated in developing a policy to guide the process of generating and maintaining California's 303(d) List, and developing California's periodic submittal to the United State Environmental Protection Agency under Title 33 United States Code section 1313(d). Pertinent abstracts from relevant statutes and regulations follow, as does a chart outlining the respective deadlines. Per your request, the chart is organized in reverse order, from latest to earliest. Please note that to the extent requirements overlap, they can be consolidated by applying the broadest requirement.

II. ABSTRACT OF PERTINENT AUTHORITIES

Prior to adoption of any state policy for water quality control, the State Water Resources Control Board (State Board) must hold a public hearing respecting the adoption of the policy. Notice of the hearing must be given to the affected regional boards 60 days before the hearing unless the Regional Water Quality Control Boards (Regional Boards) waive notice. Notice shall be published within the affected region pursuant to Government Code section 6061. Regional Boards shall submit written recommendations to the State Board at least 20 days before the hearing. (Wat. Code § 13147.)

Notice under Government Code section 6061 requires publication once in a newspaper of general circulation. The notice need not include a copy of the regulation. (Gov. Code § 6060 - 61; 63 Ops.Cal.Atty.Gen. 474, June 4, 1980.)

40 Code of Federal Regulations section 25.5, regarding public hearings, requires notice prior to the hearing, that is "well publicized" and "mailed to appropriate portions of the list of interested and affected parties" 45 days prior to the hearing. The notice "shall include or be accompanied by" a discussion of the agency's tentative decision. (40 C.F.R. § 25.5(b).)

A Responsiveness Summary (identifying public participation activities, the matters on which the public was consulted, summarizing the public's views, comments, criticisms, and suggestions, and setting forth the agency's specific responses) shall be published as part of the preamble to interim and final regulations. (40 C.F.R. § 25.10.)

The Office of Administrative Law (OAL) shall approve or disapprove a policy or regulation within 30 working days of submittal, otherwise it will be deemed approved. (Gov. Code § 11349.3. See also Gov. Code § 11353(b) for details of what must be submitted to OAL.)

Government Code section 11353(d) requires that any revision of a policy or guideline shall be made available for inspection by the public within 30 days of its effective date.

III. APPLICABILITY OF CEQA

We are of the opinion that the California Environmental Quality Act (CEQA) (Pub. Res. Code § 21000 et seq.) does not apply to adoption of this policy because it appears that the policy cannot "have the potential for causing a significant effect on the environment." (Cal. Code Regs., tit. 14, § 15061(b)(3).) A "significant effect on the environment" is defined as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected." (Cal. Code Regs., tit. 14, § 15382.) This conclusion is based on at least the following:

?? Improving water quality is not an "adverse change;"

?? Developing a list of impaired waters as required by Title 33 United States Code section 303(d), does not affect any change in physical conditions in any area affected.

Moreover, even if the policy could constitute a "significant effect on the environment," it would fall within at least two categorical exemptions, specifically, those pertaining to regulatory actions to protect natural resources (Cal. Code Regs., tit. 14, § 15307), and regulatory actions to protect the environment (Cal. Code Regs., tit. 14, § 15308). Accordingly, we would want to consider filing a Notice of Exemption (NOE) after the policy is approved by OAL. (Cal. Code Regs., tit. 14, § 15062(a).) The NOE would start running a 35-day statute of limitations within which to challenge the determination that the project is CEQA exempt. (Cal. Code Regs., tit. 14, § 15062(d).)

Notwithstanding the above conclusion, the State Board's regulations at Chapter 27, Article 6, relating to Exempt Regulatory Programs (Cal. Code Regs., tit. 23 § 3775 et seq.), require that

certain actions that are deemed "functionally equivalent" to CEQA be undertaken whenever "[a]ny standard, rule, regulation, or plan [is] proposed for board approval or adoption." (Cal. Code Regs., tit. 23, § 3777(a).) Section 3777(a), perhaps inadvertently, does not contain an exception for actions that should fall outside of the applicable scope of CEQA. While it could properly be argued that Article 6 does not apply unless CEQA would otherwise be implicated, the most cautious approach would be to nonetheless employ the procedures set forth in Article 6. Although this approach will require the State Board to perform additional tasks in connection with the policy, in large measure these tasks would be required in any event. Notably, assuming there are no significant effects, the end result would still be the functional equivalent of either an NOE or Negative Declaration, not an Environmental Impact Report. Please note that the conclusion of no significant effects is preliminary. If the contents of the policy subsequently dictate a contrary conclusion, a further examination of which procedures to follow would be appropriate.

Article 6 requires that the policy be accompanied by a completed Environmental Checklist, an outdated copy of which is set forth at Appendix A, following the Article. The Office of Planning and Research has developed a more up-to-date form. A written report must also be prepared, containing the following:

?? A brief description of the proposed activity;

?? Reasonable alternatives to the proposed activity; and

?? Mitigation measures to minimize any significant adverse environmental impacts from the activity.

(Cal. Code Regs., tit. 23, § 3777(a).) After completion of the written report, the State Board is required to provide a Notice of Filing (NOF) of the report to the public and to any person who in writing requests such notice. (Cal. Code Regs., tit. 23, § 3777(b).) An example of the NOF is contained at Appendix C, following the Article, but it should be modified as appropriate. The State Board must provide the NOF at least 45 days prior to the date of the hearing. (*Id.*) This report may also satisfy the parts of OAL's regulations that require a summary of the regulatory provisions that are proposed and a summary of the necessity for the regulatory provisions. The report should be drafted with those provisions in mind. (See Gov. Code § 11353(b).)

Upon completion of the written report, the State Board is required to consult with other public agencies that have jurisdiction over the proposed activity, and persons having special expertise with regard to any potential environmental effects. (Cal. Code Regs., tit. 23, § 3778.) This can be accomplished by transmitting of copy of the written report, or by any other appropriate means. (*Id.*)

Article 6 requires the State Board to prepare responses to comments received 15 days or more before the hearing, and such responses shall be available at the hearing for any person to review. (Cal. Code Regs., tit. 23, § 3779(a).) Any comments received less than 15 days before the hearing should responded to in writing to the extent feasible, and if not, they must be addressed

orally at the hearing. (Cal. Code Regs., tit. 23, § 3779(b).) Responses to comments shall become part of the administrative record. (*Id.*) The State Board is prohibited from approving a project if there are feasible alternatives or feasible mitigation measures available that would substantially lessen any significant adverse impact on the environment from the project. (Cal. Code Regs., tit. 23, § 3780.)

The final requirement from Article 6 prescribes that the State Board shall file a Notice of Decision (NOD) with the Secretary for Resources, who will post the NOD for public inspection for at least 30 days. The NOD must be filed with the Secretary after the project is adopted or approved. (23 Cal. Code Regs., § 3781.) A sample NOD is located at Appendix B following Article 6.

IV. SUMMARY OF APPLICABLE TIMELINES

Action	Day (minimum time)	Authority
Policy must be made available for inspection by the public within 30 days of its effective date.	30 days before effective date of policy	(Gov. Code § 11353(d))
File CEQA Notice of Exemption.	After policy approved (starts 35-day limit to challenge NOE)	(Cal. Code Regs., tit. 14, § 15062.)
File NOD with the Secretary of Resources	After policy approved by OAL	(Cal. Code Regs., tit. 23, § 3781.)
OAL Approval or disapproval.	30 days after submit to OAL	(Gov. Code § 11349.3)
Hearing	**Day 0**	
Compile written responses to comments received 15 or more days before the hearing; responses must be available for public review at hearing. To extent possible compile responses for remaining comments, or at least insure responses are made orally.	-15	(Cal. Code Regs., tit. 23, § 3779.)

Regional Boards submit written recommendations to State Board.	-20	(Wat. Code § 13147)
Reports, documents, and data relevant to the discussion shall be made available to the public.	-30 (or earlier if needed to allow time to assimilate comments)	(40 C.F.R. § 25.5(b), 25.4(c).)
Mail notice to interested and affected parties, with a discussion of the tentative decision and information on where to acquire relevant materials.	-45 (state law requires 10 days notice)	(40 C.F.R. § 25.5(b), 25.4(c), 25.4(b)(5); Gov. Code § 11125.)
Provide Notice of Filing (of environmental checklist and report) to public; and consult with relevant agencies and persons with special expertise.	-45	(Cal. Code Regs., tit. 23, § 3777(b). 3778.)
Notice of Hearing to RBs	-60	(Wat. Code § 13147)
Publish Notice in affected regions in newspaper of general circulation.	-60	(Gov. Code § 6060, 6061)

Should you have any questions, please feel free to contact me at 341-5193 or mlevy@exec.swrcb.ca.gov.

cc: Stan Martinson, DWQ
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TMDL Team

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Gray Davis
Governor

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov.

TO: Teresa Newkirk
Unit Chief, TMDL Development
Colorado River Basin RWQCB

FROM: Lori T. Okun /s/
Staff Counsel
OFFICE OF CHIEF COUNSEL

DATE: 7/10/01

SUBJECT: TIMING REQUIREMENTS FOR REGIONAL BOARD AGENDA ITEMS

This memorandum discusses the various deadlines that govern submitting total maximum daily loads (TMDL) to the Regional Water Quality Control Board (Regional Board). Procedurally, the Regional Board adopts a TMDL by amending the Basin Plan to incorporate the TMDL. The Clean Water Act, CEQA, and the Bagley-Keene Open Meeting Act (and related regulations) all include relevant timelines. In general, staff must complete the TMDL report and Basin Plan amendment, provide the Notice of Filing, and notify interested parties of its tentative decision at least **45 days before the Regional Board meeting**. Written responses to public comments must be complete **before the meeting**. Because staff needs time to prepare written comments, staff should provide the 45-day notice well in advance of the deadline for controversial items. The written responses need not be available to the public until the hearing. The Regional Board needs time to review the comment responses in advance of the hearing. Region 7's policy is to provide materials to the Board **seven to ten days before the meeting** where possible.

Thus, in order to ensure that staff has time to prepare comment responses and provide them to the Board in a timely manner, staff should issue provide the Notice of Filing at least 60 days before the meeting. Staff should also start working on comment responses well in advance of the meeting.

DISCUSSION

State Water Resources Control Board (State Water Board) regulations require the Regional Board to make the TMDL report (the CEQA "substitute document") available for public comment for at least 45 days. The 45-day period commences with the Notice of Filing and ends

on or before the Regional Board hearing (*i.e.*, the Board meeting) on the amendment. (Cal. Code Regs., tit. 23, § 3777.)[1]

Clean Water Act regulations require the Regional Board to mail notice of the amendment to all interested parties at least 45 days before the hearing.[2] (40 C.F.R. § 25.5(b).) Interested parties are those "persons and organizations who have expressed an interest in or may, by the nature of their purposes, activities or members, be affected by or have an interest in any covered activity." (40 C.F.R. § 25.4(b)(5).) In addition, where possible, interested parties include "among others, representatives of consumer, environmental, and minority associations; trade, industrial, agricultural, and labor organizations; public health, scientific, and professional societies; civic associations; public officials; and governmental and educational associations." (*Id.*; 40 C.F.R. § 25.3(a).) The Clean Water Act notice must include the Regional Board's tentative decision, if any, and information regarding how to obtain copies of relevant documents.

The Regional Board must provide written responses to significant public comments before adopting a TMDL or Basin Plan amendment. (*Mountain Lion Foundation v. Fish & Game Com.* (1997) 16 Cal.4th 105, 133; *Friends of the Old Trees v. Dept. of Forestry and Fire Protection* (1997) 52 Cal.App.4th 1383, 1403; Cal. Code Regs., tit. 23, § 3779.) The comments must be available to the public at the Regional Board hearing. (Cal. Code Regs., tit. 23, § 3779.) The Regional Board must provide written responses to all significant comments that the Board receives 15 or more days before the hearing. The Regional Board should respond in writing to later comments if feasible. When written responses to later comments are not feasible or when oral comments are presented at the hearing, the Regional Board must respond orally to the comments at the hearing. (Cal. Code Regs., tit. 23, § 3779.)

As a practical matter, staff prepares the written response on behalf of the Regional Board. Region 7's policy is to provide meeting materials to Board members seven to ten days before each meeting. Responses to comments must be fairly detailed,[3] which will affect staff's planning for meeting these timelines. When calendaring the date for providing the CEQA Notice of Filing and Clean Water Act notice, staff should allow time to prepare the written comments.

The resolution adopting the Basin Plan amendment must be on the Regional Board's agenda. The agenda must describe the resolution in sufficient detail to inform the public about the issues the Board will consider. (Gov. Code § 11125; 67 Ops.Cal.Atty.Gen. 84 (1984); Cal. Code Regs., tit. 23, § 647.2.) The Regional Board must provide the agenda at least 10 days before the hearing to anyone who has requested notice (Cal. Code Regs., tit. 23, § 647.2.), and to all cities and

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[1] The Clean Water Act also has a 45-day notice period for hearings, and a 30-day requirement for comments. (40 C.F.R. Part 25.) CEQA only requires a 30-day comment period (*Ultramar, Inc. v. SCAQMD* (1993) 17 Cal.App.4th 689, 698-700; Pub Resources Code § 21080.5, subd. (d)(3)), but the longer periods in the CWA and SWRCB regulations control.

[2] The notice requirement may be reduced to 30 days for workshops, if there is good reason why the Board cannot provide longer notice. (40 C.F.R. § 25.6.)

[3] See my memorandum to you dated June 14, 2001.

counties, and certain newspapers, within the region. (Gov. Code § 11125.9.) These notice requirements probably will not affect staff's planning deadlines.

After the Regional Board adopts the TMDL and Basin Plan amendment, the Regional Board must submit the Basin Plan amendment and administrative record to the State Board. (Wat. Code §§ 13245.5, 13246; Gov. Code § 11347.3, subd. (c).) (The State Board must include copy of the rulemaking file when it submits the amendment to the Office of Administrative Law (OAL).) There is no statutory deadline for the Regional Board's submission. Once the Regional Board submits the amendment, the State Board must provide 45 days public notice before acting on it (Gov. Code § 11346.4), but must act within 60 days (Wat. Code § 13246).[4] (See also, *State Water Resources Control Board v. Office of Administrative Law* (1993) 12 Cal.App.4th 697, 701-706.) The State Board then sends the amendment to OAL and, after OAL approval, to the U.S. EPA. The Regional Board files a Notice of Decision with the Secretary for Resources after final approval of the TMDL.

Please contact me if you have further questions or if you need information about what the administrative record should contain.

cc: Regional Board Attorneys, OCC
Michael J. Levy, OCC

[4] These time periods are concurrent; *i.e.*, if the State Board provided public notice on Day 1, the Board could act on the amendment between Day 46 and Day 60.

bc: Phil Wyels, OCC
Lori Okun, OCC
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Gray Davis
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TO: Stefan Lorenzato
TMDL Coordinator
Division of Water Quality

/ s /
FROM: Michael J. Levy
Staff Counsel
OFFICE OF CHIEF COUNSEL

DATE: January 26, 2001

SUBJECT: GUIDANCE REGARDING THE EXTENT TO WHICH EFFLUENT LIMITATIONS SET FORTH IN NPDES PERMITS CAN BE RELAXED IN CONJUNCTION WITH A TMDL

This memorandum is intended to address whether and to what extent effluent limitations in existing NPDES permits can be conditionally relaxed[1] to accommodate a TMDL implementation program. The inquiry concerns the extent to which point sources can be offered incentives to participate in some sort of watershed restoration effort, or other broad-based program designed to bring the watershed into compliance with the state water-quality standards.[2]

I. Whether effluent limitations in an NPDES permit can be relaxed depends upon which effluent limitations are under consideration

A. Technology-based effluent limitations cannot be relaxed

The Code of Federal Regulations (CFR) dictates that the technology-based effluent limitations (TBELs) shall be the floor to controls that are permissible under the Clean Water Act.

> "Technology-based treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a

[1] The term "conditional waiver" describes procedures under California Water Code § 13269 whereby state Waste Discharge Requirements ("WDRs") may be waived subject to certain conditions that guarantee that the waiver is not against the public interest. Unlike state WDRs, NPDES permits cannot be waived. (33 USC § 1311(a).) Since the term "conditional waiver" is a term-of-art, peculiar to state law, and may carry with it unintended connotations, its use is avoided in this memorandum and should be avoided when discussing NPDES permits or other requirements of federal law.

[2] As used in this memorandum, the term "water quality standards" is as defined in Section 303 of the Clean Water Act (33 USC § 1313) and the pertinent regulations. (40 CFR § 130.3.) The term, as applied to California, refers to the water quality control plans (Water Code § 13240), water quality objectives (Water Code § 13241), the anti-degradation policy (Water Code § 13000), and all other water quality requirements of the State.

permit issued under section 402 of the Act." (40 CFR § 125.3.) Furthermore, the regulations proscribe:

> "In no event may a [NPDES] permit …be renewed, reissued, or modified to contain an effluent limitation which is less stringent than required by effluent guidelines [technology-based limits pursuant to Section 304(b)] in effect at the time the permit is renewed reissued, or modified." (40 CFR §122.44(l)(2)(ii). See also 33 USC §1313(e)(3)(A).) Thus, the TBELs set forth in a NPDES permit cannot be relaxed under any circumstance relevant in this memorandum.[3]"

B. Water-quality based effluent limitations may be tightened or relaxed so long as the ultimate NPDES permit is consistent with assumptions and requirements of the TMDL

While the CFR dictates that the TBELs are the floor to discharges allowed in NPDES permits, the only floor to water-quality based effluent limitations (WQBELs) prescribed for impaired waters is the water-quality standards themselves.

> "In no event may such a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation <u>if the implementation of such limitation would result in a violation of a water quality standard under section 303 applicable to such waters.</u> (40 CFR § 122.44(l)(2)(ii) (emphasis added.)
>
> When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that: [¶] (A) The level of water quality to be achieved by limits on point sources established under this paragraph <u>is derived from, and complies with all applicable water quality standards</u>; and [¶] (B) Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, <u>are consistent with the assumptions and requirements of any available wasteload allocation</u> for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7. " (40 CFR § 122.44(d)(1)(vii) (emphasis added).)

Although the federal anti-backsliding stature would ordinarily preclude the relaxation of a WQBEL, a specific exception exists when such relaxation is in the context of a TMDL:

> "[A] permit may not be renewed, reissued, or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit <u>except in compliance with section 1313(d)(4) [303(d)(4)] of this title.</u> (33 USC § 1342(o)(1).)"

[3] The only exceptions to this rule are set forth in 40 CFR § 122.44(l)(2)(i), and relate largely to technical or legal mistakes, necessity, or changes to the facility.

While the EPA might have required WQBELs to be identical to a discharger's wasteload allocation, it did not do so. The EPA instead opted to provide the states the latitude to determine how to achieve the end results dictated by the TMDL. Accordingly, the regulations require that the WQBELs be "consistent with the assumptions and requirements of" rather than "identical to" or "not less stringent than" wasteload allocations. The regulations thus do allow the permitting authority to craft creative solutions that may include incentives to point source dischargers to assist in non-point source abatement through programs that include relaxation of the otherwise applicable level of WQBELs. These alternative requirements in lieu of application of the most restrictive WQBELs are permissible only if they are "consistent with the assumptions and requirements" of the TMDL, and will not result in violation of the water quality standards. Moreover, given the code's requirement that loads be established considering seasonal variations and a margin of safety which takes into account any lack of knowledge (33 USC § 1313(d)(1)(C)), the permitting authority should take care to consider the scientific uncertainty attendant to any alternative plans to be sure that such a plan will not result in a violation of the water quality standards.

Such requirements or incentives should not be mistaken for waivers of WQBELs. The NPDES permit will still contain a WQBEL, which is not and cannot be waived. However, the level of the WQBEL may be less restrictive, or significantly less restrictive than set forth in the previous NPDES permit so long as the relaxed WQBEL is conditioned upon the other requirements which collectively "are consistent with the assumptions" of the TMDL and "will not result in violation" of the water-quality standards. The above analysis is entirely consistent with the EPA's concept of the functions of a wasteload allocation, which the regulations define as "a type of water quality-based effluent limitation." (40 CFR § 130.2(h).) Hence,

> "[i]f Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs. (40 CFR § 130.2(i). See also 33 USC § 1313(d)(4)(A) [effluent limitations may be revised if the cumulative effect of all such revisions will assure attainment of the water quality standards].)"

The foregoing discussion should not be interpreted to imply that an offset program is required to relax a WQBEL. Again, the WQBEL only needs to be consistent with the assumptions and requirements of the TMDL and will not result in a violation of water quality standards. Accordingly, a WQBEL can be implemented that is substantially less stringent than the existing limitation, if for instance, the increased share of the wasteload allocated to the point source is accommodated by more stringent effluent limitations elsewhere, or by other appropriate assumptions of the TMDL that are designed to achieve water quality standards. In this respect, a relaxed WQBEL need not even be conditioned upon participation in other pollutant-abatement programs.

II. Requirements that impose conditions on relaxed WQBELs must be set forth in the NPDES permit and be directly enforceable.

Any additional requirements issued in lieu of a stringent WQBEL must be memorialized in the body of the NPDES permit:

> "In addition to the conditions established under § 122.43(a), each NPDES permit shall include conditions meeting the following requirements when applicable.
>
> (d) Water quality standards and state requirements: <u>any requirements in addition to or more stringent than</u> promulgated effluent limitations guidelines … necessary to: [¶] (1) Achieve water quality standards established under section 303…." (44 CFR § 122.44(d)(1).) Notably, any such requirements that are contained in the NPDES permit will be enforceable with civil or criminal penalties, or injunctive relief under Water Code sections 13385(a)(2), 13386, and 13387(a)(2), as well as 13350(a)."

III. Conclusion

A NPDES permit for an impaired water body must contain both technology-based and water quality-based effluent limitations The TBELs may not be relaxed in contemplation of a TMDL implementation program, but significant latitude is available when crafting the WQBELs. The limits of that latitude, however, are twofold. 1) The WQBELs must not result in a violation of water quality standards; and 2) the WQBELs must be consistent with the assumptions of the TMDL, which, of course, is designed to achieve the water quality standards. Any alternatives that are instituted as a condition of a relaxed WQBEL must be memorialized in the discharger's NPDES permit.

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TO: Jim Kassel, DWQ
John Ladd, DWQ
Stan Martinson, DWQ

/ s /
FROM: Michael J. Levy
Staff Counsel
OFFICE OF CHIEF COUNSEL

DATE: December 21 2000

SUBJECT: GUIDANCE REGARDING SECTION 303(D) LIST FOR THE 2002 SUBMISSION

This memorandum is in response to an options memorandum from Stefan Lorenzato that outlines several ways in which the State Water Board might address the Section 303(d) List for the year 2002, given that no listing policy is currently in place. The memorandum is intended to provide legal guidance on the level of involvement the State Water Board should have in developing the 303(d) list for the 2002 submission, and what actions must be undertaken to avoid the risk of litigation premised upon allegations of "underground regulations."

I. The State Water Board may exercise as much or as little control over the development of the 303(d) list as it deems appropriate, but in the absence of a regulation on point, it should exercise the ultimate discretion over the composition of the list

Section 303(d) of the Clean Water Act requires that "*each state* shall identify those waters…" for which effluent limitations are not stringent enough to achieve water quality standards. (33 USC § 1313(d) (emphasis added).) Article 4 of Chapter 3 of the Porter-Cologne Water Quality Control Act, addressing the powers and duties of the State Water Board, sets forth that:

> The state board is designated as the state water pollution control agency for all purposes stated in the Federal Water Pollution Control Act ..., and is **...** (b) authorized to exercise any powers delegated to the state by the [Clean Water Act]. (Water Code § 13160.)

While at first glance section 13160 might be deemed a charge solely to the State Water Board, nothing in that section precludes delegation of some or all of that authority to the Regional Water Boards. In fact while subdivision (a) of 13160 assigns certification processes (e.g., under

section 401 of the Clean Water Act) to the State Water Board, the State Water Board delegated the primary responsibility of certifications to the Regional Water Boards. (See 23 Cal. Code. Regs. § 3830 et seq.)

Given the fact that no such regulations have been promulgated relative to the 303(d) listing process, however, it would appear that the State Water Board should exercise the ultimate discretion over the composition of the list. Notably, by retaining the ultimate discretion over the List, any litigation about the contents of the List or the processes used would necessarily be consolidated at the State Water Board level, rather than incrementally in the various regions.

II. To minimize the risk of "underground regulation" litigation, the State Water Board should ensure the TMDL listing policy that has not yet been developed is not applied to dictate the manner in which the 2002 List is developed

The Administrative Procedures Act (Govt. Code § 11370 et seq. hereinafter "APA") governs the manner in which agencies are permitted to promulgate regulations. The term "underground regulations" has been coined to describe informal rules or regulations that have not been adopted in accordance with the APA.

> The APA is partly designed to eliminate the use of "underground" regulations; rules which only the government knows about. If a policy or procedure falls within the definition of a "regulation" within the meaning of the APA, the promulgating agency must comply with the procedures for formalizing such regulation, which include public notice and approval by the Office of Administrative Law (OAL). Failure to comply with the APA nullifies the rule. (*Kings Rehabilitation Center, Inc. v. Premo* (1999) 69 Cal.App.4th 215, 217, 81 Cal.Rptr.2d 406, 407, citing *Armistead v. State Personnel Board* (1978) 22 Cal.3d 198, 204, 149 Cal.Rptr. 1, 583 P.2d 744. See also *Tidewater Marine Western, Inc. v. Bradshaw* (1996) 14 Cal.4th 557, 59 Cal.Rptr.2d 186.)

Although due to time constraints, the 303(d) List for the year 2002 will necessarily be in the process of development at the same time that the State Water Board is developing its listing policy, the fact that both processes occur simultaneously does not give rise to a violation of the APA, provided the developing policy is not enforced upon those developing the List. Accordingly, though the State Water Board may assign the primary role of developing draft lists for each region to the Regional Water Boards, it would only violate the APA if direction were provided as to how the State Water Board interprets the authorities and expects them to be implemented, in the absence of a formal rule or policy. This is not to suggest that Regional Water Boards (or the State Water Board), in exercising their discretion when promulgating the list, cannot make use of any and all available information, including matters of which they are aware from the development of the policy. It does mean that the developing policy cannot be used to define the State and Regional Water Boards' interpretation of their obligations.

III. Conclusion

The State Water Board may choose whichever of the options described in the options memorandum that it determines is appropriate; however, the ultimate discretion about the composition of the 2002 List should be exercised by the State Water Board, in the absence of a regulation formally delegating those functions to the Regional Water Boards. Moreover, ensuring that the final List is the work-product of the State Water Board rather than the Regional Water Boards will necessarily consolidate any litigation about the composition of the List or the processes employed in its development, at the State level. Finally, to avoid the risk of litigation premised upon violations of the APA, the developing listing policy should not be used to define the State and Regional Water Boards' interpretation of their obligations in creating the 2002 List.

cc: Stefan Lorenzato
TMDL Coordinator
Division of Water Quality

bc: Ted Cobb, OCC

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TO: Stefan Lorenzato
TMDL Coordinator
Division of Water Quality

FROM: Sheila K. Vassey
Senior Staff Counsel
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DATE: OCT 27 1999

SUBJECT: ECONOMIC CONSIDERATIONS IN TMDL DEVELOPMENT AND BASIN PLANNING

ISSUE

When are the Regional Water Quality Control Boards (Regional Water Boards or Boards) legally required to consider economics in Total Maximum Daily Load (TMDL)[1] development and water quality control planning (basin planning)?[2]

CONCLUSION

The Regional Water Boards, in general, adopt TMDLs as basin plan amendments. Under state law, there are three triggers for Regional Water Board consideration of economics or costs in basin planning. These are:

- The Regional Water Boards must estimate costs and identify potential financing sources in the basin plan before implementing any agricultural water quality control program.
- The Boards must consider economics in establishing water quality objectives that ensure the reasonable protection of beneficial uses.

[1] See 33 U.S.C. § 1313(d); 40 C.F.R. § 130.7.

[2] See Wat. Code §§ 13240-13247.

- The Boards must comply with the California Environmental Quality Control Act (CEQA)[3] when they amend their basin plans. CEQA requires that the Boards analyze the reasonably foreseeable methods of compliance with proposed performance standards and treatment requirements. This analysis must include economic factors.

Economic factors come into play under federal law when the Regional Water Boards designate uses. Specifically, the Boards can decide not to designate, dedesignate, or establish a subcategory of, a potential use where achieving the use would cause substantial and widespread economic and social impact.

DISCUSSION

I. STATE LAW

Under federal and state law, the Regional Water Boards are required to include TMDLs in their basin plans.[4] There are three statutory triggers for an economic or cost analysis in basin planning. These triggers are:

- adoption of an agricultural water quality control program;
- adoption of water quality objectives; and
- adoption of a treatment requirement or performance standard (CEQA).

Each category is briefly discussed below.

A. Agricultural Water Quality Control Program

Agricultural activities are significant sources of nonpoint source pollution. Many waterbodies in the state are impaired due to one or more agricultural operations. As a result, the Regional Water Boards will be faced with developing programs to control agricultural activities, as part of TMDL development.

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne),[5] before a Regional Water Board implements an agricultural water quality control program, the Board must identify

[3] Pub. Resources Code § 21000 et seq.

[4] See 33 U.S.C. § 1313(d); 40 C.F.R. § 130.7(d)(2) (TMDLs must be incorporated into the state's water quality management plan. In California the basin plans are part of the state's water quality management plan.); Wat. Code §§ 13050(j), 13242.

[5] Wat. Code § 13000 et seq.

the total cost of the program and potential sources of financing.[6] This information must be included in the basin plan.

The statute does not define "agricultural" programs. The Legislature has, however, defined agricultural activities elsewhere to mean activities that generate "horticultural, viticultural, forestry, dairy, livestock, poultry, bee, or farm product[s]."[7] Because "agricultural" programs under Porter-Cologne are not restricted to particular activities, presumably, the Legislature intended that the term be interpreted broadly. Thus, the Regional Water Boards should identify costs and financing sources for agricultural water quality control programs" covering not only typical farming activities but also silviculture, horticulture, dairy, and the other listed activities.

The statute focuses only on costs and financing sources. The statute does not require the Regional Water Boards to do, for example, a cost-benefit analysis or an economic analysis.

B. Water Quality Objectives

Porter-Cologne requires that the Regional Water Boards take "economic considerations", among other factors, into account when they establish water quality objectives.[8] The objectives must ensure the reasonable protection of beneficial uses and the prevention of nuisance.[9]

Attached to this memorandum is a 1994 memorandum containing guidance on the consideration of economics in the adoption of water quality objectives.[10] The key points of this guidance are:

- The Boards have an affirmative duty to consider economics when adopting water quality objectives.
- At a minimum, the Boards must analyze: (1) whether a proposed objective is currently being attained; (2) if not, what methods are available to achieve compliance with the objective; and (3) the costs of those methods.

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[6] *Id.* § 13141.

[7] Food & Agr. Code §§ 564(a), 54004.

[8] Wat. Code § 13241. The other factors include the past, present, and probable future beneficial uses of water; environmental characteristics of the hydrographic unit under consideration; water quality conditions that could reasonably be achieved through the coordinated control of all factors affecting water quality in the area, the need for developing housing, and the need to develop and use recycled water.

[9] *Ibid.*

[10] Memorandum, dated January 4, 1994, from William R. Attwater, Chief Counsel, to Regional Water Board Executive Officers and Attorneys, entitled "Guidance on Consideration of Economics in the Adoption of Water Quality Objectives".

- If the economic consequences of adoption of a proposed objective are potentially significant, the Boards must state on the record why adoption of the objective is necessary to ensure the reasonable protection of beneficial uses or the prevention of nuisance.

- The Regional Water Boards can adopt objectives despite significant economic consequences.

- The Boards are not required to do a formal cost-benefit analysis.

C. CEQA

The Regional Water Boards must comply with CEQA when they amend their basin plans.[11] The State Resources Agency has certified the basin-planning program as exempt from the requirement to prepare environmental documents under CEQA.[12] In lieu of preparing an environmental impact report or negative declaration, the Boards must comply with the State Water Resources Control Board's regulations on exempt regulatory programs when they amend their basin plans.[13] These regulations require the Boards to prepare a written report that analyzes the environmental impacts of proposed basin plan amendments.[14] In general, CEQA requires the Regional Water Boards to consider economic factors only in relation to physical changes in the environment.[15]

CEQA also has specific provisions governing the Regional Water Boards' adoption of regulations, such as the regulatory provisions of basin plans that establish performance standards or treatment requirements. The Boards must do an environmental analysis of the reasonably foreseeable methods of compliance with those standards or requirements.[16] They must consider economic factors in this analysis.

CEQA does not define "performance standard"; however, the term is defined in the rulemaking provisions of the Administrative Procedure Act.[17] A "performance standard" is a regulation that describes an objective with the criteria stated for achieving the objective.[18]

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[11] See Pub. Resources Code § 21080.

[12] See Cal. Code Regs., tit. 14, § 15251(g).

[13] See Cal. Code Regs., tit. 23, §§ 3775-3782.

[14] *Id.* § 3777.

[15] See Cal. Code Regs., tit. 14, § 15064(e).

[16] Pub. Resources Code § 21159.

[17] Gov. Code §§ 11340-11359.

[18] *Id.* § 11342(d).

TMDLs will typically include performance standards. TMDLs normally contain a quantifiable target that interprets the applicable water quality standard. They also include wasteload[19] allocations for point sources, and load allocations[20] for nonpoint sources and natural background to achieve the target.[21] The quantifiable target together with the allocations may be considered a performance standard. Thus, the Regional Water Board must identify the reasonably foreseeable methods of compliance with the wasteload and load allocations and consider economic factors for those methods. This economic analysis is similar to the analysis for water quality objectives discussed above. That is, the Regional Water Board should determine: (1) whether the allocations are being attained; (2) if not, what methods of compliance are reasonably foreseeable to attain the allocations; and (3) what are the costs of these methods.

II. FEDERAL LAW

Under federal law, economics can be considered in designating potential beneficial uses. Specifically, the federal water quality standards regulations allow a state to dedesignate, to decide not to designate, or to establish a subcategory of a potential beneficial use on economic grounds. To rely on this basis, the state must demonstrate that attaining the use is infeasible because the controls necessary to attain the use "would result in substantial and widespread economic and social impact."[22]

The states can take this action only for potential uses. These are uses that do not meet the definition of an "existing use". Existing uses are those uses actually attained in the water body on or after November 28, 1975.[23]

Attachment

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[19] See 40 C.F.R. § 130.2(g). A wasteload allocation is the portion of the receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution.

[20] See *id.* § 130.2(g). A load allocation is the portion of the receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources.

[21] See *id.* § 130.2(i). A TMDL is the sum of the individual wasteload and load allocations.

[22] See *id.* § 131.10(g)(6).

[23] *Id.* § 131.3(e).

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State of California

Memorandum

To : Regional Water Board Executive Officers

Regional Water Board Attorneys

Date: JAN - 4 1994

From : William R. Attwater
Chief Counsel
OFFICE OF THE CHIEF COUNSEL
STATE WATER RESOURCES CONTROL BOARD
901 P Street, Sacramento, CA 95814
Mail Code: G-8

Subject: GUIDANCE ON CONSIDERATION OF ECONOMICS IN THE ADOPTION OF WATER QUALITY OBJECTIVES

ISSUE

What is required of a Regional Water Quality Control Board (Regional Water Board) in order to fulfill its statutory duty to consider economics when adopting water quality objectives in water quality control plans or in waste discharge requirements?

CONCLUSION

A Regional Water Board is under an affirmative duty to consider economics when adopting water quality objectives in water quality control plans or, in the absence of applicable objectives in a water quality control plan, when adopting objectives on a case-by-case basis in waste discharge requirements. To fulfill this duty, the Regional Water Board should assess the costs of the proposed adoption of a water quality objective. This assessment will generally require the Regional Water Board to review available information to determine the following: (1) whether the objective is currently being attained; (2) what methods are available to achieve compliance with the objective, if it is not currently being attained; and (3) the costs of those methods. The Regional Water Board should also consider any information on economic impacts provided by the regulated community and other interested parties.

If the potential economic impacts of the proposed adoption of a water quality objective appear to be significant, the Regional Water Board must articulate why adoption of the objective is necessary to assure the reasonable protection of beneficial uses of state waters, despite the potential adverse economic consequences. For water quality control plan amendments, this

discussion could be included in the staff report or resolution for the proposed amendment. For waste discharge requirements, the rationale must be reflected in the findings.

DISCUSSION

A. Legal Analysis

1. Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, Water Code Section 13000 et seq. (Porter-Cologne Act or Act), the State Water Resources Control Board (State Water Board) and the Regional Water Boards are the principal state agencies charged with responsibility for water quality protection. The State and Regional Water Boards (Boards) exercise this responsibility primarily through the adoption of water quality control plans and the regulation of waste discharges which could affect water quality. See Water Code Secs. 13170, 13170.2, 13240, 13263, 13377, 13391.

Water quality control plans contain water quality objectives, as well as beneficial uses for the waters designated for protection and a program of implementation to achieve the objectives. Id. Sec. 13050(j). In the absence of applicable water quality objectives in a water quality control plan, the Regional Water Board may also develop objectives on a case-by-case basis in waste discharge requirements. See id. Sec. 13263(a).[1]

When adopting objectives either in a water quality control plan or in waste discharge requirements, the Boards are required to exercise their judgment to "ensure the reasonable protection of beneficial uses and the prevention of nuisance". Id. Secs. 13241, 13263; see id. Sec. 13170. The Porter-Cologne Act recognizes that water quality may change to some degree without

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1 The focus of this memorandum is limited to an analysis of the Boards' obligation to consider economics when adopting water quality objectives either in water quality control plans or, on a case-by-case basis, in waste discharge requirements. This memorandum does not discuss the extent to which the Boards' are required to consider the factors specified in Water Code Section 13241 in other situations. Specifically, this memorandum does not discuss the applicability of Section 13241 to the development of numeric effluent limitations, implementing narrative objectives contained in a water quality control plan. Further guidance on the latter topic will be developed at a later date.

causing an unreasonable effect on beneficial uses. Id. The Act, therefore, identifies factors which the Boards must consider in determining what level of protection is reasonable. Id.[2] These factors include economic considerations. Id.[3]

The legislative history of the Porter-Cologne Act indicates that "[c]onservatism in the direction of high quality should guide the establishment of objectives both in water quality control plans and in waste discharge requirements". Recommended Changes in Water Quality Control, Final Report of the Study Panel to the [State Water Board], Study Project--Water Quality Control Program, p. 15 (1969) (Final Report). Objectives should "be tailored on the high quality side of needs of the present and future beneficial uses". Id. at 12. Nevertheless, objectives must be reasonable, and economic considerations are a necessary part of the determination of reasonableness. "The regional boards must balance environmental characteristics, past, present and future beneficial uses, and economic considerations (both the cost of providing treatment facilities and the economic value of development) in establishing plans to achieve the highest water quality which is reasonable." Id. at 13.

2. Senate Bill 919

The Boards are under an additional mandate to consider economics when adopting objectives as a result of the recent enactment of Senate Bill 919. 1993 Cal. Stats., Chap. 1131, Sec. 8, to be codified at Pub. Res. Code, Div. 13, Ch. 4.5, Art. 4. The legislation, which is

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2 Other factors which must be considered include:

(a) Past, present, and probable future beneficial uses of water;
(b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto;
(c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
(d) The need for developing housing within the region;
(e) The need to develop and use recycled water.

3 See also Water Code Section 13000 which mandates that activities and factors which may affect water quality "shall be regulated to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible" (emphasis added).

effective January 1, 1994, amended the California Environmental Quality Control Act, Public Resources Code Section 21000 et seq. (CEQA), to require that, whenever the Boards adopt rules requiring the installation of pollution control equipment or establishing a performance standard or treatment requirement, the Boards must conduct an environmental analysis of the reasonably foreseeable methods of compliance. This analysis must take into account a reasonable range of factors, including economics. For the reasons explained above, the latter requirement is duplicative of existing requirements under the Porter-Cologne Act regarding consideration of economics.

B. Recommendation

The meaning of the mandate to "consider economics" in the Porter-Cologne Act is not entirely clear. It is clear that the Porter-Cologne Act does not specify the weight which must be given to economic considerations. Consequently, the Boards may adopt water quality objectives even though adoption may result in significant economic consequences to the regulated community. The Porter-Cologne Act also does not require the Boards to do a formal cost-benefit analysis.

The Porter-Cologne Act does impose an affirmative duty on the Boards to consider economics when adopting water quality objectives. The Boards probably cannot fulfill this duty simply by responding to economic information supplied by the regulated community. Rather, the Boards should assess the costs of adoption of a proposed water quality objective. This assessment will normally entail three steps. First, the Boards should review any available information on receiving water and effluent quality to determine whether the proposed objective is currently being attained or can be attained. If the proposed objective is not currently attainable, the Boards should identify the methods which are presently available for complying with the objective. Finally, the Boards should consider any available information on the costs associated with the treatment technologies or other methods which they have identified for complying with a proposed objective.[4]

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4 See, for example, Managing Wastewater In Coastal Urban Areas, National Research Council (1993). This text provides data on ten technically feasible wastewater treatment technologies, which can be used to make comparative judgments about performance and to estimate the approximate costs of meeting various effluent discharge standards, including standards for toxic organics and metals.

In making their assessment of the cost impacts of a proposed objective, the Boards are not required to engage in speculation. Rather, the Boards should review currently available information. In addition, the Boards should consider, and respond on the record, to any information provided by dischargers or other interested persons regarding the potential cost implications of adoption of a proposed objective.

If the economic consequences of adoption of a proposed water quality objective are potentially significant, the Boards must articulate why adoption of the objective is necessary to ensure reasonable protection of beneficial uses. If the objective is later subjected to a legal challenge, the courts will consider whether the Boards adequately considered all relevant factors and demonstrated a rational connection between those factors, the choice made, and the purposes of the Porter-Cologne Act. See California Hotel & Motel Assn. v. Industrial Welfare Com., 25 Cal.3d 200, 212, 157 Cal.Rptr. 840, 599 P.2d 31 (1979).

Reasons for adopting a water quality objective, despite adverse economic consequences, could include the sensitivity of the receiving waterbody and its beneficial uses, the toxicity of the regulated substance, the reliability of economic or attainability data provided by the regulated community, public health implications of adopting a less stringent objective, or other appropriate factors. These factors may also include the legislative directive that a "margin of safety [ ] be maintained to assure the protection of all beneficial uses." Final Report, p. 15 and App. A, p. 59.

If objectives are proposed for surface waters and adverse economic consequences stemming from adoption of the objectives could be avoided only if beneficial uses were downgraded, the Boards should address whether dedesignation would be feasible under the applicable requirements of the Clean Water Act and implementing regulations. See 40 C.F.R. Sec. 131.10. Dedesignation is feasible only for potential, rather than existing, uses. See id. Sec. 131.10(g). If dedesignation of potential beneficial uses is infeasible, the Boards should explain why, e.g., that there is a lack of data supporting dedesignation.[5]

5 It should also be noted that, even if dedesignation of potential beneficial uses is feasible, in the great majority of cases it will not have any significant effect on the selection of a proposed objective. This is so because the proposed objective will be necessary to protect existing beneficial uses, which cannot be dedesignated.

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The State or Regional Water Board's rationale for determining that adoption of a proposed objective is necessary to protect water quality, despite adverse economic consequences, must be discernible from the record. This reasoning could be included in the staff report or in the resolution adopting a proposed water quality control plan amendment. When objectives are established on a case-by-case basis in waste discharge requirements, the rationale must be included in the findings.

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Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

TO: Gerard J. Thibeault
Executive Officer
Santa Ana Regional Water Quality Control Board

FROM: William R. Attwater
Chief Counsel
OFFICE OF CHIEF COUNSEL

DATE: March 1, 1999

SUBJECT: Do TMDLs Have to Include Implementation Plans?

You have asked a series of questions regarding whether or not TMDLs (total maximum daily loads) have to include implementation plans. This memorandum first looks at whether implementation plans are required under federal law and, second, whether they are required under state law. The memorandum concludes that while it is federal policy that TMDLs should include implementation plans, they are not currently required under federal law. Implementation plans are required under state law. Your questions and brief responses follow.

I. Federal Law

Must TMDLs include implementation plans under federal law? The short answer is no, not at present. It is likely, however, that implementation plans will be required in the future, either as a result of a federal rule promulgation or, possibly, as an outcome of litigation.

A. Clean Water Act and Regulations

When Congress overhauled the Clean Water Act[1] in 1972, Congress decided to focus water pollution control on nationwide technology controls for point sources of pollution.[2] At the states' insistence, however, the federal Act retained a water quality-based strategy to address

[1] 33 U.S.C. § 1251 et seq.

[2] See, e.g., *id.* § 1311(b)(1)(A), (b)(2), & (b)(3).

surface waters that did not meet water quality standards.[3] This approach is contained in section 303(d)[4] of the Clean Water Act.

Section 303(d) of the Clean Water Act requires that the states identify and establish a priority ranking for waters that do not meet water quality standards after application of technology-based controls.[5] Water quality standards are the designated uses of a waterbody, together with criteria[6] to protect those uses, and an antidegradation policy.[7]

The states must then develop TMDLs to restore these waters. A TMDL establishes the allowable loadings or other quantifiable parameters for a waterbody. It is the sum of the loadings from point sources[8] (waste load allocations), best estimates of loadings from nonpoint sources and background (load allocations), and a margin of safety.[9]

Once a state adopts a TMDL, the state must submit it to the United States Environmental Protection Agency (EPA) for approval. If approved, the state must then incorporate the TMDL into its water quality management plan.[10] The state's water quality management plan consists of plans developed under section 208 of the Clean Water Act,[11] governing areawide waste treatment management, and plans developed as part of the state's continuing planning process under section 303(e).[12] If EPA disapproves the TMDL, EPA is required to step in and prepare the TMDL.

Section 303(d) stops at listing and TMDL development. It is silent regarding implementation. Section 303(e) goes on to require that the states have a "continuing planning process" with plans that include, among other things, TMDLs and adequate implementation for revised or new

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[3] See discussion in Houck, *TMDLs: The Resurrection of Water Quality Standards-Based Regulation Under the Clean Water Act*, 27 Envtl. L. Rep. 10,329 (1997).

[4] *Id.* § 1313(d).

[5] *Ibid.*

[6] State-adopted water quality objectives are synonymous with the federal term "criteria" under section 303(c) of the Clean Water Act. Compare 40 C.F.R. § 131.3(b) with Water Code § 13050(h).

[7] *Id.* § 1313(c)(2)(A); 40 C.F.R. §§ 130.2(d), 130.7(b)(3).

[8] "Point sources" are "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, . . . from which pollutants are or may be discharged. 33 U.S.C. § 1362(14).

[9] 40 C.F.R. §§ 130.2(I), 130.7(c)(1).

[10] 33 U.S.C. § 1313(d)(2).; 40 C.F.R. § 130.7(d)(2).

[11] 33 U.S.C. § 1288.

[12] *Id.* § 1313(e); see 40 C.F.R. § 130.6(a).

standards.[13] EPA can approve or disapprove the "process" but has no authority under this section to actually implement TMDLs.

Like the statute, EPA regulations implementing section 303(d) do not directly address implementation.[14] And, while a 1991 EPA guidance document discussed the need for implementation,[15] past EPA practice has not required that state TMDL submissions include an implementation plan.[16]

For point sources, implementation plans are not so critical. EPA regulations require that National Pollutant Discharge Elimination System (NPDES) permits[17] issued to regulate discharges to an impaired waterbody be consistent with any waste load allocations in an EPA-approved TMDL.[18] Through its oversight authority, EPA can ensure that state-issued permits are, in fact, consistent.[19] Nonpoint sources, however, are another matter. EPA has no direct authority under the Clean Water Act to implement or enforce nonpoint source controls.[20] Here, EPA is forced to rely on the good faith of the states and other measures, e.g. withholding grant funding, to persuade the states to implement TMDL load allocations for nonpoint sources.

B. Litigation

In recent years, EPA has faced a deluge of litigation throughout the nation over the states' and EPA's failure to comply with section 303(d).[21] The lawsuits initially focussed on the states' failure to list and, then, their failure to develop TMDLs for listed waterbodies. This focus is

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[13] 33 U.S.C. § 1313(e)(3)(C) and (F). The reference to standards would be to those adopted or revised after enactment of the Clean Water Act on October 18, 1972.

[14] See 40 C.F.R. § 130.7.

[15] Guidance for Water Quality-based Decisions: The TMDL Process, EPA 440/4-91-001 (April 1991), pp. 15-16, 23-24.

[16] Report of the Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, the National Advisory Council for Environmental Policy and Technology (NACEPT), EPA 100-R-98-006 (July 1998) (hereinafter FACA Report), p. 36.

[17] The Clean Water Act established the NPDES permit program. Under the Act, the point source discharge of pollutants to surface waters must be regulated under an NPDES permit. EPA or states with approved programs issue these permits. See 33 U.S.C. §§ 1311, 1342.

[18] 40 C.F.R. § 122.44(d)(1)(vii)(B).

[19] See 33 U.S.C. § 1342(c).

[20] See discussion in Conway, *TMDL Litigation: So Now What?*, 17 Va. Envtl. L. J. 83 (Fall 1997).

[21] See TMDL Lawsuit Information (February 3, 1999) <http://www.epa.gov/OWOW/tmdl/lawsuit1.html>.

changing.[22] Several recent cases question the content of TMDLs and some specifically seek not only TMDL development but also implementation.[23]

A recent consent decree in Washington state requires that TMDL schedules include plans for their implementation.[24] To date, however, there are no published court opinions that answer the question whether TMDLs must include implementation plans. It appears likely that, if asked to rule on the issue, a court would conclude that implementation plans can be required, either under section 303(d) or section 303(e). To rule otherwise would mean that significant federal and state resources are being wasted on what is purely a planning exercise. Even more significantly, it would unquestionably thwart the will of Congress "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[25]

C. EPA's Response

In response to the rising tide of litigation, EPA launched several initiatives. EPA issued TMDL guidance in 1997 establishing two significant policies.[26] The first set a deadline for completion of all TMDLs of from 8 to 13 years. The second directed that the states prepare implementation plans for TMDLs addressing waters impaired solely or primarily by nonpoint sources. The plans should include "reasonable assurances" that the TMDL's nonpoint source load allocations would be achieved. The plans could be submitted as water quality management plan revisions under section 303(e), coupled with a draft TMDL, or as part of an equivalent planning process. The policy also directed EPA regional administrators to take additional measures against states that did not develop implementation plans.[27]

In addition, EPA convened a Federal Advisory Committee Act (FACA) committee to advise EPA on new policy and regulatory directions for the program. The committee released its final

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[22] See discussion in Houck, *TMDLs III: A New Framework for the Clean Water Act's Ambient Standards Program*, 28 Envtl. L. Rep. 10415 (August, 1998).

[23] See, e.g., *The Neuse River Foundation, Inc.* v. *Browner*, No. 4:96-CV-188-BO(3) (E.D.N.C.), filed December 31, 1996 (plaintiffs seek an order directing EPA to establish TMDLs and to "implement and enforce" all TMDLs); *Kingman Park Civic Assn.* v. *U.S. Environmental Protection Agency*, No. 1:98CV00758 (D.D.C.), filed March 25, 1998 (plaintiffs seek an order requiring EPA to establish TMDLs and to ensure that they are implemented).

[24] Consent Decree, *Northwest Envtl. Advocates* v. *Browner*, No. 91427R (W.D. Wash.), January 20, 1998.

[25] 33 U.S.C. § 1251(a).

[26] FACA Report, fn. 16, *supra*.

[27] These included, for example, requiring a state to update its water quality management plan or to incorporate into the plan additional implementation measures on a statewide or specific watershed basis; or denying or revoking a state's enhanced benefits status under new Clean Water Act section 319 nonpoint source guidance and reverting to a more intense, project-by-project oversight process on annual section 319 grants.

report in July 1998.[28] The committee addressed TMDL implementation, as well as other issues, and reached consensus on several points. Overall, there was broad agreement that implementing TMDLs is the key to program success.[29] The committee agreed that section 303 of the Clean Water Act authorizes EPA to require implementation plans.[30] They also agreed that EPA should issue regulations requiring that the states prepare and submit an implementation plan and schedule concurrently with each TMDL.[31]

While the committee agreed that section 303 provides EPA sufficient authority to require implementation plans, the committee disagreed on whether these plans should be submitted under subsection (d) or (e).[32] The issue is significant because EPA is statutorily required to complete TMDLs if the states fail to do so. If implementation plans are a required part of a TMDL under section 303(d), EPA could ultimately be forced to complete a state's implementation plans. On the other hand, it is unclear whether, if TMDL implementation plans are required under section 303(e), EPA would be similarly required to establish the plans in the event of a state's failure to do so.

D. Current Status

Whether the United States Environmental Protection Agency (EPA) should require that TMDLs include implementation plans and, if so, under what authority are the $64,000 questions currently facing EPA. The FACA committee's recommendations are expected to significantly impact the TMDL program. EPA has drafted a proposed rule revising the existing TMDL regulations and is scheduled to publish the rule this summer.[33] The agency is expected to, among other things, require states to have implementation plans for TMDLs.[34] In addition to revising the TMDL regulations, EPA may also change the regulations under section 303(e), governing the continuing planning process.

II. State Law

Does state law require that TMDLs include implementation plans? Yes. The Regional Water Quality Control Boards (Regional Water Boards) are required to incorporate TMDLs in their

[28] Report of the Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, the National Advisory Council for Environmental Policy and Technology (NACEPT), EPA 100-R-98-006 (July 1998) (hereinafter FACA Report).

[29] *Id.* at 5-6.

[30] *Id.* at 36 and H-2.

[31] *Id.* at 36-41 and App. H.

[32] *Ibid.*

[33] Inside EPA's Water Policy Report, vol. 8, no. 4 (February 17, 1999) at 18.

[34] *Ibid.*

water quality control plans (basin plans). Implementation plans are a required component of basin plans.

In general, Regional Water Boards base listing decisions under section 303(d) on the water quality standards in their basin plans. They list waterbodies for which technology-based effluent limitations and other pollution control requirements are not stringent enough to achieve designated beneficial uses or water quality objectives.[35] The Regional Water Boards then develop TMDLs, the goal of which is to attain the standard.

TMDLs adopted by the Regional Water Boards have certain common components. Typically, they contain a problem statement that identifies the waterbody, the standard that is not being achieved, and the pollutant or stressor that is causing the impairment; numeric targets, describing specific instream goals that reflect attainment of the standard; source identification; loading allocations; and an implementation plan.

The numeric target, in particular, is essentially an interpretation of an existing standard. It can be expressed in terms of mass per time (e.g., daily loading), toxicity, habitat indicators, or other appropriate measure that, if met, will achieve the standard. For waterbodies listed because of failure to meet a narrative water quality objective, the numeric target will be a quantitative interpretation of the narrative objective. For example, if a waterbody fails to achieve a narrative objective for settleable solids, the TMDL could include targets for annual mass sediment loading.

Federal law requires that TMDLs, upon EPA approval, be incorporated into the state's water quality management plan. California's water quality management plan consists of the Regional Water Boards' basin plans[36] and statewide water quality control plans.[37] State law, in turn, requires that basin plans have a program of implementation to achieve water quality objectives.[38] The implementation program must include a description of actions that are necessary to achieve the objectives, a time schedule for these actions, and a description of surveillance to determine compliance with the objectives.[39]

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[35] Some federal criteria, adopted by EPA pursuant to Clean Water Act section 303(c), also apply to California waters. See the National Toxics Rule, 40 C.F.R. § 131.36. Waterbodies can also be listed because they do not meet antidegradation requirements. Typically, however, water are listed for failure to achieve water quality objectives or beneficial uses.

[36] See Water Code §§ 13240-13247.

[37] See State of California Continuing Planning Process Document, State Water Resources Control Board, Division of Water Quality (September 1991).

[38] Water Code § 13050(j). Basin plans include three elements: beneficial use designations, water quality objectives to protect those uses, and a program of implementation to achieve objectives.

[39] *Id.* § 13242.

State law would require that a TMDL include an implementation plan because the TMDL normally is, in essence, an interpretation or refinement of an existing water quality objective. The TMDL has to be incorporated into the basin plan. And, because the TMDL supplements, interprets, or refines an existing objective, state law requires a program of implementation.[40] Therefore, the Regional Water Board will have to review the basin plan's existing implementation chapter to determine whether it adequately implements the objective, as newly interpreted.

For a TMDL whose goal is to achieve a standard based primarily on nonattainment of a designated beneficial use, for which there are no applicable objectives, a numeric target is established for each pollutant or stressor that interferes with attaining the use. Establishing a numeric target in these instances is analogous to establishing water quality objectives to protect a use. Thus, the Regional Water Board would again have to review its existing implementation program to determine its adequacy to implement the numeric targets.

Even if the Regional Water Boards did not have to develop implementation plans for TMDLs, they would still have to comply with the California Environmental Quality Act (CEQA).[41] CEQA compliance, in the absence of a defined implementation plan, could potentially be more difficult than it would be with one. Under CEQA, the Regional Water Board would have to identify the reasonably foreseeable methods of compliance with any TMDL provisions that established performance standards or treatment requirements.[42] The numeric targets and load allocations would probably fall into the category of performance standards. After identifying the reasonably foreseeable compliance methods, the Regional Water Board would have to analyze their reasonably foreseeable environmental impacts, taking into account a reasonable range of environmental, economic, and technical factors.[43]

A defined implementation plan may allow the Regional Water Board to more narrowly focus its CEQA analysis. Without one, the CEQA analysis could potentially be broader and more burdensome.

III. Questions and Answers

1. Question: *"When the Regional Board adopts a TMDL as a Basin Plan amendment, what are the Board's responsibilities with respect to adopting an implementation plan for the TMDL? What are the timing requirements?"*

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[40] See § 13050(j).

[41] Pub. Resources Code § 21000 et seq.

[42] *Id.* § 21159.

[43] *Ibid.*

Answer: Neither section 303(d) of the Clean Water Act nor regulations implementing the section currently require that TMDLs include an implementation plan. There are no published judicial decisions that address the question. It is current EPA policy that the states develop implementation plans for TMDLs, although the timing of these plans is unclear.

Under state law, the Regional Board must adopt an implementation plan for the TMDL. The plan should be adopted concurrently with the other TMDL components, if practicable, or within a short time frame thereafter. If it is not, the TMDL would not be effective until the implementation plan is adopted. For the reasons explained in the response to Question 3, it may not be advisable to adopt the TMDL in phases.

2. Question: *"If USEPA adopts the TMDL instead of the Regional Board, what are the Board's responsibilities to adopt and implement that TMDL? Must the Board prepare and adopt an implementation plan for a USEPA-adopted TMDL? What are the timing requirements?"*

Answer: Section 303(d) provides that if EPA adopts a TMDL, the state must incorporate it into its water quality management plan.[44] Although the statute appears to restrict the state to adopting EPA's TMDL, EPA Region 9 has taken the position that if the state were to adopt an acceptable TMDL, EPA would withdraw its TMDL, upon EPA approval of the state TMDL.

Generally speaking, if the Regional Water Board decided to incorporate EPA's TMDL into its basin plan, the Regional Water Board would have to develop an implementation plan. Although federal law does not currently require an implementation plan, this is likely to change in the future. Under state law, an implementation plan would be required. There is one possible exception to this general rule. For a waterbody impacted by only point source discharges, the argument could be made that the TMDL is self-implementing. Federal regulations already require that NPDES permits implement any waste load allocations in an applicable TMDL, and the Regional Water Boards must comply with these regulations.[45]

Neither section 303(d) nor the implementing regulations currently address the timing of the state's action. The best that can be said is that the state should act within a reasonable time period. What is reasonable will depend on the circumstances. The state's progress in implementing section 303(d), the amount of resources allotted by the state to this program,

[44] 33 U.S.C. § 1313(d)(2); see 40 C.F.R. § 130.7(d)(2).

[45] 40 C.F.R. § 122.44(d)(1)(vii)(B); Cal. Code Regs., tit. 23, § 2235.2. But see the FACA Report, fn. 16, *supra*, recommending that an implementation plan for waterbodies impaired solely or primarily by point sources include specific timetables and commitments to issue or review permits with fixed compliance schedules, monitoring and enforcement commitment, ambient monitoring to assess the effectiveness of the waste load allocations in achieving standards, and a feedback loop. FACA Report at G-9.

and the relative ease or degree of difficulty involved in the effort are probably all factors which would bear on reasonableness.

3. Question: *"Can a TMDL be adopted by the Regional Board and incorporated into the Basin Plan with an understanding that an implementation [plan] would be adopted at some later specified or* ***unspecified*** *date?"*

   Answer: Theoretically speaking, a Regional Water Board could probably adopt a TMDL in two phases. That is, the Regional Water Board could first adopt the TMDL without an implementation plan, followed by adoption of an implementation plan at some later date.

   Although this is theoretically possible, it wouldn't make much sense for several reasons. First, under state law, an implementation plan is required. Consequently, the first basin plan amendment wouldn't be complete, and could not be implemented, until the later adoption of an implementation plan. Second, to the extent that the TMDL is not complete under state law, query whether this would meet the requirements of section 303(d). Third, for the reasons explained previously, CEQA compliance would probably be more difficult because the Regional Water Board would have to identify and analyze all reasonably foreseeable methods of compliance with the TMDL in the first phase. Fourth, adopting the TMDL in phases would require the Regional Water Board to use its resources for two public adoption processes, rather than one. Finally, adopting a TMDL without an implementation plan may raise "clarity" issues for the Office of Administrative Law (OAL).[46] OAL may determine that the TMDL cannot be approved under the rulemaking provisions of the Administrative Procedure Act[47] because its impact on the regulated community is unclear, without an implementation plan. In any event, any lengthy delay in adopting an implementation plan is unsupportable.

4. Question: *"TMDLs do not include compliance schedules, which are generally provided in TMDL implementation plans. If an implementation plan, with schedules, is not adopted when a TMDL is adopted by the State (i.e. approved by the Regional Board, State Board and the Office of Administrative Law) does the TMDL take effect immediately, and must it be enforced immediately? Some Regional Board Basin Plans include generic compliance schedule provisions, while others do not (the Region 8 Basin Plan does not include such provisions). Where these compliance schedule provisions exist in Basin Plans, can they be used to establish TMDL implementation schedules?"*

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[46] See Gov. Code §§ 11349.1, 11353(b)(4). "'Clarity' means written or displayed so that the meaning of regulations will be easily understood by those persons directly affected by them." *Id.* § 11349(c).

[47] See *id.* §§ 11340-11359.

Answer: A time schedule for implementing a TMDL has to be part of an implementation program under state law. In general, state law would require that a TMDL include an implementation program. With the possible exception of a TMDL affecting only or primarily point source dischargers (see response to Question 3, above), a TMDL would not be effective, and could not be implemented, until an implementation program was adopted. Of course, the program could consist of the Regional Water Board's existing implementation program if: (1) that program is adequate to achieve the water quality standard in question and (2) the implementation program contains the required elements, e.g. a description of necessary actions to achieve the objective, a time schedule for those actions, and a description of surveillance to determine compliance with the objective.

All of the Regional Water Boards currently are authorized to include compliance schedules in waste discharge requirements for discharges not subject to regulation under an NPDES permit.[48] Two of the Regional Water Boards[49] have included specific compliance schedule provisions in their basin plans that apply only to NPDES permits. The fact that the Regional Water Boards can include compliance schedules in individual waste discharge requirements, or in limited circumstances in NPDES permits, would not obviate the need for an implementation program with a time schedule to achieve compliance with the applicable standard.

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[48] See Water Code § 13263(c); Cal. Code Regs., tit. 23, § 2231.

[49] These are the Central Valley and San Francisco Bay Regional Water Boards.

Winston H. Hickox
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Gray Davis
Governor
State of California

TO: William R. Attwater
Chief Counsel

FROM: Sheila K. Vassey
Senior Staff Counsel
OFFICE OF CHIEF COUNSEL

DATE: January 7, 1999

SUBJECT: TMDL QUESTIONS

By way of background, both the Clean Water Act and implementing regulations require that the states establish a priority ranking for listed waterbodies.

1. Have we or U.S. EPA ever been sued over not working on a TMDL ranked as a medium or low priority for TMDL development?

   RESPONSE: Yes. U.S. EPA has been sued over the state's failure to do any TMDLs, regardless of ranking. For example, environmental groups sued U.S. EPA over the state's failure to do TMDLs for all listed waters in the North Coast and Los Angeles regions. These included low and medium-ranked waterbodies.

   I am not aware of any lawsuits which have focused on the propriety of a particular priority ranking. The lawsuits, in general, have focused on the state's alleged failure to do any TMDLs.

2. Does a ranking of medium or low "preclude" a lawsuit if there are still highs on the list for any given Regional Board?

   RESPONSE: No. As explained above, U.S. EPA is being sued for the state's failure to do any TMDLs. If the state could demonstrate that it was diligently developing TMDLs for listed waterbodies in accordance with its priority ranking system, the state might prevail in a lawsuit challenging the state's failure to doTMDLs for medium or low-ranked waters.

3. If we, or U.S. EPA, are vulnerable to lawsuits for mediums or lows, what is the value of the ranking system in terms of trying to prioritize our resources to work on the more important chemicals or substances?

   RESPONSE: Priority ranking satisfies several objectives. First, it is legally required. Second, it allows the Regional Water Board to allocate resources in a rational manner. Waterbody rankings are not based solely on threat to water quality and beneficial uses. The Regional Boards consider other factors, such as how a TMDL fits with related activities in the watershed and the potential for beneficial use recovery.

cc: Stan Martinson, DWQ
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State of California

Memorandum

To : Regional Water Board Executive Officers

Regional Water Board Attorneys

Date: SAN - 4 1994

William R. Attwater
Chief Counsel
OFFICE OF THE CHIEF COUNSEL
From : STATE WATER RESOURCES CONTROL BOARD
901 P Street, Sacramento, CA 95814
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Subject: GUIDANCE ON CONSIDERATION OF ECONOMICS IN THE ADOPTION OF WATER QUALITY OBJECTIVES

ISSUE

What is required of a Regional Water Quality Control Board (Regional Water Board). in order to fulfill its statutory duty to consider economics when adopting water quality objectives in water quality control plans or in waste discharge requirements?

CONCLUSION

A Regional Water Board is under an affirmative duty to consider economics when adopting water quality objectives in water quality control plans or, in the absence of applicable objectives in a water quality control plan, when adopting objectives on a case-by-case basis in waste discharge requirements. To fulfill this duty, the Regional Water Board should assess the costs of the proposed adoption of a water quality objective. This assessment will generally require the Regional Water Board to review available information to determine the following: (1) whether the objective is currently being attained; (2) what methods are available to achieve compliance with the objective, if it is not currently being attained; and (3) the costs of those methods. The Regional Water Board should also consider any information on economic impacts provided by the regulated community and other interested parties.

If the potential economic impacts of the proposed adoption of a water quality objective appear to be significant, the Regional Water Board must articulate why adoption of the objective is necessary to assure the reasonable protection of beneficial uses of state waters, despite the potential adverse economic consequences. For water quality control plan amendments, this

discussion could be included in the staff report or resolution for the proposed amendment. For waste discharge requirements, the rationale must be reflected in the findings.

DISCUSSION

A. Legal Analysis

1. Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, Water Code Section 13000 et seq. (Porter-Cologne Act or Act), the State Water Resources Control Board (State Water Board) and the Regional Water Boards are the principal state agencies charged with responsibility for water quality protection. The State and Regional Water Boards (Boards) exercise this responsibility primarily through the adoption of water quality control plans and the regulation of waste discharges which could affect water quality. See Water Code Secs. 1317.0, 13170.2, 13240, 13263, 13377, 13391.

Water quality control plans contain water quality objectives, as well as beneficial uses for the waters designated for protection and a program of implementation to achieve the objectives. Id. Sec. 13050(j). In the absence of applicable water quality objectives in a water quality control plan, the Regional Water Board may also develop objectives on a case-by-case basis in waste discharge requirements. See id. Sec. 13263(a).[1]

When adopting objectives either in a water quality control plan or in waste discharge requirements, the Boards are required to exercise their judgment to "ensure the reasonable protection of beneficial uses and the prevention of nuisance". Id. Se-cs. 13241, 13263; see id. Sec. 13170. The Porter-Cologne Act recognizes that water quality may change to some degree without

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1 The focus of this memorandum is limited to an analysis of the Boards' obligation to consider economics when adopting water quality objectives either in water quality control plans or, on a case-by-case basis, in waste discharge requirements. This memorandum does not discuss the extent to which the Boards' are required to consider the factors specified in Water Code Section 13241 in other situations. Specifically, this memorandum does not discuss the applicability of Section 13241 to the development of numeric effluent limitations, implementing narrative objectives contained in a water quality control plan. Further guidance on the latter topic will be developed at a later date.

causing an unreasonable effect on beneficial uses. Id. The Act, therefore, identifies factors which the Boards must consider in determining what level of protection is reasonable. Id.[2] These factors include economic considerations. Id.[3]

The legislative history of the Porter-Cologne Act indicates that "[c]onservatism in the direction of high quality should guide the establishment of objectives both in water quality control plans and in waste discharge requirements". Recommended Changes in Water Quality Control, Final Report of the Study Panel to the [State Water Board], Study Project--Water Quality Control Program, p. 15 (1969) (Final Report). Objectives should "be tailored on the high quality side of needs of the present and future beneficial uses". Id. at 12. Nevertheless, objectives must be reasonable, and economic considerations are a necessary part of the determination of reasonableness. "The regional boards must balance environmental characteristics, past, present and future beneficial uses, and economic considerations (both the cost of providing treatment facilities and the economic value of development) in establishing plans to achieve the highest water quality which is reasonable." Id. at 13.

2. Senate Bill 919

The Boards are under an additional mandate to consider economics when adopting objectives as a result of the recent enactment of Senate Bill 919. 1993 Cal. Stats., Chap. 1131, Sec. 8, to be codified at Pub. Res. Code, Div. 13, Ch. 4.5, Art. 4. The legislation, which is

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2 Other factors which must be considered include:

(a) Past, present, and probable future beneficial uses of water;
(b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto;
(c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
(d) The need for developing housing within the region;
(e) The need to develop and use recycled water.

3 See also Water Code Section 13000 which mandates that activities and factors which may affect water quality "shall be regulated to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible" (emphasis added).

effective January 1, 1994, amended the California Environmental Quality Control Act, Public Resources Code Section 21000 et seq. (CEQA), to require that, whenever the Boards adopt rules requiring the installation of pollution control equipment or establishing a performance standard or treatment requirement, the Boards must conduct an environmental analysis of the reasonably foreseeable methods of compliance. This analysis must take into account a reasonable range of factors, including economics. For the reasons explained above, the latter requirement is duplicative of existing requirements under the Porter-Cologne Act regarding consideration of economics.

B. Recommendation

The meaning of the mandate to "consider economics" in the Porter-Cologne Act is not entirely clear. It is clear that the Porter-Cologne Act does not specify the weight which must be given to economic considerations. Consequently, the Boards may adopt water quality objectives even though adoption may result in significant economic consequences to the regulated community. The Porter-Cologne Act also does not require the Boards to do a formal cost-benefit analysis.

The Porter-Cologne Act does impose an affirmative duty on the Boards to consider economics when adopting water quality objectives. The Boards probably cannot fulfill this duty simply by responding to economic information supplied by the regulated community. Rather, the Boards should'assess the costs of adoption of a proposed water quality objective. This assessment will normally entail three steps. First, the Boards should review any available information on receiving water and effluent quality to determine whether the proposed objective is currently being attained or can be attained. If the proposed objective is not currently attainable, the Boards should identify the methods which are presently available for complying with the objective. Finally, the Boards should consider any available information on the costs associated with the treatment technologies or other methods which they have identified for complying with a proposed objective.[4]

4 See, *for example, Managing Wastewater In Coastal Urban Areas, National Research Council (1993). This text provides data on ten technically feasible wastewater treatment technologies, which can be used to make comparative judgments about performance and to estimate the approximate costs of meeting various effluent discharge standards, including standards for toxic organics and metals.*

In making their assessment of the cost impacts of a proposed objective, the Boards are not required to engage in speculation. Rather, the Boards should review currently available information. In addition, the Boards should consider, and respond on the record, to any information provided by dischargers or other interested persons regarding the potential cost implications of adoption of a proposed objective.

If the economic consequences of adoption of a proposed water quality objective are potentially significant, the Boards must articulate why adoption of the objective is necessary to ensure reasonable protection of beneficial uses. If the objective is later subjected to a legal challenge, the courts will consider whether the Boards adequately considered all relevant factors and demonstrated a rational connection between those factors, the choice made, and the purposes of the Porter-Cologne Act. See California Hotel & Motel Assn. v. Industrial Welfare Com., 25 Cal.3d 200, 212, 157 Cal.Rptr. 840, 599 P.2d 31 (1979).

Reasons for adopting a water quality objective, despite adverse economic consequences, could include the sensitivity of the receiving waterbody and its beneficial uses, the toxicity of the regulated substance, the reliability of economic or attainability data provided by the regulated community, public health implications of adopting a less stringent objective, or other appropriate factors. These factors may also include the legislative directive that a "margin of safety [ ] be maintained to assure the protection of all beneficial uses." Final Report, p. 15 and App. A, p. 59.

If objectives are proposed for surface waters and adverse economic consequences stemming from adoption of the objectives could be avoided only if beneficial uses were downgraded, the Boards should address whether dedesignation would be feasible under the applicable requirements of the Clean Water Act and implementing regulations. See 40 C.F.R. Sec. 131.10. Dedesignation is feasible only for potential, rather than existing, uses. See id. Sec. 131.10(g). If dedesignation of potential beneficial uses is infeasible, the Boards should explain why, e.g., that there is a lack of data supporting dedesignation.[5]

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5 It should also be noted that, even if dedesignation of potential beneficial uses is feasible, in the great majority of cases it will not have any significant effect on the selection of a proposed objective. This is so because the proposed objective will be necessary to protect existing beneficial uses, which cannot be dedesignated.

The State or Regional Water Board's rationale for determining that adoption of a proposed objective is necessary to protect water quality, despite adverse economic consequences, must be discernible from the record. This reasoning could be included in the staff report or in the resolution adopting a proposed water quality control plan amendment. When objectives are established on a case-by-case basis in waste discharge requirements, the rationale must be included in the findings.

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APPENDIX C: USE ATTAINABILITY ANALYSIS AND SITE-SPECIFIC OBJECTIVES

Water quality standards under the Clean Water Act (CWA)consist of three elements: Use Classification, Water Quality Criteria, and Antidegredation Policy (CWA 303(c)(2); 40 CFR 130.3, 131.6, 131.10, 131.11). Use Classification, termed "beneficial uses" under California law, are "uses specified in water quality standards for each water body or segment whether or not they are being attained." (40 CFR 131.3(f)). Beneficial uses must be consistent with the goal of CWA Section 101(a)(2), which is to provide for "the protection and propagation of fish, shellfish, and wildlife and ... recreation in and on the water" (the fishable/swimmable uses), unless the state demonstrates that those uses are not attainable. Beneficial uses must also consider, among others, the use and value of water for public water supplies, agriculture and industry, and the water quality standards of downstream waters. (40 CFR 131.10).

Beneficial uses are assigned to surface waters by the appropriate state regulatory agency or, in some cases, by the U.S. Environmental Protection Agency (USEPA). Given the number of surface waters present in many states (including California), it is not surprising that beneficial uses were assigned to some waterbodies without actual direct evaluation. In some cases, uses may have been designated based on known (existing) uses in downstream waterbodies, or in other parts of the same watershed (e.g., the "Tributary Rule" in the Central Valley Region Basin Plan).

Ideally, beneficial uses are determined through a use attainability analysis (UAA). UAAs are "a structured scientific assessment of the factors affecting the attainment of a use which may include physical, chemical, biological, and economic factors…"(40 CFR 131.10(g)). There are four types of situations in which a UAA may be considered (see Figure C-1): (1) when a waterbody is considered impaired (i.e., 303(d) listed) but the use (and therefore, associated water quality standards) appear to be inappropriate or the use does not exist; (2) when adopting subcategories of a use that require less stringent criteria; (3) when the use does not appear to be attainable; and (4) when meeting the use would likely result in substantial and widespread economic and social impact" (40 CFR 131.10(g)).

The regulations at 40 CFR 131.10(g) specify six factors that may provide a legal basis for changing or removing a designated use:

(1) Naturally occurring pollutant concentrations prevent the attainment of the use/

(2) Natural, ephemeral, intermittent, or low-flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met.

(3) Human-caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place.

(4) Dams, diversions, or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way that would result in the attainment of the use.

(5) Physical conditions related to the natural features of the waterbody (e.g., the lack of a proper substrate, cover, flow, depth), unless these conditions may be compensated, unrelated to water quality preclude attainment of aquatic life protection uses.

(6) Controls more stringent than those required by Sections 301(b)(1)(A) and (B) and 306 of the Clean Water Act would result in substantial and widespread economic and social impact.

The determination of whether or not a use is "existing" must include an evaluation of both the actual occurrence of the use activity (e.g., have coldwater fish been present or have people used the water as a source of drinking water?) and whether or not the level of water quality necessary to support the use has been achieved at any time since November 28, 1975 (i.e., a level of water quality that has been achieved since that time cannot be deemed unattainable). If the level of water quality necessary to support a use has been achieved since November 28, 1975, the use is considered "existing" and must be protected, regardless of whether or not the use activity has actually occurred.

Documentation requirements for factor (6) above (economic and social impact) have been particularly difficult to identify. Currently, there is no consensus on the information necessary to show that attainment of a beneficial use will result in economic harm. USEPA has held several workshops and work has been proceeding within USEPA to draft more detailed guidance to address this issue.

In practice, SSOs or refinements in the water quality objective are often considered when a numeric objective is in question (e.g., copper or chloride standard) and not the use itself (Figure C-1). Refinements to the objective may be appropriate if the water quality objective was based on questionable or inappropriate water quality information. For example, many priority pollutant metal objectives are based on water hardness. If an incorrect hardness was assumed for a site, the objective would be incorrect as well. In these instances, collection of appropriate water quality data may be used to refine the existing objective for the waterbody in question, and changes are made in terms of the data used to calculate the objective, not the objective itself.

SSOs are used to address potential differences in actual bioavailability of the chemical at the site, or the sensitivity of resident fauna and flora to the chemical (or both) as compared to what was assumed in developing the water quality objective. Thus, SSOs involve a change in the water quality objective itself. USEPA (and California) accept several different ways to develop SSOs including water effect ratios (WERs), chemical translator, and criterion recalculation; however, all SSOs require state and USEPA approval, as well as the public participation process. SSOs for physicochemical water quality objectives, such as temperature or dissolved oxygen, are not easily developed using most approved tools and typically require specialized studies, somewhat similar to a UAA. In theory, SSOs may also apply to other uses (e.g., MUN or public water supply) and standards such as fecal coliform; however, approved methods for developing such SSOs are generally lacking. In these cases, a UAA is more appropriate if the use is not an existing one. If the designated use exists (or existed sometime since November 1975), and SSOs are not appropriate, then a TMDL and applicable control measures are required if the waterbody is not meeting its water quality objectives.

C.1. UAA Requirements

UAAs can be very complex and somewhat difficult to complete, partly because specific requirements have not been defined in many cases. In general, a UAA needs to document (a) existing uses of a waterbody (including those the system is capable of supporting, even if there is no evidence that the waterbody has demonstrated the particular use); (b) the physical, chemical, and biological attributes of the waterbody and surrounding watershed, relevant to the uses under consideration; and (c) a thorough assessment of feasible options that could result in attainability of a given use. The latter point could require evaluating engineering or infrastructure options, which requires stakeholder participation and socioeconomic analyses. Figure C-2 summarizes the steps in completing a UAA. A UAA results in a determination as to whether a particular use is attainable or not and what specific changes are required to attain a given use. The recommended use change requires full public participation and state and USEPA approval before the use and standards for the waterbody can be modified. This process commonly takes between 1 and 2 years to complete, and may take even longer if the waterbody issues are more complex or the stakeholder community has very diverse goals.

C.2. SSOs

SSOs typically begin with the premise that a given use (e.g., type of aquatic life use such as WARM) exists. Depending on the water quality objective and the type of site, one or more methods may be appropriate for developing an SSO. Study requirements will differ depending on the type of SSO method used and some protocols may require substantial new data collection. Depending on the complexities of the waterbody and the type of pollutant under consideration, SSO studies can often take between 1 and 2 years to complete. **Similar to a UAA, an SSO involves modifying a state or basin standard and therefore requires public participation and USEPA approval.** For example, the copper SSO developed for Coyote Creek, a tributary to South San Francisco Bay, took over 2 years of laboratory and field studies, and at least another year of required regulatory proceedings before the SSO was finalized.

Metals such as copper, cadmium, and zinc are often examined with respect to bioavailability at the site because it is known that certain site water characteristics affect the actual toxicity of these pollutants. In this case, WER testing (USEPA, 1994) and/or total dissolved chemical translator studies (e.g., SIP, Appendix B) may be appropriate (Figure C-3). Both of these methods require the development of a study protocol (to be approved by the state), sampling and chemical analyses, and, in the case of WER studies, toxicity testing as well. Recalculation is another USEPA-approved methodology that evaluates the sensitivity of species resident to the site with respect to the chemical of concern and may or may not require field sampling. However, as in the other methods, a study plan is developed before analyses are initiated, and the plan must first be approved by the regulatory agency. In some cases (metals, for example), more than one SSO method may be applied to address both bioavailability and resident species sensitivity issues. In these cases, the results of the different methods are additive because bioavailability and species sensitivity are independent factors.

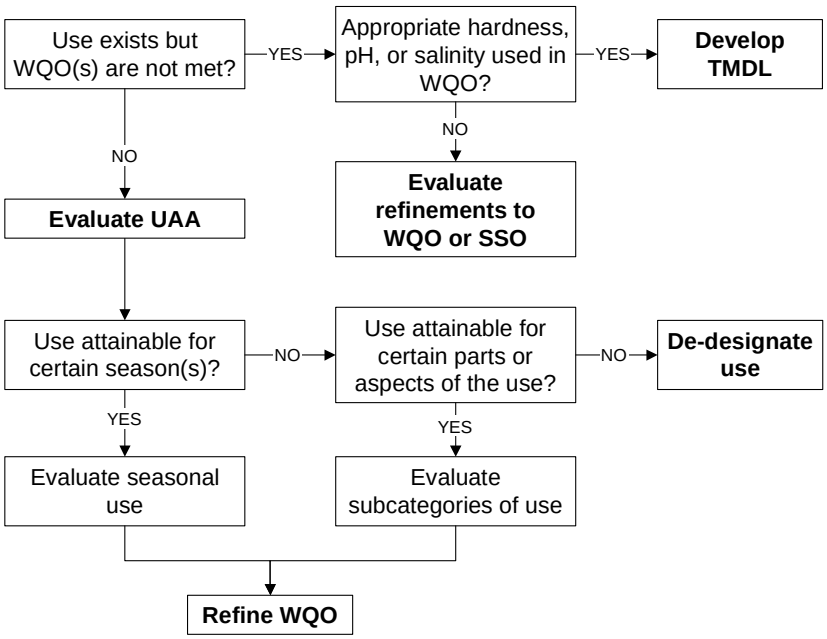

Figure C-1. Flowchart illustrating situations in which a use attainability analysis (UAA), site-specific objectives (SSOs), or refinements to a water quality objective may be appropriate.

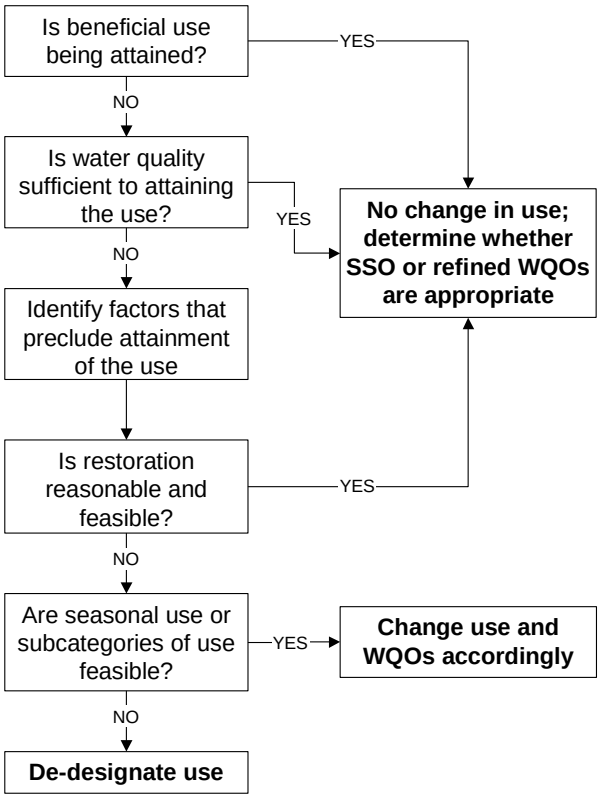

Figure C-2. Summary of steps evaluated for beneficial use attainability in a UAA.

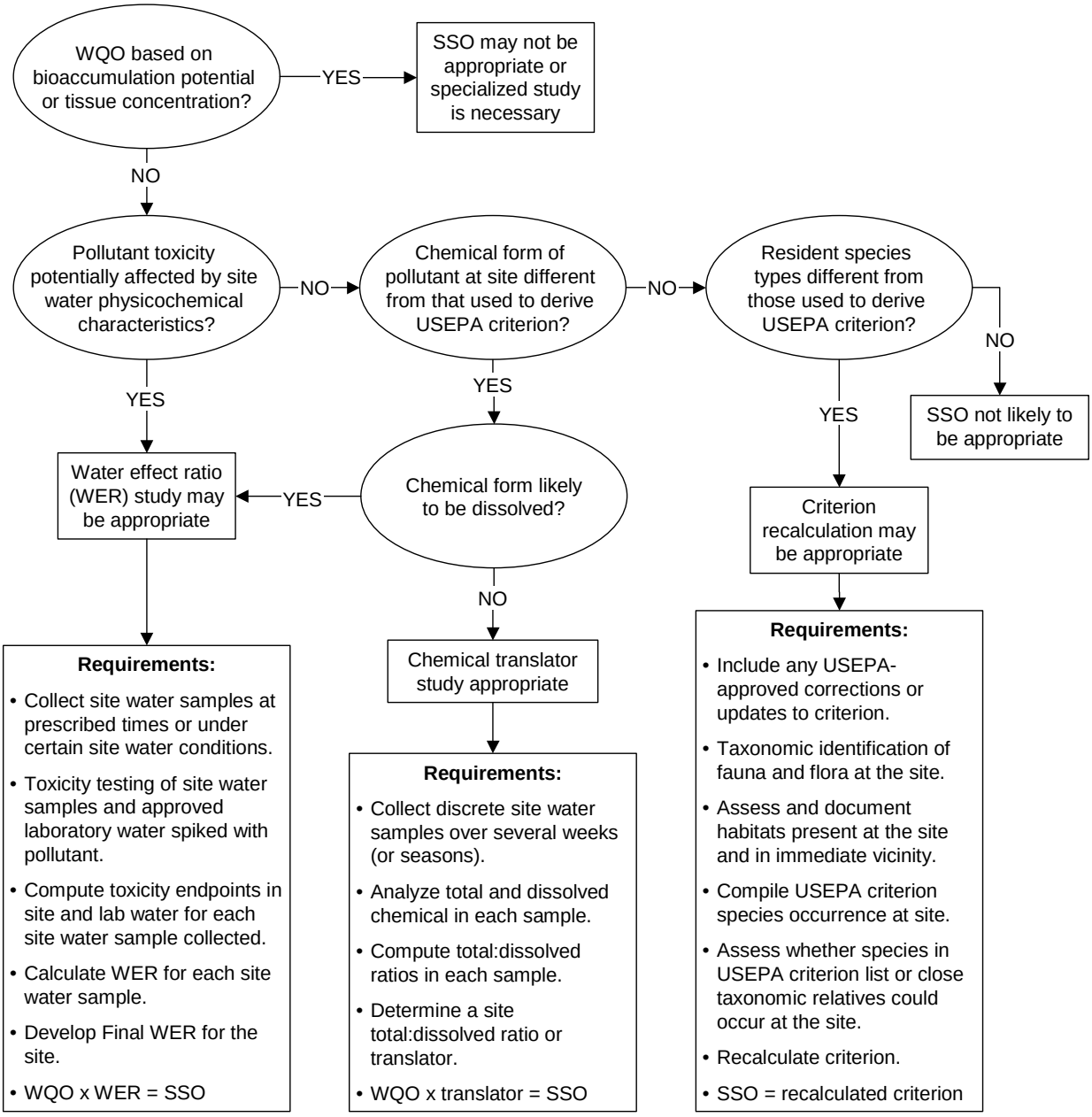

Figure C-3. Flowchart summarizing situations in which three common types of methods are used in developing SSOs, and the general requirements of each.

APPENDIX D: REPORT TEMPLATES

Delisting Report Template

Project Plan Template

Report Tracking Sheet

TMDL Report Template

Justification for Delisting [WATERBODY] for [POLLUTANT], [COUNTY] County, California

[DRAFT OR FINAL]

[DATE]

[REGIONAL BOARD]
[ADDRESS]

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Report Template for Delisting Documents in California

This template provides a general outline and structure for preparing reports to provide justification for delisting 303(d)-listed waters. The template provides informative boxes and lists to identify the content of each section. Specifically, each section contains a statement of the goal of the section and identifies questions that should be answered in the section. The level of detail included in the report will be dictated by the unique characteristics of each project. However, the questions are provided to define the focus and content of the section. Additionally, to support completion of each section, the template provides lists of tables or figures that are typically included in each section and provides examples of tables and figures. A general statement of content is also provided for each major subsection.

The blue text boxes throughout the template are considered instructional or informational and should be deleted from the draft and final project report.

1. PROJECT DEFINITION

Goal: To describe the impairment and waterbody being delisted and to provide a determination and justification that the listed waterbody currently supports water quality objectives.

Questions to Answer:

- What is the impaired waterbody proposed for delisting? What are its major characteristics?
- What is the listed impairment? What is the listed pollutant of concern?
- What is the geographic setting of the impaired water?
- What data supported the determination of the listing?
- What is the rationale for delisting?
- What has occurred since the listing to restore the waterbody? Or what indicates that the original listing was in error?

Typical Table:

- Summary of listing information (waterbody name, ID, size, pollutant, cause, listing year, etc.)

2. WATERSHED DESCRIPTION

Goal: To provide an overview of waterbody location and environmental characteristics of the surrounding watershed.

Questions to Answer:

- Where is the impaired water?
- What are the major hydrologic features of the watershed (e.g., tributaries, downstream waterbodies, watershed lakes)?
- What land uses exist in the watershed?
- Are there any new features relevant to the delisting (e.g., changes in sources)?

Typical Table:

- Land use categories and areas in the watershed

Typical Figures:

- Map of study area, including watershed delineations, hydrology, location in state, major municipal boundaries (counties), major cities, major roads, major landmarks, etc.
- Map of listed segments and their watersheds

3. WATER QUALITY OBJECTIVES

Goal: To identify all applicable water quality objectives for the impaired water.

Questions to Answer:

- What are the applicable water quality objectives (WQOs)?
- Are the WQOs narrative or numeric?
- If narrative, how is attainment measured? Has a numeric target been used to represent narrative WQOs? How was this target determined and how is it related to the WQOs (i.e., how is it equivalent to narrative objectives)?

Typical Table:

- Summary of WQOs applicable to each impaired water, pollutant, applicable value, unit of measurement, and information relevant to its application (e.g., instantaneous concentration, geometric mean, minimum samples)

4. DATA ANALYSIS

Goal: To inventory relevant data and provide a summary of the water quality and flow conditions in the impaired water and identify any important trends (e.g., spatial, temporal) or relationships (e.g., flow vs. pollutant, pollutant vs. land use) that confirm current support of water quality objectives and justify delisting.

Questions to Answer:

- What data were analyzed to evaluate the impaired water?
- What are the sources and quality of the data?
- Do the data support the listing and confirm impairment?
- Are there any identifiable trends (e.g., spatial or temporal) or relationships in the data that affect attainment of WQOs?

4.1. Water Quality Data

Include an inventory of water quality data used in the delisting analysis. *[The Water Quality Data and Flow Data sections can be combined for an overall summary of instream data.]*

Typical Table:

- Inventory of water quality monitoring stations in the watershed, including station number, station location, parameters measured, number of samples, frequency, and period of record

Typical Figure:

- Map of water quality monitoring stations in the watershed

4.2. Flow Data

Include an inventory of flow data used in the delisting analysis.

Typical Table:
- Inventory of flow gauges in the watershed, including station number, location, number of samples, frequency, and period of record

Typical Figure:
- Map of flow gauges in the watershed

4.3. Habitat Quality Data

Include an inventory of habitat quality data used in the delisting analysis.

4.4. Data Analysis Summary

Provide summaries of the major analyses (e.g., impairment confirmation, seasonal trends) conducted on the data and any resulting conclusions (e.g., identification of sources, critical conditions, or seasonal variations) and how they support delisting.

Include justification for selected analyses and explain how they relate to the goals of the data analysis.

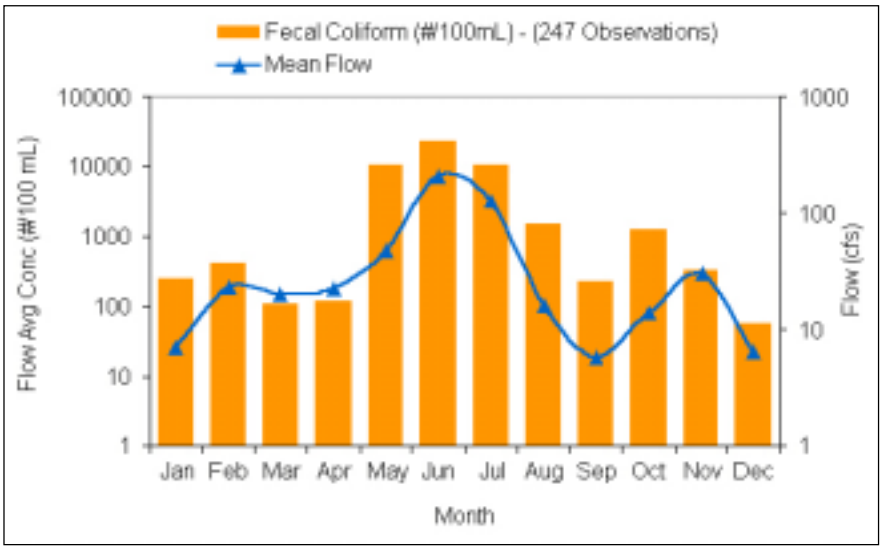
Typical Tables:
- Summary of water quality (and flow) by station, including number of samples; minimum, average, and maximum values; number of WQO violations
- Summary of seasonal analysis, including minimum, average, and maximum concentrations in spring, summer, fall, and winter (or monthly)

Example of table summarizing available water quality data

Station	No. of Samples	Min.	Average	Max.	Start Date	End Date
Station 1	106	0	394.75	7,720	1/4/89	6/29/90
Station 2	92	0	197.71	3,360	1/4/89	6/29/90
Station 3	87	0	466.67	8,800	1/5/89	6/26/90
Station 4	106	1	1,556.39	47,600	1/5/89	6/7/90

Typical Figures:

- Graphs summarizing observed water quality data (relative to applicable WQOs)
- Graphs or maps representing any spatial patterns in water quality conditions
- Graphs illustrating any relevant trends or relationships in instream conditions (e.g., flow vs. concentration, seasonal variations)



Example of figure of temporal distribution of water quality and

5. RATIONALE FOR DELISTING

Goal: To clearly describe the justification for delisting the waterbody, including any information, evidence, and data analyses available to support the delisting.

Questions to Answer:

- Why should the waterbody be delisted (e.g., faulty data, revised objectives, or attaining WQOs and supporting uses)?

If listing data were faulty:

- Why are they considered faulty (e.g., reporting errors, improper quality assurance/quality control [QA/QC], improper analytical methods)?

If WQOs have been revised since the water was listed:

- What are the current WQOs?
- Do data show that the water meets current WQOs?

If the water now meets WQOs:

- What data are available to evaluate water quality conditions relative to WQOs?
- Are data reflective of current conditions?
- Do data meet requirements for comparison to WQOs (e.g., sufficient frequency, number of samples, QA/QC)?
- Do the data show that the water meets WQOs?

Typical Table:

- Summary of water quality by station, including number of samples; minimum, average, and maximum values; number of WQO violations

Typical Figure:

- Graphs summarizing observed water quality compared to water quality objectives

REFERENCES

Goal: To document all cited references.

Project at a Glance

Project ID: _____ **Project Name:** _____

Regional Board: _____ **Beginning FY:** _____

Project Type (e.g., TMDL): _____ **Completion Date:** _____

Listing Year: _____ **Priority:** _____

Project Manager: _____ **Phone Number:** _____

Impaired Water(s) Addressed in this Project (attach sheet for more space):

Waterbody Name	Size (miles or acres)	Location (County)	Pollutant(s)

Project Definition

Sample Narrative Description:

This project addresses _____waters, impaired by _____, likely due to _____. Analyses of _____ will be used to estimate _____ . Monitoring is needed to evaluate _____. Management actions are expected to include _____.

Pollutants/Stressors	Pollutant1	Pollutant2	Pollutant3
Potential Sources	Source1	Source2	Source3
Estimated Size Affected (miles or acres)	Waterbody	Calwater Watershed #:	########

When does the impairment occur?

How does/did the pollutant loading occur?

What additional information might be needed to perform the project analyses and to determine the restoration needs?

What are the expected regulatory actions and associated management techniques that might be used?

What investigations or experiments might be useful as part of planning for short- and long-term implementation?

.

Phase 1: Project Definition

Date Completed

Authorized Signature

Phase 2: Project Planning

Date Completed

Authorized Signature

Phase 3: Data Collection

Date Completed

Authorized Signature

Phase 4: Project Analyses

Date Completed

Authorized Signature

Phase 5: Regulatory Action Selection

Date Completed

Authorized Signature

Phase 6: Regulatory Process

Date Completed

Authorized Signature

Phase 7: Approval

Date Completed

Authorized Signature

Phase 8: Implementation

Date Completed

Authorized Signature

PROJECT PLAN

Project Schedule and Budget Information:

Note: The planning sheet is structured according to the TMDL Project Tracking Tool. Summaries below are organized by phases and user selected/defined tasks. Task descriptions can be changed or added depending on the individual needs of the project. The TMDL Project Tracking Tool also allows for breakdown of budget by fiscal year.

Once information is entered in the TMDL Project Tracking Tool, updates of actual dates and allocated funding will need to be made monthly by the RWQCB.

Phase/Task	Status	Scheduled		Total Estimated Budget	
		Start Date (mm/yy)	End Date (mm/yy)	PYs	Contract Amount (1,000 $)
Phase 1 – Project Definition					
Phase 2 – Project Planning					
Phase 3 – Data Collection					
Task 3.1 Design and QAPP					
Task 3.2 Implementation					
Task 3.3 Evaluation					
Phase Fo4ur – Project Analyses					
Task 4.1 Data Analysis					
Task 4.2 Modeling					
Task 4.3 Alternatives Analysis					
Task 4.4 Implementation Plan Development					
Task 4.5 Project Report					
Phase 5 – Regulatory Action Selection					
Phase 6 – Regulatory Process					
Phase 7 – Approval					
Phase 8 – Implementation					
Task 8.1 Monitoring					
Task 8.2 Management Practice Testing					

Comments on the approach or other special assumptions/considerations:

Sample assumptions:

Data for _____ will be provided by _____ (agency or stakeholder).

The estimated budget for Phase 4 assumes that the following methodology will be used for the project:_____.

The method used for the _____watershed/waterbody is expected to be used here. This assumes that the project analyses for the _____project will be completed before Phase 4 of this project begins.

Expert support is expected to be provided by _____ in the development (or execution) of the approach.

In Phase 4 we will be testing the assumption that _____. If this test shows _____ the method will need to be revised and the schedule may be affected.

The initial assumption is that the pollutant can be managed by implementing _____ management practices. Testing of this method was incorporated into the first year of the implementation budget.

Project at a Glance

Project ID: _____ **Project Name:** _____

Regional Board: _____ **Beginning FY:** _____

Project Type (e.g., TMDL): _____ **Completion Date:** _____

Listing Year: _____ **Priority:** _____

Project Manager: _____ **Phone Number:** _____

Impaired Water(s) Addressed in this Project (attach sheet for more space):

Waterbody Name	Size	Location	Pollutant(s)

TMDLs at a Glance

Applicable Water Quality Standard(s):

Designated Use	Pollutant	Water Quality Standard

Waste Load Allocations s (attach sheet for more space):

Point Source	Existing Load	Allocated Load	Percent Reduction

Load Allocations (attach sheet for more space):

Nonpoint Source	Existing Load	Allocated Load	Percent Reduction

Margin of Safety: _____

Critical Conditions: _____

Seasonal Variation: _____

Implementation Plan	Milestones: Techniques:
Monitoring	Monitoring: expected locations/frequency, measures of progress

Phase 1: Project Definition

Date Completed

Authorized Signature

Phase 2: Project Planning

Date Completed

Authorized Signature

Phase 3: Data Collection

Date Completed

Authorized Signature

Phase 4: Project Analyses

Date Completed

Authorized Signature

Phase 5: Regulatory Action Selection

Date Completed

Authorized Signature

Phase 6: Regulatory Process

Date Completed

Authorized Signature

Phase 7: Approval

Date Completed

Authorized Signature

Phase 8: Implementation

Date Completed

Authorized Signature

Total Maximum Daily Load for [POLLUTANT] in [WATERBODY], [COUNTY] County, California

[DRAFT OR FINAL]

[DATE]

[REGIONAL BOARD]
[ADDRESS]

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Report Template for TMDL Documents in California

This template provides a general outline and structure for preparing TMDL reports. The template defines a recommended document structure that addresses technical and programmatic requirements for TMDLs in California. The template provides informative boxes and lists to identify the content of each section. Specifically, each section contains a statement of the goal of the section and identifies questions that should be answered in the section. Professional judgment and the unique situation of the TMDL will determine much of the content of the TMDL report, including the amount and level of detail. However, the questions are provided to define the focus and content of the section. Additionally, to support completion of each section, the template provides lists of tables or figures that are typically included in each section and provides examples of tables and figures. A general statement of content is also provided for each major subsection.

The blue text boxes throughout the template are considered instructional or informational and should be deleted from the draft and final project report.

1. PROJECT DEFINITION

Goal: To describe the impairment being addressed by the TMDL—to identify the project area, summarize the impairment, provide important information relevant to the 303(d) listing, and generally identify any key information affecting the development of the TMDL (e.g., major sources, management issues, regulatory issues).

Questions to Answer:

- What is the impaired waterbody addressed in the TMDL? What are its major characteristics?
- What is the impairment? What is the pollutant of concern?
- Why was the water listed?
- What is the geographic setting of the impaired water?
- Are there major activities in the watershed that are known to be affected by the impairment (e.g., recreation) or to exacerbate the impairment (e.g., agricultural activities)?
- Are there any major management issues associated with the TMDL?
- Are there any major technical issues associated with the TMDL?

Typical Table:

- Summary of listing information (waterbody name, ID, size, pollutant, cause, listing year, etc.)

2. WATERSHED DESCRIPTION

Goal: To provide a geographic and environmental setting for the TMDL by providing an overview of waterbody location and environmental characteristics of the surrounding watershed.

Questions to Answer:

- Where is the impaired water?
- What are the major hydrologic features of the watershed (e.g., tributaries, downstream waterbodies, watershed lakes)?
- What land uses exist in the watershed?
- What are the characteristics of the watershed soils?
- What is the climate of the watershed?

Typical Tables:

- Land use categories and areas in the watershed
- Climate summaries (e.g., monthly average precipitation and temperature)

Typical Figures:

- Map of study area, including watershed delineations, hydrology, location in state, major municipal boundaries (counties), major cities, major roads, major landmarks, etc.
- Map of listed segments and their watersheds

3. DATA ANALYSIS

Goal: To inventory relevant data and provide a summary of the water quality and flow conditions in the impaired water and identify any important trends (e.g., spatial, temporal) or relationships (e.g., flow vs. pollutant, pollutant vs. land use) in the data.

Questions to Answer:

- What data were analyzed to evaluate the impaired water?
- What are the sources and quality of the data?
- Do the data support the listing and confirm impairment?
- Are there any spatial trends in the water quality or flow?
- Are there any temporal (e.g., seasonal) trends in the water quality or flow?
- Do the data illustrate any other important relationships (e.g., flow vs. pollutant, pollutant vs. land use)?
- What do the data suggest about pollutant sources?
- Does the data analysis indicate critical conditions?

3.1. Water Quality Data

Include an inventory of water quality data used in the TMDL analysis. *[The Water Quality Data and Flow Data sections can be combined for an overall summary of instream data.]*

Typical Table:

- Inventory of water quality monitoring stations in the watershed, including station number, station location, parameters measured, number of samples, frequency, and period of record

Typical Figure:

- Map of water quality monitoring stations in the watershed

3.2. Flow Data

Include an inventory of flow data used in the TMDL analysis.

Typical Table:

- Inventory of flow gauges in the watershed, including station number, location, number of samples, frequency, and period of record

Typical Figure:

- Map of flow gauges in the watershed

3.3. Habitat Quality Data

Include an inventory of habitat quality data used in the TMDL analysis.

3.4. Data Analysis Summary

Provide summaries of the major analyses (e.g., impairment confirmation, seasonal trends) conducted on the data and any resulting conclusions (e.g., identification of sources, critical conditions or seasonal variations).

Include justification for selected analyses and explain how they relate to the goals of the data analysis and the overall TMDL development.

Typical Tables:

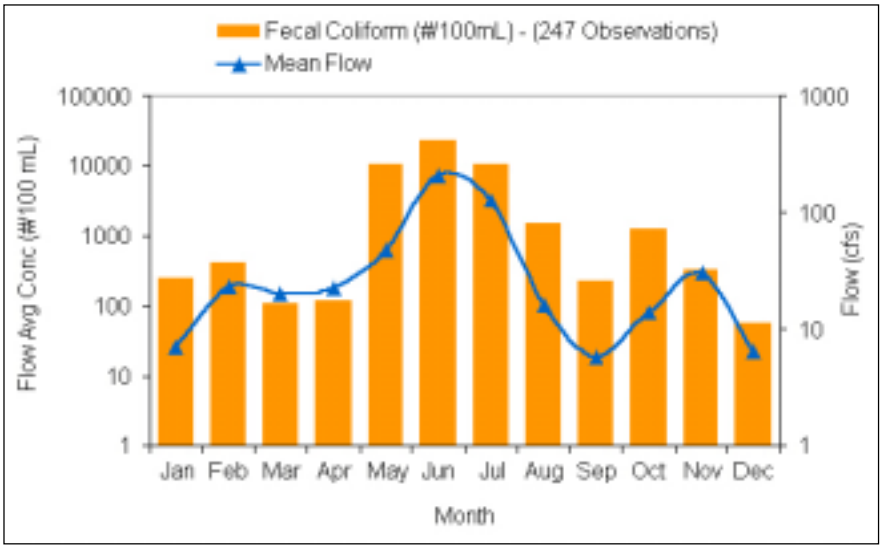
- Summary of water quality (and flow) by station, including number of samples; minimum, average, and maximum value; number of water quality standard violations
- Summary of seasonal analysis, including minimum, average, and maximum concentrations in spring, summer, fall, and winter (or monthly)

Example of table summarizing available water quality data

Station	No. of Samples	Min.	Average	Max.	Start Date	End Date
Station 1	106	0	394.75	7,720	1/4/89	6/29/90
Station 2	92	0	197.71	3,360	1/4/89	6/29/90
Station 3	87	0	466.67	8,800	1/5/89	6/26/90
Station 4	106	1	1,556.39	47,600	1/5/89	6/7/90
Station 5	87	0	155.63	10,600	1/5/89	6/26/90

Typical Figures:

- Graphs illustrating the magnitude and frequency of water quality standards violations
- Graphs or maps representing any spatial patterns in water quality conditions
- Graphs illustrating any relevant trends or relationships in instream conditions (e.g., flow vs. concentration, seasonal variations)



Example of figure of temporal distribution of water quality and

Note: If the data analysis includes a significant amount of data to inventory and/or an extensive number of analyses to summarize, it is recommended that the data analysis be included in a technical appendix. In this case, the Data Analysis section would include a general summary of the water quality conditions and trends in the watershed with a reference to further information in the appendix.

4. SOURCE ANALYSIS

Goal: To provide a complete inventory and description of all sources of the pollutant of concern, including point, nonpoint, and background sources in the watershed.

Questions to Answer:

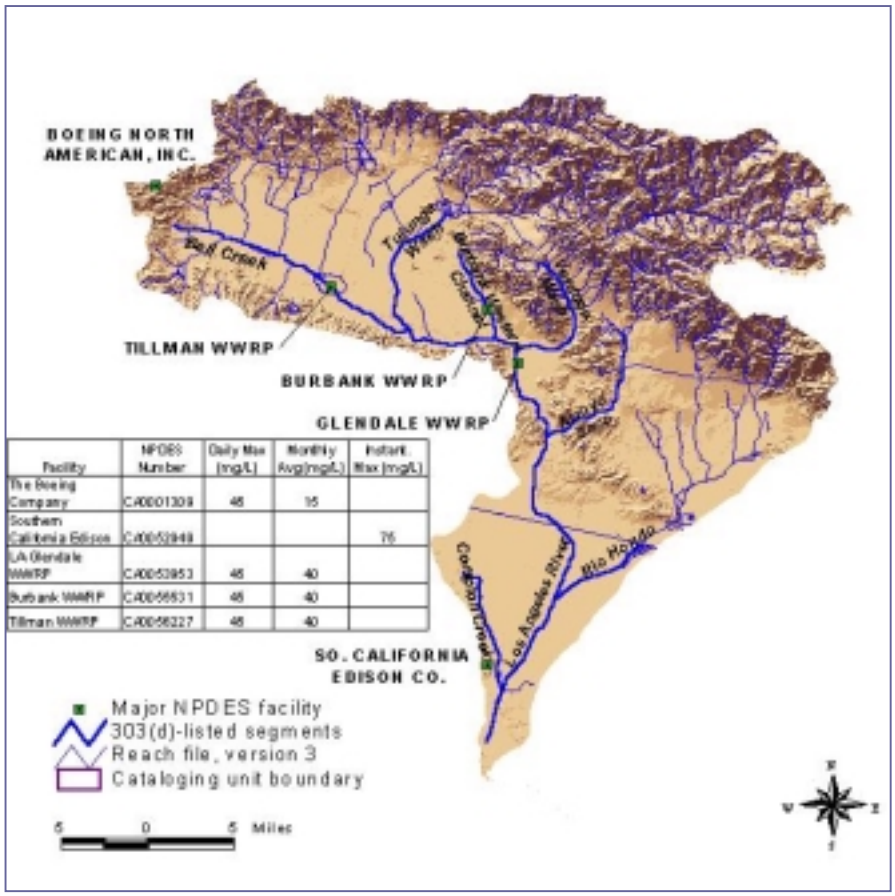
- What are the pollutant sources of concern in the watershed?
- What are the characteristics of the sources (e.g., location, discharge activity/behavior, transport pathways)?
- What is the relative magnitude or importance of each source?
- How are sources grouped for analysis in the TMDL (e.g, by land use, subwatershed)?
- For point sources, what are the permit limits and effluent characteristics of the sources?

Typical Tables:

- Inventory of point source dischargers in the watershed, including NPDES number, facility name, discharge location, receiving waterbody, permit limits
- Characterization of point source discharges, including effluent concentrations (minimum, average, maximum), and number and magnitude of permit violations
- Land use areas for watershed and subwatersheds
- Tables presenting distribution of any other nonpoint source categories throughout the watershed and subwatershed (e.g., feedlots, failing septic systems, logging roads)

Typical Figures:

- Location of point sources in watershed (include subwatershed delineations)
- Land use distribution in watershed (include subwatershed delineations)
- Locations of any specific sources of known location (e.g., feedlots, mines)



Facility	NPDES Number	Daily Max (mg/L)	Monthly Avg(mg/L)	Instant. Max (mg/L)
The Boeing Company	CA0001309	45	15	
Southern California Edison	CA0053949			75
LA Glendale WWRP	CA0053953	45	40	
Burbank WWRP	CA0056631	45	40	
Tillman WWRP	CA0056227	45	40	

Example of figure of point source locations and permit limits

5. CRITICAL CONDITIONS AND SEASONAL VARIATION

Goal: To identify the critical conditions and seasonal variations considered in the TMDL.

Questions to Answer:

- What factors affect impairment in the waterbody (e.g., location in the waterbody, temperature, flow, season)?
- What are the critical conditions for impairment?
- How are the critical conditions considered in the TMDL development?
- Are there identifiable seasonal variations that affect the TMDL (e.g., in water quality response/conditions, in pollutant loading)?
- How does seasonal variation affect the TMDL?
- How was seasonal variation considered in the TMDL analysis?

6. NUMERIC TARGET

Goal: To identify the appropriate numeric water quality target(s) that represents attainment of applicable water quality objectives and that were used in the calculation of the TMDL.

Questions to Answer:

- What are the applicable water quality objectives (WQOs)?
- Are the WQOs narrative or numeric?
- If narrative, what is the numeric target being used to represent the narrative WQO? How was this target determined and how is it related to the WQO (i.e., how is it equivalent to narrative objectives)?
- If supplemental numeric targets are used (in addition to established numeric WQO), how are they related to the WQO?

Typical Table:

- Summary of numeric targets applicable to each impaired water—pollutant, applicable value, unit of measurement, and information relevant to its application (e.g., instantaneous concentration, geometric mean, minimum samples)

7. LINKAGE ANALYSIS

Goal: To describe the method used to establish the relationship between pollutant loading and instream water quality response and how the relationship was used to identify the loading capacity of the impaired water.

Questions to Answer:

- What method was used to establish the link between source loading and water quality response?
- What is the justification or support for selecting this method?
- What data were used in the analysis?
- What was the process for setting up and applying the method?
- What were the results of the analysis?

Note: Because linkage analyses vary widely across TMDLs, it is difficult to give a general description of the information contained in this section. For example, analyses may include complex watershed and water quality modeling with several steps (e.g., characterization of hydrologic system characteristics; model setup, calibration, and validation; characterization of sources for simulation of loading) or simpler spreadsheet mass-balance analyses using only instream monitoring data. The basic goal of this section is to clearly describe the process for establishing a linkage between pollutant loads and the instream water quality for identifying the loading capacity that results in the instream numeric target. In cases of complex modeling analyses, it is often beneficial to include a brief summary of the approach in this section and a technical appendix with more in-depth and detailed descriptions of the steps and processes used to complete the analysis. Including the highly technical information in the main document often causes confusion for readers who are uninterested in the intricacies of the modeling analysis and “clutters” the TMDL. Providing a user friendly and concise summary of the approach in the main document makes the document flow more smoothly, allows for a complete documentation of the technical procedures in a separate, stand-alone appendix.

8. TMDL CALCULATION AND ALLOCATIONS

Goal: To clearly identify all TMDL allocations for point sources (waste load allocations) and nonpoint and background sources (load allocations) in the watershed.

Questions to Answer:

- What is the overall loading capacity (i.e., TMDL) of the waterbody?
- What is the expression of the TMDL (e.g., annual load)?
- What is the scale of the TMDL and its allocations (e.g., gross allocations, subwatershed allocations, subwatershed-land use allocations)?
- How is the TMDL distributed among WLAs and LAs?
- How was a margin of safety incorporated?

Typical Table:

- Table summarizing overall TMDL allocations

Example of table summarizing TMDL allocations

Source	Annual existing TDS load	Estimated percent reduction	Annual allocated load
Nonpoint Sources:			
Subwatershed 1	148 ton/yr	36%	94.5 ton/yr
Subwatershed 2	965.3 ton/yr	73%	262.1 ton/yr
Point Sources:			
Point Source 1	11.4 ton/yr	0%	11.4 ton/yr
Total Existing Load	**1,124.7 ton/yr**	**Load Allocation**	**356.6 ton/yr**
Total Annual Load Reduction = 66%		**Wasteload Allocation**	**11.4 ton/yr**
		Margin of Safety	**18.8 ton/yr**
		TMDL = Loading Capacity =	**386.8 ton/yr**

8.1. Waste Load Allocations

Identify individual WLAs for all point sources.

Typical Table:

- Inventory of WLAs, including existing loading, WLAs, and necessary load reductions

8.2. Load Allocations

Identify individual LAs for all nonpoint and background sources.

Typical Table:

- Inventory of LAs, including existing loading, LAs, and necessary load reductions

8.3. Margin of Safety

Describe the method of incorporating the margin of safety (MOS) in the TMDL analysis. If conservative assumptions were used to include the MOS implicitly, clearly identify the assumptions and explain how they contribute to the MOS.

9. PUBLIC PARTICIPATION

Goal: To describe the public participation element of the TMDL, including public notices, public meetings, public comment period, and how responses to public comments were considered in the final TMDL.

10. IMPLEMENTATION PLAN

Goal: To describe the strategy for implementing the TMDL and restoring water quality standards, including implementation activities, milestones/goals, timeline, funding, and responsible parties.

Questions to Answer:

- What potential activities/control actions could be implemented to achieve the TMDL?
- What sources should be targeted for control?
- Where could control actions be implemented or targeted?
- What is the schedule for implementation activities?
- What are the estimated costs for control actions?
- What agency will be responsible for identifying and implementing the control actions?
- What are the reasonable assurances for implementation?[1]

[1] For waters affected by both point and nonpoint sources: Where point sources receive less stringent waste load allocations because nonpoint source reductions are expected and reflected in load allocations, the implementation plan should provide reasonable assurances that nonpoint implementation actions are sufficient to result in attainment of load allocations in a reasonable period of time. Reasonable assurances may be provided through use of regulatory, nonregulatory, or incentive-based implementation mechanisms as appropriate.

Typical Table:

- Summary of implementation activities, including activity, location, date of completion, cost, responsible party

Typical Figure:

- Map of locations of planned control actions

11. MONITORING PLAN

Goal: To describe the plan for follow-up monitoring to track TMDL implementation and resulting water quality improvements.

Questions to Answer:

- What is the goal of the monitoring plan?
- What is the planned monitoring—locations, parameters, frequency?
- When will the monitoring begin?
- What will be done with the monitoring results?
- How will the TMDL be reviewed (and revised, if necessary) based on the monitoring results?
- What will the monitoring cost and where will the funds come from?
- Who will be responsible for conducting monitoring?

Typical Table:

- Summary of monitoring plan, including location sites, parameters monitored, frequency of sampling, number of samples to be collected, responsible agency

Typical Figure:

- Map of monitoring locations

REFERENCES

Goal: To document all cited references.

APPENDIX A: DATA ANALYSES

Goal: To clearly and comprehensively document data analyses and their results. This option is useful when extensive data analyses were conducted for the TMDL or if there is an extensive data set to summarize.

APPENDIX B: TECHNICAL APPROACH FOR LINKAGE ANALYSIS

Goal: To clearly and comprehensively document the technical approach used for the linkage analysis and subsequent identification of the TMDL, including data used, source representation, estimation/simulation of pollutant loading, linkage/simulation of loading, and resulting water quality response. This option limits the technical information contained in the main document of the TMDL.

APPENDIX E: CASE STUDIES

Site-Specific Water Quality Objectives and Water Quality Attainment Strategies for Copper and Nickel in South San Francisco Bay, South of the Dumbarton Bridge

Santa Clara River TMDL For Nitrogen Compounds

SITE-SPECIFIC WATER QUALITY OBJECTIVES AND WATER QUALITY ATTAINMENT STRATEGIES FOR COPPER AND NICKEL IN SOUTH SAN FRANCISCO BAY, SOUTH OF THE DUMBARTON BRIDGE

Waterbody Type:	Estuarine bay
Pollutants:	Copper and nickel
Designated Uses:	Recreation, fisheries, shellfish harvesting, habitat, preservation of rare and endangered species, industrial service supply, navigation
Size of Waterbody:	15-square-mile (mi^2) region of the San Francisco Bay estuary, south of the Dumbarton Bridge
Size of Watershed:	Approximately 800 mi^2
Site Specific Water Quality Objectives (SSOs):	Acute (10.8 µg/L) and chronic (6.9 µg/L) site-specific values for dissolved copper. Acute (62.4 µg/L) and chronic (11.9 µg/L) nickel site-specific objective values.
Indicators:	Toxicity tests to determine whether copper and nickel were negatively impacting resident aquatic life beneficial uses. Evaluation of numeric water quality objectives protective of aquatic life using USEPA-approved methods.
Analytical Approach:	Establishment of SSOs and implementation plan to maintain SSOs, including pollution prevention and source control actions to prevent increases in ambient concentrations of copper and nickel.

Introduction

This summary is based on information contained in the following reports written by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB):

- *Staff Report on Proposed Site-Specific Water Quality Objectives and Water Quality Attainment Strategies for Copper and Nickel for San Francisco Bay, South of the Dumbarton Bridge* (SFBRWQCB, 2002a)
- *Status Report on Copper and Nickel TMDLs and Impairment Assessments in San Francisco Bay* (Looker, 2001)
- *Overview of Proposed Basin Plan Amendment to Establish Site-Specific Water Quality Objectives and Water Quality Attainment Strategies for Copper and Nickel in South San Francisco Bay, South of Dumbarton Bridge—Status Report* (SFBRWQCB, 2002b)
- *Impairment Assessment Report for Copper and Nickel in Lower South San Francisco Bay* (Tetra Tech, 2000).

Lower South San Francisco (LSSF) Bay is in San Francisco Bay along the northern part of California's central coastline. LSSF Bay is approximately 15 mi^2 and is the region of the San Francisco Bay estuary south of the Dumbarton Bridge. LSSF Bay is bordered by the Silicon Valley, and in the 1960s the boom of the electronics industry spurred the fast growth of the region. The continued growth has caused agriculture to decline and increased the demand for residential development, service industries, and transportation networks. LSSF Bay is a physically unique part of the San Francisco Bay estuary. It receives less fresh water because its tributaries are small in number and size. It is characterized by higher, more uniform salinities and is shallow with the exception of a deep central channel. Immediately adjacent to LSSF Bay lies a network of tidal mudflats, tidal sloughs, coastal salt marshes, diked salt marshes, brackish water marshes, salt ponds, and freshwater marshes, each of which has unique hydrologic properties.

The LSSF Bay watershed is part of the approximately 800-mi^2 Santa Clara Basin. This watershed has a population of approximately 1.7 million and is mostly urbanized, with some agricultural uses in the rural upper watershed areas. It is one of the fastest growing regions in California.

Problem Identification and Impairment Analysis

SFBRWQCB's Basin Plan sets standards for surface waters and groundwater in the region. These standards consist of designated beneficial uses for surface and groundwater, numeric and narrative WQOs necessary to support beneficial uses, and the state's antidegradation policy. California's numeric WQOs for copper and nickel established in Basin Plans and statewide water quality control plans are based on USEPA's national water quality criteria to protect aquatic life. Despite significant reductions in waterwater loadings over the past decade, copper and nickel concentrations were not meeting WQOs on a consistent basis in LSSF Bay.

In 1998, the SFBRWQCB and U.S. Environmental Protection Agency (USEPA) updated the state's 303(d) list and identified copper and nickel as pollutants of concern in LSSF Bay. Despite significant reductions in wastewater loadings over the past decade, ambient concentrations of dissolved copper and nickel in LSSF Bay were still approaching or exceeding Basin Plan water quality objectives (WQOs) and USEPA national water quality criteria for the protection of aquatic life. However, further reductions in mass loading by wastewater dischargers could be difficult and costly, without providing corresponding water quality improvements. Other sources that are difficult to manage such as urban runoff, copper in brake pads, historical deposits of copper in bay sediments, and natural sources of copper and nickel are among the dominant contributions to current ambient water concentrations.

The listing required the SRBRWQCB to establish Total Maximum Daily Loads (TMDLs) for copper and nickel. The TMDL effort began in 1998 with a focus on assessing the impairment to determine whether levels of copper and nickel in LSSF Bay were negatively impacting aquatic life beneficial uses.

The results of the impairment assessment indicated that beneficial use impairment in LSSF Bay due to ambient copper and nickel concentrations was unlikely and that the WQOs could be relaxed while still fully protecting beneficial uses. Toxicity testing indicated that water column concentrations of dissolved copper did not exceed chronic toxicity values for the most sensitive species for copper toxicity. Copper toxicity in LSSF Bay is reduced by the presence of dissolved organic compounds that bind copper, making it less bioavailable, and by the presence of other metals that compete with copper for receptor sites on the organism. Similarly, site-specific studies in LSSF Bay demonstrated that nickel toxicity is lower in ambient site-water than predicted by the national water quality criteria, possibly because of the

organic binding of nickel and the presence of other metals that compete with nickel for receptor sites on or in the organism.

Because it was determined that ambient concentrations of dissolved copper and nickel were not likely impairing LSSF Bay beneficial uses, a full TMDL with allocations and a margin of safety was not necessary. Rather, the project focused on developing scientifically justified site-specific objectives (SSOs) for copper and nickel that would protect beneficial uses.

Development of Site-Specific Water Quality Objectives

Because the impairment analysis indicated that WQOs could be relaxed and still protect beneficial uses, SSOs were developed for copper and nickel in LSSF Bay. SSOs may be developed where conditions warrant less stringent effluent limits than those based on promulgated water quality standards or objectives, without compromising the beneficial uses. SSOs may be appropriate where an existing objective cannot be met through reasonable treatment, source control, and pollution prevention measures.

Copper and nickel SSOs were selected by the Regional Board from ranges of possible objectives that were scientifically defensible and protective of beneficial uses in LSSF Bay. The following two USEPA-approved methods were used to identify SSOs for copper and nickel:

- Recalculation Procedure – The recalculation procedure allows modification of the national criterion by correcting, adding, or removing data from the national toxicity database. Toxicity databases are collections of laboratory-measured toxicity values for various species and form the basis of water quality criteria promulgated by USEPA. The goal of the Recalculation Procedure is to create an appropriate data set for deriving a site-specific criterion by modifying the national data set as follows:
    a. Correction of data that are in the national database;
    b. Addition of data to the national database; and/or
    c. Deletion of data from the national database (e.g. elimination of data for non-resident species).

- Indicator Species Procedure – This procedure allows modifications of the national criterion by using a site-specific multiplier, called a water effects ratio (WER), to account for ambient water quality characteristics affecting the bioavailability of metals like copper and nickel. A WER is the ratio of toxicity of a given pollutant in site water to toxicity in laboratory water, based on toxicity tests administered to an appropriately sensitive species. A WER accounts for the site-specific toxicity of a metal due to the effects of other constituents in the site water. If the value of the WER exceeds 1.0, the site water reduces the toxic effects of the pollutant being tested. For example, a waterbody with a WER of 2 suggests that the ambient water concentration could be double its laboratory water value while affording the same protection for aquatic organisms. The WER is multiplied by the USEPA water quality criteria values to develop adjusted acute and chronic criteria.

The Recalculation and Indicator Species procedures were applied to develop ranges of chronic SSOs for copper and nickel in the LSSF Bay. Because the chronic objectives are more restrictive, the most appropriate and scientifically defensible chronic value was chosen from the range and the corresponding acute values were chosen as acute SSOs.

The development of a range of SSOs for copper in the LSSF Bay involved combining the Recalculation Procedure and the Indicator Species Procedure. The range of 5-12 µg/L dissolved copper for the chronic

SSO resulted from using the different combinations of toxicity databases, acute-to-chronic ratios, and WERs. The selected chronic SSO for dissolved copper is 6.9 µg/L with the corresponding acute value of 10.8 µg/L. The single SSO values were determined to be the most appropriate and technically justifiable values within the range considering all calculation approaches.

The nickel SSO was developed using the Recalculation Procedure only. A new acute value and a new acute-to-chronic ratio were developed by adding laboratory toxicity data for additional species to the national database. Adding species to the database resulted in a range of nickel chronic SSOs between 11.9 and 24 µg/L. The lower value of the range was chosen as the chronic SSOs for nickel (11.9 µg/L) with a corresponding acute SSO of 62.4 µg/L.

Source Assessment

The TMDL effort included the quantification of major copper and nickel sources entering the LSSF Bay (wastewater discharges, tributary loads, atmospheric deposition, and sediment exchange). Loading estimates and the seasonal variation of these loadings were identified.

Three Santa Clara Valley advanced wastewater treatment plants discharge into LSSF Bay—San Jose/Santa Clara, Palo Alto, and Sunnyvale. The San Jose/Santa Clara Water Pollution Control Plant is the largest of the three publicly owned treatment works (POTWs) discharging an average dry weather (June-November) effluent flow of approximately 122 million gallons per day. The Sunnyvale plant discharged, on average, 14 million gallons per day over the same period. The Palo Alto treatment plant discharges an average dry weather flow of approximately 26 million gallons per day (1998-2000). Significant reductions in copper and nickel loading have been accomplished through the improved treatment technologies implemented at wastewater treatment facilities, industrial pre-treatment programs, and basin-wide pollution prevention efforts. More than 20 years ago, POTWs contributed approximately 30,000 kilograms per year (kg/y) of total copper to LSSF Bay. Today, the POTWs contribute 1,100 kg/y, or about 4 percent of the loadings of 20 years ago. Similarly for total nickel, over 20 years ago POTWs contributed approximately 12,000 kg/y to the LSSF Bay. Today, the POTWs contribute 1,500 kg/y total nickel, or about 12 percent of the loadings of 20 years ago. In the past 10 years alone, total copper and total nickel loads from POTWs have decreased by about 70 percent.

Stormwater runoff is another source of metals to the LSSF Bay. The Santa Clara Valley Urban Runoff Pollution Prevention Program is an association of 13 cities and towns in Santa Clara Valley, the County of Santa Clara, and the Santa Clara Valley Water District that share a common permit to discharge stormwater to LSSF Bay.

Other sources of metals to LSSF Bay are difficult to manage and include historical deposits of copper in bay sediments and natural sources of copper and nickel. Atmospheric deposition is most likely a small source of nickel and copper loading.

Linking Water Quality and Pollutant Sources

Sources of copper and nickel were characterized through the development of a model relating sources to levels of copper and nickel in LSSF Bay and the identification of pollution prevention and control actions. The information related to development of the conceptual model is included in the Conceptual Model Report (Tetra Tech, 1999) for copper and nickel behavior in the LSSF Bay. The Conceptual Model Report presents the information developed on loadings, sediment transport, copper and nickel cycling, the relative importance of various forcing functions, and the ecological effects of these metals. The current total and dissolved copper and nickel loading to LSSF Bay included in the Conceptual Model Report

includes both internal and external loading. External loading includes sources originating on the land (e.g., POTW effluent, stormwater, etc.) and internal loading consists of loadings delivered to the water column from resuspension and diffusion from sediments. The model estimated how changing the copper and nickel loading from any particular source would influence both dissolved and total water column concentrations.

Internal metal loading can be influenced by sediments in the following two ways: diffusion of dissolved metal from the sediments to the water column (this contributes both dissolved and total metals loading) and re-suspension of sediments (this contributes total metals loading). Internal loading can also include "internal cycling" in which changes occur in the exchange rates of dissolved copper and nickel between water and suspended sediments. When this phenomenon occurs, metals bound to mineral or soil surfaces are liberated when sediments are churning and mixing. Metals can also bind to suspended sediment and phytoplankton surfaces during spring blooms resulting in a loss of dissolved metals from the water column. The magnitudes of internal cycling fluxes are similar. They represent a net dissolved metals *source* during the dry season and a net dissolved metals *sink* during the wet season.

Total copper and total nickel can also enter the bay from external pathways, including POTWs, tributaries, and atmospheric deposition. The following tables summarize the model results for copper and nickel loadings to LSSF Bay.

Summary of Estimated Copper Loading to LSSF Bay

Copper Source	Total Copper Loading			Dissolved Copper Loading		
	Dry season	Wet Season	Annual	Dry season	Wet Season	Annual
	kg/y	kg/y	kg/y	kg/y	kg/y	kg/y
POTWs	500	700	1,200	400	560	960
Tributaries (including stormwater runoff from tributary watersheds)	160	3,600	3,800	130	360	490
Atmospheric Deposition	60	60	120	0	0	0
Diffuse Flux from Sediments	110	110	220	110	110	220
Net Particulate Flux from Sediments	6,300-7,100	5,200-5,900	12,000-13,000	0	0	0
Internal Cycling (not a load)	0	0	0	540	-140	400

Summary of Estimated Nickel Loading to LSSF Bay

Nickel Source	Total Nickel Loading			Dissolved Nickel Loading		
	Dry season	Wet Season	Annual	Dry season	Wet Season	Annual
	kg/y	kg/y	kg/y	kg/y	kg/y	kg/y
POTWs	800	940	1700	640	750	1,300
Tributaries (including stormwater runoff from tributary watersheds)	40	6,000	6,000	32	600	632
Atmospheric Deposition	15	15	30	0	0	0
Diffuse Flux from Sediments	360	360	720	360	360	720
Net Particulate Flux from Sediments	16,000-18,000	15,000-16,000	31,000-34,000	0	0	0
Internal Cycling (not a load)	0	0	0	700	-590	110

Monitoring Plan

A monitoring plan for the LSSF Bay has been established to evaluate compliance with SSOs. The plan consists of the following specific programs:

- Receiving Water Monitoring Program: Twelve receiving water stations were selected based on historical monitoring programs and records in the LSSF Bay. Two upland stations (i.e., Guadalupe River and Coyote Creek) were included to continue to provide tributary data. Dissolved copper and nickel are measured monthly.

- Reporting Program: The results of the monitoring will be reported as part of the POTWs' self-monitoring program.

- Response Program: The implementation plan identifies receiving water "triggers" linked to additional control actions in such a way that exceedance of the triggers is clear evidence that a response or action is required.

In addition to evaluating compliance with SSOs, monitoring will also be used to evaluate ambient conditions compared to "trigger" levels. Trigger levels were determined through statistical analysis used to evaluate the expected performance of dissolved copper and dissolved nickel as monitoring indicators. The analyses identified the amount of reliable detection despite the inherent variability in concentrations. These amounts were established as triggers to be included in the implementation plan. For example, the Phase I copper trigger is 0.8 µg/L, meaning that if the average dry season dissolved copper concentration increases from 3.2 µg/L to 4.0 µg/L, the Phase I trigger is reached and the Phase I actions in the implementation plan will be conducted.

Implementation Plan

SSOs must be supported by an implementation plan. The proposed copper and nickel SSOs are currently being achieved and must therefore be maintained. For that reason, the implementation plan for copper and nickel in LSSF Bay is designed to prevent water quality degradation and to ensure the ongoing attainment of the SSOs. The implementation plan includes

- Current control measures to minimize copper and nickel discharges from municipal wastewater and urban runoff sources (NPDES permits and Municipal Urban Runoff Program);
- Statistically based water quality "triggers" and a receiving water monitoring program that would initiate additional control measures if the "triggers" are met;
- A proactive framework for addressing increases to copper and nickel concentrations if they occur in the future; and
- Metal translators that will be used to compute copper and nickel effluent limits for the municipal discharges to LSSF Bay.

The implementation plan also includes a time schedule for the actions to be taken to support the copper and nickel SSOs. The implementation actions will be coordinated by the RWQCB in cooperation with other parties. The principal mechanisms for implementation of the actions are NPDES permits for POTWs and Municipal Urban Runoff Programs.

The implementation actions are divided into the following three categories that are linked to the water quality triggers:

- Baseline Actions—These existing actions include 1) programmatic actions by public agencies, 2) tracking special studies that address specific technical areas of uncertainty identified in the impairment assessment and the conceptual model evaluation, 3) planning studies to track, evaluate, and/or develop additional indicators for use as future indicators and triggers (e.g., indicators for growth, development, or increased use or discharge of copper and nickel in the watershed, and water recycling efforts).
- Phase I Actions—These actions are implemented when the values of selected monitoring parameters exceed specified criterion values (referred to as the Phase I Trigger Levels). Exceedance of Phase I Trigger Levels indicates a negative water quality trend rather than actual impairment. Phase I actions consist of both specific remedial actions and the planning for the implementation of further actions if Phase II trigger levels are exceeded.
- Phase II Actions—These will be implemented when the value of selected monitoring parameters exceeds a second-level criterion value (referred to as the Phase II trigger levels). These actions are intended to reduce controllable sources further to maintain compliance with SSOs.

Public Participation

TMDL efforts for copper and nickel in LSSF Bay began in January 1998. The Santa Clara Basin Watershed Management Initiative formed the Copper and Nickel TMDL Work Group as a stakeholder forum to oversee and provide guidance for the development of the TMDLs. The TMDL Work Group included representatives from regulatory and resource agencies, environmental advocacy groups, industry, and municipalities. The TMDL Work Group oversaw the preparation and review of several technical reports including the Conceptual Model Report and the Impairment Assessment Report. These reports provided the basis for the findings and recommendations regarding the effects of ambient levels of copper and nickel on the beneficial uses of LSSF Bay. Facilitated public participation was key to acceptance and buy-in of the project results.

The Regional Board also submitted a request for external peer review of the technical basis of the Basin Plan amendments. Professors in the Department of Civil and Environmental Engineering at the University of California, Berkeley, performed the review.

On April 5, 2002, the SFBRWQCB sent a public hearing notice on the proposed amendment to the Water Quality Control Plan for the San Francisco Bay Basin. At this public hearing on May 22, 2002, the SFBRWQCB removed the LSSF Bay from the 303(d) list of impaired waters with respect to copper and nickel, and adopted the Basin Plan amendment establishing acute and chronic SSOs for dissolved concentrations of copper and nickel in LSSF Bay and incorporating anti-degradation actions for copper and nickel.

References

Looker, R.E. 2001. *Status Report on Copper and Nickel TMDLs and Impairment Assessments in San Francisco Bay. Part 1: Copper and Nickel TMDLs in South San Francisco Bay, South of the Dumbarton Bridge*. California Regional Water Quality Control Board, San Francisco Bay Region, Oakland, CA. July 6, 2001.

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Tetra Tech, 1999. (CMR) *Conceptual model report for copper and nickel in lower South San Francisco Bay (Final Report)*.

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SANTA CLARA RIVER TMDL FOR NITROGEN COMPOUNDS

Waterbody Type:	River
Pollutants:	Nitrogen Compounds (ammonia, nitrate and nitrite)
Designated Uses:	Municipal and domestic supply; groundwater recharge; agricultural and industrial supply; recreation; cold, warm, wild, rare, wetland freshwater and wildlife habitats
Size of Waterbody:	100 miles
Size of Watershed:	1,200 mi^2
Water Quality Standards:	Narrative and numeric standards
Indicators:	Elevated levels of ammonia cause toxicity to aquatic organisms; elevated levels of oxidized nitrogen cause eutrophic effects in freshwater systems
Analytical Approach:	Hydrodynamic and water quality modeling linkage analysis from documented nutrient sources to in-river nitrogen concentrations

Introduction

This summary was based on information obtained from the Santa Clara River TMDL for Nitrogen Compounds Staff Report (2003). This TMDL was written by the California Regional Water Quality Control Board, Los Angeles Region, and released on June 16, 2003. On August 7, 2003, the California Regional Water Quality Control Board (Regional Board) adopted the amendment to the Water Quality Control Plan (Basin Plan) for the Los Angeles Region to incorporate a TMDL to reduce nitrogen compounds loading to the Santa Clara River. The TMDL development process was a facilitated approach with significant stakeholder input and participation.

Santa Clara River is located in Los Angeles and Ventura Counties. The river drains from the east beginning in the Transverse Ranges and flows into the Pacific Ocean. It is the largest river system in the Los Angeles Region that remains in a relatively natural state. However, the watershed has been subjected to significant land use and flow modifications due to urbanization and agriculture. The endangered steelhead trout and stickleback reside in this river system.

Problem Identification

USEPA listed reaches of the Santa Clara River on its 1998 303(d) list of impaired waterbodies in California for elevated ammonia and oxidized nitrogen levels. In 2002, the State of California again proposed listing the Santa Clara River on the 2002 303(d) list as impaired as a result of nitrogen compound impairments. Discharge of wastes containing nitrite, nitrate, and ammonia to the Santa Clara River caused exceedances of the water quality objectives for ammonia, nitrate, and nitrite established in the Basin Plan.

Applicable Water Quality Standards and Numeric Water Quality Targets

States adopt water quality standards to protect public health and welfare, enhance water quality, and serve the purposes of the federal Clean Water Act (CWA). Water quality standards consist of the following elements 1) designated beneficial use(s) for a waterbody 2) the numeric and/or narrative objectives to protect these use(s), and 3) the prevention of water quality degradation through anti-degradation procedures. CWA Section 303 (c) requires states to adopt and modify, as appropriate, water quality standards for surface waters.

The California Water Quality Control Plan, Los Angeles Region (Basin Plan) sets standards for surface waters and groundwater in the region. These standards are comprised of designated beneficial uses for surface and groundwater, and numeric and narrative water quality objectives (WQOs) necessary to support beneficial uses, and the state's antidegradation policy. California's numerical WQOs established in Basin Plans and Statewide water quality control plans are based on USEPA's national water quality criteria to protect aquatic life.

The WQOs and Numeric Targets applicable to the impaired reaches of the Santa Clara River for Total Ammonia Nitrogen (mg/L Nitrogen) include:

Reach	WQO		Numeric Target	
	1-Hour Average	30-Day Average	1-Hour Average	30-Day Average
Reach 8	16.5	3.5	14.8	3.2
Reach 7 Above Valencia	5.5	2.2	4.8	2.0
Reach 7 Below Valencia	6.1	2.3	5.5	2.0
Reach 7 at County Line	3.8	1.3	3.4	1.2
Reach 3 above Santa Paula	2.7	2.1	2.4	1.9
Reach 3 at Santa Paula	2.7	2.1	2.4	1.9
Reach 3 below Santa Paula	2.4	1.9	2.2	1.7

The WQOs and Numeric Targets applicable to the impaired reaches of the Santa Clara River for Nitrate plus Nitrite as Nitrogen include:

Reach	WQO (30-Day Average)	Numeric Target (30-Day Average)
Reach 8	10	9.0
Reaches 3 and 7	5	4.5

Numeric targets and allocations for ammonia, nitrate and nitrite were set according to a model scenario, which attained water quality objectives with a 10 percent margin of safety.

Narrative objectives for biostimulatory substances and toxicity in the Basin Plan specify that "Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses…" The Basin Plan also states that "All waters shall be maintained free of toxic substances in concentrations that are toxic to, or produce detrimental physiological responses in human, plant and aquatic life…" The TMDL analysis indicates

that achieving the numeric targets will also implement the narrative objectives. The Implementation Plan includes monitoring and special studies to verify that the TMDL will implement the narrative objectives.

Source Assessment

Nutrient sources were characterized based on data from the Regional Board permit programs, agencies responsible for reservoir releases and groundwater basin management, agricultural experts, municipalities, and water treatment agencies. Direct point sources were assessed by evaluating discharge monitoring reports and from other data supplied by major dischargers.

Sources of ammonia, nitrite and nitrate to the Santa Clara River were characterized in order of relative impact as:

- Point discharges from the Saugus and Valencia Water Reclamation Plants (WRPs) and the Fillmore and Santa Paula Publicly Owned Treatment Works (POTWs),
- Groundwater with nonpoint source loading, and other nonpoint sources. There was insufficient data to characterize nitrogen sources from groundwater, septic systems, and agricultural drainage and runoff. The nonpoint source load contribution was determined to be greater in wet years than dry years.

Loading Capacity-Linking Water Quality and Pollutant Sources

Hydrodynamic and water quality modeling was utilized to link the documented nutrient sources to the instream water quality. The primary purpose of the model was to calculate TMDLs for the water quality impaired river segments in the watershed.

The Watershed Analysis Risk Management Framework (WARMF) was used to model the hydrodynamic characteristics and water quality of the Santa Clara River. The model was run on a daily time step to accurately calibrate the model and include a variety of hydrologic conditions. The WARMF model provided the ability to predict chemical transformation of nutrient species with varying pH and dilution and to integrate large amounts of data and area. The analysis demonstrated that major point sources (WRPs and POTWs) were the primary contributors to instream ammonia and nitrate plus nitrite loads. Nonpoint sources and minor point sources contributed a much smaller fraction of these loads. Critical conditions were identified as occurring during low flows.

Allocations

This TMDL study evaluated a number of nitrogen allocations from point and nonpoint sources present in the reaches of the Santa Clara River. Allocations were established for major point sources, minor point sources, municipal separate stormwater sewer systems (MS4s) and stormwater sources, and nonpoint sources (e.g., septic systems, agricultural discharges).

Wasteload allocations were set through an analysis of different alternatives constructed using observed meteorological conditions from 1989 to 2000, based on the calibrated WARMF model. Because the major sources in the Santa Clara River affecting nitrogen compounds are several WRPs, the analysis considered four scenarios to evaluate the relative impacts of the point sources, their combined effects and the effects of planned WRP upgrades. The first alternative considered point source effluent concentrations at the numeric targets for the respective nutrients. Alternative 2 involved reducing the ammonia loading from the Saugus WRP, leaving all other effluent concentrations equal to targets.

Alternative 3 considered the expected performance of the two WRPs undergoing upgrades to include a Nitrification-Denitrification module. Based on the results of Alternative 3, an "Intermediate Scenario," Alternative 4, was constructed, with the goal of meeting the numeric targets and yet recognizing the feasibility of performance of the upgraded Nitrification-Denitrification processes at the WRPs (including lower nitrate+nitrite concentrations). Alternative 4 was the selected alternative since the action would:

- Be consistent with State and federal water quality regulations;
- Consider the expected performance of upgraded WRP;
- Facilitate development of appropriate waste load allocations to meet numeric targets and recognize the feasibility of performance of the upgraded NDN processes at the WRPs; and
- Improve the scientific basis upon which the waste load allocations are based.

Concentration-based wasteloads were allocated to the major point sources of ammonia and nitrate+nitrite. The Implementation Plan provides reconsideration of the WLAs by the Regional Board based on WER studies and updated data 5 years after the effective date of the TMDL.

Minor point sources and MS4s were considered to contribute minor loads of ammonia, nitrite or nitrate to the Santa Clara River. Since these sources can potentially have localized effects on water quality, they were allocated concentration-based wasteloads equivalent to the water quality objective.

Concentration-based load allocations for nonpoint sources were also set equivalent to the water quality objectives. Nonpoint source nitrite loading was found to be very low throughout the watershed. Monitoring is established in the TMDL Implementation Plan to verify the nitrogen nonpoint source contributions from agricultural and urban runoff and groundwater discharges.

Margin of Safety

An explicit margin of safety of 10 percent of the nitrogen loads was allocated to address uncertainty in the source and linkage analysis. In addition, an implicit margin of safety was incorporated through conservative model assumptions and statistical analysis.

Implementation and Monitoring Plan

The Implementation Plan was designed to meet water quality objectives for nitrate, nitrite, and ammonia and to ensure protection of beneficial uses in the Santa Clara River. The implementation plan includes special studies and monitoring to assess aquatic life and eutrophic impacts of the Santa Clara River. The plan will also evaluate the effectiveness of nitrogen reductions in implementing narrative objectives.

Ammonia, nitrite, and nitrate reductions will be regulated through effluent limits prescribed in POTWs and minor point source NPDES permits; management practices (MPs) required in NPDES MS4 permits; and State Water Resources Control Board (SWRCB) Management Measures for nonpoint source discharges. Monitoring of effluent and receiving water requirements will be developed for the POTWs to ensure compliance of narrative and numeric standards. Additional monitoring will be required during dry and wet weather discharges to refine point source loading estimates from minor sources and nonpoint sources (agricultural, urban and open space sources). Implementation and evaluation of agricultural MPs and groundwater conditions will be utilized.

The implementation plan also includes upgrades to the WRPs and POTWs discharging to the Santa Clara River for removal of ammonia, nitrate, and nitrite. To allow time for completion of the nitrification/denitrification facilities and/or modifications of existing nitrification/denitrification facilities which are integral to this TMDL, the amendment to the Basin Plan made by this TMDL allows for higher interim loads which the Regional Board can incorporate into NPDES permits as interim effluent limits for a period not to exceed five years from the effective date of the TMDL.

Implementation tasks, milestones, provisions, responsible parties, and completion dates have been identified in the implementation plan.

Reasonable Assurances

Reasonable assurances were not specifically addressed in the Santa Clara River TMDL for Nitrogen Compounds. However, compliance with the TMDL requirements will be attained through the existing NPDES program and the implementation plan to meet water quality objectives for nitrate, nitrite, and ammonia, and to ensure protection of beneficial uses in the Santa Clara River.

Public Participation

The stakeholder involvement process for the Santa Clara River Nutrient TMDL began in November 2001 with a kick-off meeting led by the Regional Board. Stakeholders included representatives of wastewater treatment plants, cities, counties, private property owners, agricultural organizations, and environmental groups with interests in the watershed.

A Steering Committee was formed to allow those stakeholders interested in taking a more active role in the TMDL technical work to guide and participate in the analysis. Steering committee meetings were held monthly, with quarterly stakeholder meetings for summary and update purposes. The Steering Committee members contracted outside experts to provide technical facilitation and modeling services in support of the TMDL analysis.

Efforts to solicit public review and comment on the TMDL included more than eighteen public workshops held between February 11, 2002 and June 13, 2003; public notification 45 days preceding the Board hearing; and responses from Regional Board staff to oral and written comments received from the public.

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APPENDIX F: STAKEHOLDER INVOLVEMENT

F.1. What Is Stakeholder Involvement?

Before stakeholder involvement can be defined, we must first define the word *stakeholder*. A stakeholder is a group or individual who has the responsibility for implementing a management action, is affected by the action, or has the ability to aid or prevent its implementation. Watershed stakeholders often include business owners, land owners, ranchers, environmental groups, local elected officials, homeowners, developers, loggers, and so on. Stakeholder involvement is based upon the belief that expertise does not lie solely with program professionals. Stakeholder involvement means providing a method for identifying public concerns and values, developing a consensus among affected parties, and producing efficient and effective solutions through an open, inclusive process. Stakeholder involvement can be used to support and complement legally required actions such as the development and implementation of total maximum daily loads (TMDLs).

F.2. Benefits of Stakeholder Involvement in the TMDL Process

Stakeholder involvement is a vital part of the TMDL process. First and foremost, involving stakeholders is required by law. Both the Porter Cologne Water Quality Control Act and the federal Clean Water Act require, at a minimum, that TMDL proponents provide public notice and public comment opportunity concerning TMDL calculations. In addition to satisfying legal requirements for public review, working with stakeholders has many benefits. Stakeholder support, both in spirit and in dollars, helps create TMDLs that are "real solutions to real problems." Stakeholders can also assist with specific parts of the TMDL process, such as data gathering, data review, and public education.

In addition, stakeholder involvement also helps to build trust and support for the TMDL process itself and creates a shared responsibility for implementing the measures identified in the TMDL to improve water quality. When stakeholders are involved from the outset, there is a stronger buy-in of the solutions that need to be implemented to achieve the TMDL. If stakeholders have the opportunity throughout the process to provide input on how the TMDL is developed, they are more likely to support and adopt voluntary measures that will be critical for TMDL achievement.

F.3. Identifying and Understanding Stakeholders

Before you inform and involve stakeholders you must first identify the stakeholders and research the level of interest and existing public opinion among them about the watershed or waterbody for which the TMDL is being developed. When members of the community will be responsible for implementing the management strategies developed as a result of the TMDL, it is critical to include as many different types of people and interest groups as possible. The process of stakeholder identification will help you to determine later what level of stakeholder involvement you will need to conduct—from providing the minimum information required to convening a formal stakeholder group. Identifying key stakeholders is based on considering the problem, sources, and potential solutions/actions for the specific TMDL project. Consider which stakeholders will be affected and what stakeholders could contribute. Stakeholders that are a source of the pollutant addressed by the TMDL and those who will be asked to take actions to solve

the water quality problem should be included in the stakeholder involvement plan. The key stakeholders may be easy to identify, such as municipal wastewater treatment agencies and storm water management agencies. However, it might be necessary to conduct additional research to ensure that all the relevant stakeholders are identified. There are several ways you can identify stakeholders, including the following:

- Review existing written information about the area/problem and make note of key leaders, agencies, and organizations that are mentioned
- Identify individuals or groups that may be a source of the pollutant being addressed by the TMDL
- Identify individuals or groups that may be asked to take actions to solve the water quality problem
- Conduct interviews using phone calls, written surveys, focus groups
- Ask current stakeholders who else to contact

Uncovering Stakeholder Concerns

In response to issues raised during a presentation made at a local Farm Bureau on TMDLs, the Yolo County Resource Conservation District held a focus group discussion where area farmers voiced several concerns:

- They don't have time to come to meetings.
- They don't want stakeholders who know nothing about farming telling them how to farm.
- They want to be the only decision makers on these projects.
- There are issues of private property rights.
- They are concerned about how they are going to afford changes to their farming practices.
- They don't want to do something now and then have an agency come to them in a few years and tell them what they did was wrong and that they must change it.
- They don't feel there is enough scientific data in place to tell them what they should be doing.

After you have identified the types of stakeholders that you will need to involve in the TMDL, you will need to research the key issues of concern to those stakeholders, their desired outcomes for the TMDL, their current level of awareness about the TMDL process and water quality conditions in the area, and their existing or historical level of public involvement with TMDLs or other watershed restoration projects. It is also important to determine how they will approach the stakeholder process based on their own perspectives. Each stakeholder will bring his or her own biases, fears, and hopes into the stakeholder process. For example, a discharger might fear new permit requirements, or an environmental nonprofit might fear that a government organization will not do enough to protect water quality. An important part of the stakeholder process is learning these concerns and working to build trust. At this stage of the process, one-on-one interactions, phone interviews, surveys, or focus groups can be particularly helpful. In addition, reviewing relevant documents, past media coverage, community newsletters or publications from local environmental groups can also help you understand the stakeholders' perspectives.

F.4. Selecting the Right Level of Involvement

To determine the appropriate level of stakeholder involvement for each TMDL process, you must answer the following questions:

Is there an existing group that could serve as the TMDL stakeholder group?

Creating a new stakeholder group requires a significant commitment of time and resources. Before establishing a new group, determine whether an existing group, such as a watershed council, already includes many of the key stakeholders and could make an effective stakeholder group.

Piggybacking on Existing Groups

In the Lower South San Francisco Bay area a group of public agencies, trade organizations, representatives from the business community, and other groups were already organized as the Santa Clara Basin Watershed Management Initiative (SCBWMI). SCBWMI was formed to coordinate watershed activities on a basinwide scale. When the Regional Board set out to develop a copper and nickel TMDL for the Lower South San Francisco Bay, the Board determined that using the existing structure and diversity of the SCBWMI group would be a more efficient and effective method of involving area stakeholders, rather than wasting time and money forming a new group.

Identifying existing stakeholder groups is important regardless of what level of involvement is chosen, because it is always more efficient and less burdensome on the public to use existing groups than to create new ones.

What is the general level of interest and willingness to participate in the TMDL?

Consider whether key stakeholders will be willing to invest the time and resources necessary to participate in the process. You must recognize that the same level of involvement may not work for all stakeholders. For example, some key stakeholders might not have the time and resources to participate in a high-level process; however, they might be willing to be involved through less time-intensive means, such as e-mail updates.

What is the timeline for the project?

If the TMDL project is being developed under a consent decree or otherwise tight schedule, you might need to opt for a low level of stakeholder involvement in order to meet your deadlines. If not, your schedule might be more flexible and allow more opportunities for consideration of public input.

Is the project controversial?

If you anticipate a high degree of controversy, you might want to spend additional time and resources on your stakeholder process. By contrast, if the project is uncontroversial, a low level of stakeholder involvement may be all that is required. However, in some cases, a low level of stakeholder involvement might be better for a high degree of controversy, where agreement and acceptance of TMDL technical issues or implementation strategies are unlikely. These cases sometimes result in staff intensive stakeholder efforts that do not move the project forward efficiently, meet objectives, or gain desired buy-in from stakeholders.

How will the stakeholders be affected by implementation of the TMDL?

If implementing the TMDL will require stakeholders to take significant and potentially costly implementation actions, it may be necessary to devote additional resources to stakeholder involvement. In addition, if implementation will involve lifestyle changes to be made by members of the public, such as reducing pesticide use, you may need to plan for increased outreach to the public.

What resources are available for developing and implementing the TMDL (including resources for stakeholder involvement)?

Stakeholder involvement processes involve significant financial resources for meetings, outreach materials, and comment collection and analysis. Stakeholder involvement also calls for a significant amount of staff time. Outside funding from stakeholders, through grants, or through other mechanisms, can make a higher level of stakeholder involvement possible

F.4.1 Levels of Stakeholder Involvement

There is no “one size fits all” approach when it comes to the level of stakeholder involvement in the TMDL process. The amount of involvement will be determined by the time frame of the TMDL, the level of controversy surrounding the TMDL, the number of stakeholders affected by the outcome of the TMDL, and many other variable,s as mentioned earlier. Listed below are the five basic levels of stakeholder involvement. (Table F-1 describes the five levels of stakeholder involvement in further detail.)

Low: Information only (Minimum required by both the Porter Cologne Water Quality Act and the Clean Water Act)

- The Regional Board releases a public notice regarding TMDL development.
- The Regional Board holds public hearings to provide the public with the opportunity to formally submit comments.
- The Regional Board prepares written responses to the public comments received and publishes those responses in the final TMDL.

This level of stakeholder involvement is the lowest level allowed by law for TMDL development. A low level of involvement serves only to inform affected and interested parties of recommendations or decisions regarding development and implementation of the TMDL, allow some input on TMDL development, and assist Regional Board staff in making decisions about how to implement the TMDL.

Medium-Low: Information with request for specific input

- The Regional Board conducts outreach and education in an effort to inform stakeholders and solicit input in addition to the required public notice and public hearings.
- The Regional Board prepares written responses to the public comments received and publishes those responses in the final TMDL.

Medium: Feedback and ongoing input

- The Regional Board works with a core stakeholder group from the outset of the TMDL process.
- The Regional Board invites stakeholders to participate in an informal, periodic manner.
- Formal stakeholder forum is organized with some local leadership.

Medium-High: Active partnership effort

- A stakeholder forum is developed early in the TMDL process.
- Stakeholders may do significant analysis, not just review reports.
- Technical Advisory Committee, Public Advisory Committee, or other formally recognized group.

High: *Full consensus*

- A formal stakeholder forum is organized with local leadership.
- Stakeholders are involved from outset in TMDL effort.
- Stakeholders may do substantial analysis, not just review reports.
- Stakeholders attempt to seek agreement on TMDL content.

Table F-1. Levels of Stakeholder Involvement

Level	Key Elements	Decisionmaking Process	Advantages	Disadvantages	When to Use
Low *(Required Minimum)*	• Information only • Public notice and public hearings provide formal opportunity for TMDL review • Written responses to public comments in final TMDL	• Inform stakeholders about the decision • Facilitate limited, formal input • Make decision on TMDL • Implement decision through enforcement	• Less time- and resource-intensive • Satisfies minimum public participation requirements • Avoids duplication of effort when TMDL is based on previous, uncontroversial decisions	• Interested parties may not hear about TMDL • Reduces chance of local support and buy-in • May be dissatisfying to stakeholders who want more involvement	• Under consent decree • Schedule is critical • Litigation is unavoidable and there is no prospect for consensus • Decision is uncontroversial
Medium-Low	• Information with request for specific input • Community outreach and education with stakeholders during TMDL development • Written responses to public comments in final TMDL	• Discuss tentative decisions • Inform group of progress and draft analysis, seek input • Make final decision • Stakeholders implement TMDL with regulatory oversight	• Less time-intensive • Educates the public • Increases awareness of and general support for TMDL • Provides opportunity for some local involvement in TMDL	• May not reach all interested parties • May be dissatisfying to stakeholders who want more involvement • Difficult to manage expectations	• Schedule does not permit more stakeholder involvement • There are a few competing interests • Level of local involvement is low
Medium	• Feedback and ongoing input • Core stakeholder groups involved from outset of TMDL • Stakeholders can participate in an informal, periodic manner • Formal stakeholder forum with some local leadership	• Present the issues or problems • Solicit ideas, suggestions, alternatives • Make final decision • Stakeholders implement TMDL with local monitoring and regulatory oversight	• Stakeholders can be involved to varying degrees • Increases chances for local education, support of TMDL process, and acceptance of decisions • Earlier identification of difficult or contentious issues	• Moderately time- and resource-intensive • Difficult to manage expectations • Problematic for TMDLs with tight, inflexible deadlines	• There are existing formal stakeholder groups • Formal stakeholder effort will result in long-term commitment • Adequate time exists in the schedule
Medium-High	• Active partnership effort • Stakeholder forum developed early in TMDL process • Stakeholders may do significant analysis, not just review reports • Technical Advisory Committee, Public Advisory Committee or other formally recognized group	• Describe the issues and define the legal requirements • Decision is arrived at in partnership with the stakeholders • Approve final decision • Stakeholders implement final decision with regulatory oversight	• Increases chances for local support/buy-in • Earlier participation of stakeholders builds trust and support • Local groups can bring resources to TMDL process	• Very time- and resource-intensive • May be difficult to bring divergent groups together • Requires strong local leadership and commitment	• Complex issues and strong competing stakeholder needs exist • Partnership will lead to a stable watershed stewardship program • Adequate time exists in the schedule
High	• Full consensus • Formal stakeholder process with local leadership • Stakeholders involved from outset in TMDL effort • Stakeholders may do substantial analysis, not just review reports • Stakeholders attempt to seek agreement on TMDL content	• Describe the issues and define the legal requirements • Facilitate stakeholders in decisionmaking process • Approve final decision • Stakeholders implement final decision	• Best chances for local support/buy in • Improves ability to identify and evaluate implementation measures • May reduce resources needed for analysis since other parties do some analysis	• Very time- and resource-intensive • Often unrealistic to get consensus on TMDL • May be unsatisfying to interested stakeholders • Extensive time commitment may not work for stakeholders	• Under exceptional circumstances where there is a high likelihood of success • Plenty of time exists in the schedule

Keep in mind that not every TMDL situation fits easily into one of the defined levels. You might need to develop a unique level or type of involvement based on the researched you have conducted in the watershed. In general, the medium-low, medium, and medium-high levels of stakeholder involvement are most often used. In the San Francisco Bay Region, there is no consent decree, so the TMDL project schedule allows for a higher level of involvement. Many TMDL projects are controversial to some degree, and implementation strategies therefore benefit from stakeholder buy-in. It is often the case that the many benefits of increased stakeholder involvement justify more than the minimum, required (low) level of involvement. By contrast, a high level of involvement requires extensive staff time and funding without necessarily providing additional benefits. With the diversity of perspectives among key stakeholders, full consensus, in which every interested party agrees with every aspect of the TMDL, is rarely a realistic goal.

Also, the level of involvement that is desired, or realistic, may change over time. For some projects, the early stages of a project may involve a significant time investment, while later stages require a less-intensive stakeholder process. For other projects, it might be better to start with a lower level of involvement, adding more time and resources when it is time to release a significant product, such as a TMDL Project Report. Selecting the right level of stakeholder involvement can involve a certain amount of trial and error. Regular reevaluation of goals, priorities, tools, and methods is helpful.

F.4.2 Do I Need a Higher Level of Stakeholder Involvement?

As noted in Section F.4.1 (Table F-1), a low level of stakeholder involvement is all that is required by law. However, most TMDLs require more than what is provided through a low level of involvement. It is very important that you analyze your TMDL situation to determine whether you need more than the minimum. If the TMDL situation has any of the following characteristics, you will need to raise the level of stakeholder involvement to allow more input:

- The potential exists for disapproval or appeal of the decision.
- The interested parties have the power to influence the outcome.
- There is a high level of public interest and controversy in the TMDL or in water quality issues in general.
- The TMDL involves technically complex data and information that need to be understood by stakeholders.
- There is a need for broad community/public support for the implementation strategy.
- The project will require stakeholders to do advanced planning such as develop funding, adopt a willingness to pay (e.g., for management practices by growers), or change personal behaviors (e.g., use less pesticide or fertilizer around the home).
- There is a need for interagency cooperation.
- Resolution depends upon policy decisions for which there are no absolute, objective solutions.

The following are other factors that can contribute to the need for a higher level of stakeholder involvement:

- The number of parties is small enough to negotiate effectively.
- The issues are mature and the parties are ready to decide them.
- The parties are willing to negotiate and have the information necessary to do so effectively.
- There is sufficient pressure to resolve the issue (or the Agency will do so instead).
- The parties have something to gain from the negotiation.
- There are enough contested issues to allow trade-offs between parties.
- The watershed setting, water quality problem, and pollutant sources are relatively complex.

- The level of public interest and controversy concerning water quality issues is relatively high.
- Prospective costs to implement pollution controls are relatively high.
- Sufficient state resources are available to staff the public participation process.
- The state has access to trained facilitators on staff or through other organizations.
- Sufficient time is available to carry out a more time-consuming process, and there are no imminent "hard" completion deadlines.
- All interested parties have the time and expertise necessary to participate fully in the process.
- The TMDL decisions are likely to rely heavily on state exercise of "best professional judgment."

Another good way to determine what level of stakeholder involvement is needed is to let the stakeholders themselves decide. Hold a stakeholder orientation meeting to introduce stakeholders to the TMDL process, the water quality issues and concerns being addressed by the TMDL, and to one another. At the meeting, you might lead a facilitated discussion of the level of stakeholder involvement needed. Ask for feedback from the group either by voting on the preferred level of involvement or taking suggestions on alternative levels and working toward a consensus decision.

F.5. Developing a Framework for Stakeholder Involvement

After you have identified and researched your stakeholders, you now need to outline a framework for the stakeholder involvement process. Ideally, this will be only a preliminary framework. You will need to ask the stakeholders to comment on and provide their own input on how they think the stakeholder process should operate. This effort will build support for the process and set the stage for a consensus-based approach to the TMDL.

Be sure to flesh your preliminary framework out in writing. This will become your stakeholder involvement plan. The importance of putting your stakeholder involvement plan on paper cannot be overstated. Putting the plan in writing allows you to essentially test the plan on paper before you invite stakeholders to the first meeting. Such a plan can be referred to throughout the process to ensure that goals and objectives are met timely and inclusively. The plan should include the results of all the research you conducted while identifying and analyzing the key stakeholders. A written plan will also communicate your plans to all parties, such as the State Board, that will be involved in supporting the effort and allow time to make changes to the plan if necessary. This is especially important for controversial TMDLs.

F.5.1 Setting Goals and Objectives

The first step in developing a framework is setting the goals and objectives of the stakeholder involvement process. This might sound redundant after having identified the stakeholders and selecting the appropriate level of involvement, but it is important that everyone is clear on the goals and objectives so that the process does not stray off course.

Goals are general statements that express the broad focus of your effort. For example, the overall goal of your stakeholder involvement process might be to gain public support for voluntary adoption of a set of best management practices that will help meet TMDL requirements. One of the most important steps in the

Changing Course

When the San Francisco Bay Regional Board set out to develop a TMDL for copper and nickel in the Lower South San Francisco Bay, they determined that an impairment assessment conducted by the City of San Jose showed that a full TMDL was not necessary because an impairment the most sensitive beneficial uses, those involving aquatic life, were not likely to be threatened by either current ambient dissolved concentrations of copper and nickel or the somewhat higher SSOs.

planning process is setting realistic goals. For example, achieving full consensus on the technical and policy issues of the TMDL project might not be an attainable goal. It might be possible, however, to have the key stakeholders agree that the science behind the TMDL is sound. Another example of a realistic goal is to keep stakeholders informed of the development of the TMDL and request feedback on a specific element, such as the source analysis. Goals should be clearly stated with measures for success identified in the objectives that are set to achieve the goals.

Objectives are tasks that are identified that are critical to achieving the goals that have been set. Objectives should be Specific, Measurable, Action-oriented, Relevant, and Time-focused (SMART). For example, one objective might be to conduct 3 public hearings over the course of 1 year to collect public comments on the proposed TMDL strategy.

F.5.2 Setting Priorities

With limited time and resources, setting priorities within a TMDL project is crucial to optimize use of staff and financial resources. Setting priorities often involves clarity about your goals (e.g., deciding whether you are primarily striving to share information or are seeking specific feedback from stakeholders). Priorities should be reevaluated regularly to ensure that goals are being met.

In addition to ongoing project-specific priorities, the San Francisco Bay Regional Board has identified two overarching priorities for their stakeholder involvement processes: 1) focus on achieving consensus on the science behind the TMDL, rather than on achieving full consensus on all the technical and policy aspects of the TMDL; and 2) focus outreach on "interested, knowledgeable" parties as opposed to the general public. While they continue to strive to reach both audiences, they focus their time, attention, and approach on the interested parties who have some knowledge of and active interest in the TMDL process or a specific TMDL. This priority is reflected in which outreach tools are used and how outreach materials are designed and developed.

Stakeholder Process Tips

- If key groups or interests are not adequately represented, consider reducing the intensity of the planned public process to better accommodate the abilities of these groups or interests to participate. If feasible, consider providing financial support for members of these groups to attend meetings or hire expert assistance.
- Time is needed to build trust among participating stakeholders and to educate the public on TMDL process basics. This is easier in processes that have substantial time to do their work. Even in projects where public participation is limited, it is important to do some outreach to educate the public about TMDLs.
- If a significant number of people or groups are interested in discussing the technical aspects of TMDL development, convene a separate technical advisory group to discuss these issues, and provide separate forums for discussing policy and allocation issues that may be of greater interest to the lay public. Members of the general public, and many leaders of agencies and private entities generally lack the time, interest, or expertise needed to engage in technical details.
- Schedule stakeholder meetings at different times of the day, including some evening and/or weekend meetings to accommodate people who cannot attend weekday meetings.

F.5.3 How Will the Stakeholder Involvement Process Operate?

While developing a stakeholder involvement plan, you must determine how the stakeholder group will be structured, how decisions will be made throughout the process, and the roles and responsibilities of the stakeholders.

Organizational Structure

Stakeholder groups range from informal, ad hoc groups to highly organized, formal committees. Smaller, informal stakeholder groups usually result in faster consensus building and require less logistical planning. In such cases stakeholders might only meet

when needed. Whereas formal stakeholder groups or committees require regular meetings and information dissemination to reach consensus.

If you have a relatively small number of stakeholders, you might decide to just work through the TMDL process together as one group. However, if you have a large number of stakeholders, or if the TMDL issues are particularly complex or controversial, you might want to consider setting up subcommittees or technical advisory groups. Subcommittees can be created to gather information, identify concerns, or develop alternative strategies to address water quality issues and report back to the group at large. Subcommittees could be formed for activities such as media relations, data collection, feedback on recommended BMPs, or monitoring.

Decisionmaking Methods

No one decisionmaking method is appropriate for all decisions. TMDL proponents can gather input informally from stakeholders and make a decision themselves. Conversely, they can delegate decisionmaking to a formal stakeholder committee. Keep in mind that as the level of involvement in decisionmaking increases so does the level of commitment to the outcome. There are recommended decisionmaking processes that apply to each level of stakeholder involvement (Low – High). Refer to the column titled "Decisionmaking Process" in Table F-1 for a description of the recommended procedure for each level.

Circumstances can sometimes warrant the selection of a lower or higher level of decisionmaking than the chosen level of stakeholder involvement or the development of an entirely new decisionmaking process. In those cases, the time available to the stakeholders to participate, the time frame of the TMDL, the importance of the decision, the information needed, and the need for buy-in of the decision should all be considered.

Generally speaking, the higher levels of stakeholder involvement require decisionmaking that is more consensus-based than the decisionmaking at the lower levels of stakeholder involvement. Generating decisions based on consensus means that all stakeholders are willing to support the decision selected. It does not mean that all stakeholders are supporting their first choice. Rather it is a decision that the group agrees to live with. When making decisions by consensus, be sure to include a fallback position in case consensus cannot be reached. This is especially important for controversial TMDLs. A fallback position might be "If we cannot reach consensus on whether to allow nutrient trading among pollution sources in the watershed, we will vote and go with the majority decision."

Stakeholder Steering Committee Leads TMDL Development

A steering committee of watershed stakeholders has been involved from the beginning of the San Joaquin River dissolved oxygen TMDL development process. Operating in a consensus-based approach, the steering committee is responsible for evaluating past actions taken in the TMDL development process as well as to set future goals. This process provides multiple opportunities for stakeholder feedback. The steering committee evaluates yearly goals and objectives, establishes new goals and objectives for the following year, provides feedback on implementation plans, and even periodically evaluates its decision making process. The feedback generated helps the steering committee keep the TMDL development on track as well to make sure the committee itself is functioning properly.

Roles and Responsibilities

A stakeholder involvement plan that describes the contribution expected from each stakeholder can reinforce collaboration and cooperation. Outlining roles and responsibilities for the stakeholder group will also help clarify expectations and reduce conflict. These roles should be strategically assigned to ensure that the stakeholder group is capable of achieving its goals and objectives. Members should be responsible for issues or areas in which they are most skilled and have the greatest stake. It is important that all members have roles they

consider meaningful and significant.

Different individuals or groups need to be charged with managing the TMDL stakeholder involvement process and the input gained from the process. Outside facilitators or another neutral parties should be used to help manage the process by encouraging discussion, diffusing conflicts, and keeping the decisionmaking process productive and timely.

Stakeholders will be responsible for the input gained from the process. Stakeholders should have responsibilities such as ensuring all relevant interests are addressed and providing input on potential best management practices (BMPs) recommended in the TMDL. Stakeholders such as government agencies (e.g., U.S. Geological Survey, state departments of transportation) can provide input on regulatory requirements, current practices, or ongoing research that could affect the decisions made during the TMDL development process.

F.6. Outreach and Communication Methods

Meetings, presentations, fact sheets and other outreach documents, public notices, mailings, Web site postings, focus groups, and one-on-one interactions with key stakeholders are among the tools used to conduct outreach. Each of these tools has its own set of advantages and disadvantages. For example, meetings can be a great opportunity for all of the key stakeholders to sit down together to discuss technical information and policy issues. Yet, meetings are time consuming for all involved and are not always productive. Stakeholder processes generally necessitate a combination of all available outreach tools, with a focus on the tools most appropriate for the specific project, such as presentations or Web site postings. It is important to evaluate the applicability of various in-person forums carefully and select the best type and frequency. Available models of forums include technical advisory committees, steering committees, public advisory committees, watershed councils, and open-invitation public workshops. Sometimes a new forum needs to be established specifically for the TMDL project, but often an existing forum can be used.

The same forums or other outreach tools may not work for all stakeholders. For example, some key stakeholders may not have the time and resources to participate in multiple meetings and face-to-face decisionmaking activities, but could be involved through less time-intensive means, such as e-mail updates and online discussions. In addition, some key stakeholders may be uncomfortable sharing concerns in a large group meeting setting, but will e-mail or phone this information to a project contact or other stakeholder.

F.7. Evaluating Success

Specific measures for success in a TMDL stakeholder involvement effort can include productive comments on draft documents, attendance at meetings, and stakeholder buy-in on the technical aspects of the TMDL.

Even the best-planned stakeholder processes have room for improvement. Evaluation provides a feedback mechanism for ongoing improvement of your stakeholder involvement effort. Many people don't think about how they will evaluate the success of the effort until after the TMDL has been developed. Building an evaluation component into the stakeholder involvement plan from the beginning, however, will ensure that at least some accurate feedback on effort is generated. Ideally, feedback generated during the early stages of the stakeholder process will be used immediately in making preliminary determinations about what level of involvement is needed and how the process will proceed. Adapting elements of the effort continually as new information is received ensures that ineffective components are adjusted or scrapped, while the things that are working are supported and enhanced.

Evaluation tools must be built into your stakeholder involvement process at the beginning and along every step of the way to ensure that accurate feedback is generated from all interested parties. This method is commonly called *adaptive management*. Adaptive management is a process for continually improving your goals and objectives, messages, formats, and distribution mechanisms by learning from the tasks you have implemented. Adaptive management keeps you from either charging ahead blindly or being paralyzed by indecision. It helps you learn from your mistakes and repeat your successes.

F.7.1 Types of Evaluation Indicators

There are two main types of indicators that can be used to evaluate the success of your stakeholder involvement effort—process indicators and impact indicators. Process indicators are related to the execution of the stakeholder involvement effort itself. The number of stakeholders involved, the frequency and number of meetings held, the number of attendees at each meeting, and the number and types of outreach materials distributed to the stakeholders are all process indicators. Process indicators focus on implementation of activities as they relate to milestone achievement, budgets, etc. Process evaluation should occur as the TMDL and corresponding stakeholder involvement process is being carried out to allow modifications before too many resources have been expended or too much time has passed.

Impact indicators relate to the achievement of the goals and objectives of the stakeholder involvement plan. Impact evaluations assess the outcome or impacts produced by the effort. Stakeholder involvement impact indicators might include whether consensus was reached on the types of BMPs selected, changes in perceptions or behaviors, or more water quality-related indicators such as the number of miles of streams fenced off from cattle (which implies a direct effect on water quality). Tools to assess impact include focus groups, surveys, before and after photos, or water quality monitoring.

Building both process and impact indicators into your stakeholder involvement plan will help ensure that the goals and objectives are met, that the TMDL will be developed with the appropriate amount of public input, and that stakeholders will be happy with the TMDL outcome and resulting implementation strategy.

F.8. Where to Go for Help

The SWRCB's Office of Legislative Affairs and Office of Public Affairs support the State Boards and Regional Boards with media contacts and public outreach tools (e.g., training, manuals, brochures) to assist in the development of TMDLs. For more information on the resources offered, visit http://www.swrcb.ca.gov/. In addition to the technical support provided by the SWRCB, the following resources are available to help you get your stakeholder involvement effort started off on the right foot and ultimately develop and implement TMDLs that watershed stakeholders own and accept.

Getting in Step: Engaging and Involving Stakeholders in Your Watershed
This guide provides the tools needed to effectively engage stakeholders to restore and maintain healthy watersheds through community support and cooperative action. Developed through a grant from the U.S. Environmental Protection Agency, Office of Water. Available online at www.epa.gov/owow/watershed/outreach/documents.

Getting In Step: A Guide for Conducting Watershed Outreach Campaigns (due to be printed soon)
This guide is an update of the 1998 publication *Getting In Step: A Guide to Effective Outreach in Your Watershed*. This updated version includes more specific information on how to work with the mass media to conduct outreach campaigns and includes new information on using social marketing techniques to generate sustainable behavior change. The guide is available online at www.epa.gov/owow/nps or by calling 1-800-490-9198. Ask for publication number EPA 841-B-03-002.

Watershed Restoration: A Guide for Citizen Involvement in California
Some of the best science and technical tools available to citizens involved in coastal watershed management are available in this guide. Although it was developed for California, this well-constructed guide might spark ideas for use in other watersheds. Published in December 1995, it can be obtained by contacting the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Coastal Oceans Office, 1315 East West Highway, Silver Spring, MD 20910. Phone: (301) 713-3338; Fax: (301) 713-4044.

Stakeholder Involvement & Public Participation at the U.S. EPA: Lessons Learned, Barriers, & Innovative Approaches
This report takes a look at USEPA efforts to involve the public in the formal review process by reviewing formal evaluations and informal summaries from across USEPA that identify, describe, and/or evaluate stakeholder involvement and public participation activities. The report identifies key crosscutting lessons learned, pinpoints unique barriers and ways to overcome them, and highlights innovative approaches to stakeholder involvement and public participation. Available online at www.epa.gov/stakeholders/pdf/sipp.pdf.

Bridge Builder: A Guide for Watershed Partnerships (Facilitator's Handbook)
The purpose of this handbook is to make the facilitation of watershed planning and management as easy as possible. Many exercises, transparencies, forms, checklists, and other sources of information and examples are included throughout the text. To obtain a copy of this handbook, contact Conservation Technology Information Center, 1220 Potter Drive, Room 170, West Lafayette, IN 47906-1383. Phone: (765) 494-9555; Fax: (765) 494-5969; Internet: www.ctic.purdue.edu.

The Watershed Project Management Guide
The Watershed Project Management Guide focuses on the complexities of the watershed management process, the watershed partnership's role in the processes, and what needs to be done next. This process can be used to implement a management strategy to meet the load allocations required by an approved TMDL. This 296-page guide was written by Tom Davenport and published in 2002.

Developing Technical Policy with Citizen Groups
This article from *Stormwater* magazine, aimed at state and local agency officials, provides an overview of the public involvement process. It outlines the steps necessary to define a group, the issues to be covered, and the process used to address the issues. The article contains techniques, approaches, and skills helpful in bringing a disparate group to agreement on diverse issues. To view the article visit www.forester.net/sw_0105_developing.html.

Conservation Partnerships Field Guide
This field guide to public-private partnering for natural resource conservation is designed to help both the novice and the experienced practitioner successfully use partnerships as equitable, effective, and efficient means of achieving results. It includes an overview of projects and partnerships. The field guide is available from the U.S. Fish and Wildlife Service, Office of Training and Education, 4401 North Fairfax Drive, Arlington, VA 22203. Phone: (703) 358-1711.

Know Your Watershed: Watershed Management Starter Kit
Want to start a watershed management partnership for your local watershed? This complete kit includes five guides (*Getting to Know Your Watershed*, ***Building Local Partnerships***, *Putting Together a Watershed Management Plan*, ***Managing Conflict***, and *Leading and Communicating*), a 13_minute video (*Partnerships for Watersheds*), 10 companion brochures, and an application to the National Watershed Network. In other words, it includes everything you need to get started. It is available from Conservation Technology Information Center, 1220 Potter Drive, Room 170, West Lafayette, IN 47906-1383. Phone: (765) 494-9555; Internet: www.ctic.purdue.edu/Catalog/WatershedManagement.html.