



California Regional Water Quality Control San Francisco Bay Region

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SSIC NO. 5090.3

Winston H. Hickox
Secretary for
Environmental
Protection

Internet Address: <http://www.swrcb.ca.gov>
1515 Clay Street, Suite 1400, Oakland, California 94612
Phone (510) 622-2300 ~ FAX (510) 622-2460

Gray Davis
Governor

Date: October 18, 1999
File No. 2169.6032 (CRM)

Commanding Officer
Engineering Field Activity, West
Naval Facilities Engineering Command
900 Commodore Drive
San Bruno, CA 94066-2402
Attention: Mr. Mike McClelland

**Subject: Beneficial Uses of Ground Water for the A-aquifer at Hunter's Point Shipyard,
San Francisco, California**

Dear Mr. McClelland:

On September 21, 1999 Regional Board staff (Board staff) met with you and members of the Base Closure Team (BCT) to discuss the existing and potential beneficial uses of ground water for the A-aquifer at Hunter's Point Shipyard, San Francisco (HPS). One of the key items of discussion was the substantive requirement of State Water Resources Control Board (SWRCB) Resolution No. 88-63 (Res. 88-63). The purposes of this letter are to: (1) outline Board staff's interpretation of Resolution No. 88-63 with respect to concentrations of total dissolved solids (TDS) in ground water of the A-aquifer at HPS; and, (2) discuss the substantive requirements of SWRCB Resolution No. 92-49 (Res. 92-49) with respect to development of corrective action strategies for impacted ground water at HPS.

As an introduction, this letter does not deviate in any way from verbal and written comments provided to the Navy previously regarding State requirements for managing polluted ground water at HPS. The SWRCB and/or San Francisco Bay Regional Water Quality Control Board (Regional Board) have adopted numerous laws, plans, policies, and regulations that are applicable and appropriate or relevant (ARARs) for cleanup at Department of Defense sites. These ARARs describe a process for developing and implementing appropriate actions in cases where waters of the State of California have been adversely impacted by unauthorized discharges of waste. While Board staff concur that active remedial actions would be unreasonably and unnecessarily burdensome for ground waters of the A-aquifer in some cases, it is imperative that the Navy fully follow and comply with the processes set forth in ARARs for developing such conclusions.

Background

The following discussion provides background information regarding the evaluation of beneficial uses for ground waters in the A-aquifer at Parcels B and D at HPS. The discussion of Parcel B is provided here only for reference because a Record of Decision (ROD) has already been signed for Parcel B, and similar issues were considered in the development of the ROD.

Parcel B

On October 9, 1997 the Regional Board Executive Officer signed the ROD for Parcel B at HPS. In regards to cleanup of polluted ground water, Table 6 of the ROD states the following:

“The Navy recognizes that the Basin Plan must be considered to determine the potential beneficial uses of ground water at Parcel B as the beneficial use will guide the remedial goals. The Navy does not believe any beneficial uses for ground water underlying Parcel B are present, including freshwater replenishment. By removing sources and monitoring, the State agrees that Alternative GW-2 satisfies the Basin Plan goals with respect to freshwater replenishment...”

“The Navy and State do not agree on whether ground water underlying Parcel B meet the criteria as a potential drinking water source. Nevertheless, the Navy and State agree that drinking water standards are neither applicable nor relevant or appropriate for Parcel B.”

“Section III.G of Resolution No. 92-49, which requires dischargers to abate the effects of discharges in a manner that promotes attainment of either background water quality, or the best water quality that is reasonable, is relevant and appropriate. By removing the source (i.e., soil), all of the ground water alternatives, except GW-1, will promote the only possible beneficial use of ground water (i.e., freshwater replenishment).”

In signing the ROD for Parcel B, the Executive Officer concurred that drinking water standards would not be applied as cleanup goals for ground water at Parcel B. This decision was made in consideration of numerous technical, economic, and social factors presented by the Navy. As discussed in this letter below, Board staff believes that SWRCB Resolution 92-49 provides discretion for such decisions.

In signing the ROD for Parcel B, the Executive Officer did not concur with the Navy that the Municipal and Domestic Water Supply (MUN) beneficial use designation was not applicable for ground waters in Parcel B. Board staff is not suggesting that the BCT revisit this issue for Parcel B. However, as discussed in this letter below, no such decision regarding the MUN use nor the applicability of drinking water standards has been made for Parcel D. The Navy has not provided supporting documentation that would lead Board staff to conclude that drinking water standards are not applicable cleanup standards for Parcel D.

Parcel D

On May 26, 1998 Board staff sent a letter to you regarding the draft Record of Decision (ROD) for Parcel D at HPS. The following is quoted from pages one and two of our letter:

“The language on page 33 regarding the Basin Plan should be revised to better reflect the discussion in Section 2.1. Specifically, the present text states that beneficial use of ground water below HPS does not include municipal supply. As noted in Section 2.1, certain waters at HPS meet the definitions in Resolution 88-63, and thus would have potential municipal supply designations... This point also relates to Navy responses to comments regarding future ground water use, where the Navy states that Parcel D ground water has been determined to be unusable. The Navy should clarify who has made this determination and where such determination has been documented.”

Subsequent to Board staff's letter, the Navy submitted a Draft Technical Memorandum (Memorandum) in July 1999 regarding the classification of ground water for the A-aquifer at Parcel D. Generally, the purpose of the Memorandum was to identify those areas of ground water in the A-aquifer in Parcel D that qualify (or do not qualify) for MUN beneficial use designation. Board staff provided technical comments on the Memorandum in a letter to you dated September 8, 1999.

Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan)

In accordance with Section 13241 of the California Water Code, the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) prescribes the existing and potential beneficial uses for ground waters within the San Francisco Bay Region. The Basin Plan indicates that the potential beneficial uses for ground waters of the Islais Valley Ground Water Basin (DWR No. 2-33) includes MUN. The A-aquifer at HPS lies within the Islais Valley Ground Water Basin.

Adoption of the Basin Plan is a public process. The Basin Plan was adopted by the Regional Board in a public hearing as a Functional Equivalent Document (FED) for the purposes of compliance with the California Environmental Quality Act (CEQA), and was also approved by the SWRCB and the United States Environmental Protection Agency (USEPA). Board staff clearly does not have discretion to deviate from plans and policies that have been adopted by the Regional Board.

The MUN designation for ground waters within the Islais Valley Ground Water Basin was indirectly considered as a component of the public hearing for the Basin Plan adoption and approval process. Any process to formally remove this MUN designation (i.e., beneficial use de-designation) for the Islais Valley Ground Water Basin would need to involve a lengthy public hearing process, and would require approval from the SWRCB.

State Water Resources Control Board Resolution No. 88-63

Res. 88-63 was adopted by the State Water Resources Control Board in 1988 and describes criteria for ground waters that would be considered suitable for municipal and domestic supply. Res. 88-63 states, in part:

"All surface and ground waters of the State are considered to be suitable, or potentially suitable, for municipal and domestic supply and should be so designated by the Regional Boards with the exception of:

- *Surface and ground waters where the TDS exceeds 3,000 mg/L and it is not reasonably expected by Regional Boards to supply a public water system; or,*
- *there is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that can not reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices; or*
- *the water source does not provide sufficient water to supply a single well capable of producing an average sustainable yield of 200 gallons per day...*

Any body of water which has a current specific designation previously assigned to it by a Regional Board in Water Quality Control Plans may retain that designation at the Regional Board's discretion. Where a body of water is not currently designated as MUN but, in the opinion of a Regional Board, is presently or potentially suitable for MUN, the Regional Board shall include MUN in the beneficial use designation..."

The Regional Board did not hold a public hearing and remove the MUN beneficial use designation for the ground waters of the Islais Valley Ground Water Basin, or any portion thereof. As such, the MUN designation clearly applies to all ground waters within the A-aquifer. As previously provided to the Navy in writing, in the absence of data indicating otherwise, the MUN use also applies to the ground waters of the B-aquifer and the bedrock water bearing zone.

Board staff believes that Res. 88-63 provides discretion for the Regional Board to not strictly enforce promulgated MUN cleanup standards (i.e., drinking water standards) for ground waters that do not meet one or more of the three above criteria for sources of drinking water. This discretion exists because Res. 88-63 is a part of the Basin Plan, and thus the criteria for considering certain waters unsuitable for MUN use as quoted in this letter above were already a part of the Regional Board's public planning process.

Specific to the A-aquifer at HPS, samples collected from several monitoring wells exhibit TDS concentrations greater than 3,000 mg/L. These waters are subject to discretion by the Regional Board. Any ground waters where TDS concentrations are less than or equal to 3,000 mg/L automatically are considered suitable for MUN uses and are not subject to discretion by the Regional Board unless one or both of the other criteria quoted from Res. 88-63 in this letter above are met.

In previous cases, the Regional Board has used discretion where individual ground water samples only represent "small pockets" of low salinity ground water. These small pockets of ground

water may have TDS less than 3,000 mg/L, but do not receive substantial freshwater recharge and may be subject to natural and/or pumping induced intrusion of seawater. In these cases, the individual ground water samples would not be representative of a dominantly saline aquifer. Recently, the Regional Board used the average concentration of TDS over a vertical profile to characterize the salinity of an aquifer rather than relying solely on individual samples. In these hydrologic environments, one or more pumping wells would not sustain a yield of 200 gallons per day of water with salinity less than 3,000 mg/L. The MUN designation is clearly inappropriate and unreasonable in these cases, and Board staff believes that Res. 88-63 allows for discretion. However, note that such cases are rare and most aquifers that receive freshwater recharge will meet the criteria for MUN use as described in Res. 88-63.

While it is appropriate to accurately characterize ground water in regards to salinity and yield, it is not appropriate to consider risk-based factors in determining the applicability of the MUN use designation. The placement of deed restrictions and/or other controls on the use of an aquifer would not change the beneficial use designations.

It is also important to note that locations with ground water containing TDS greater than 3,000 mg/L may be subject to discretion by the Regional Board, but only if the Regional Board finds that the ground water is not suitable to **supply a public water system**. Treatment technologies are available and used in some areas to remove salts from ground water for MUN use. Note that there is a difference between a public water supply system (municipal use) and one or more individual wells for single family homes (domestic use).

State Water Resources Control Board Resolution No. 92-49

Res. 92-49 is a policy of the SWRCB with respect to actions of cleanup and abatement, and was developed pursuant to the authority of Section 13304 of the California Water Code. Res. 92-49 has been incorporated into the Basin Plan, and thus is also considered to be policy of the Regional Board. A copy of Res. 92-49, as amended, is attached to this letter for your reference.

Res. 92-49 sets forth procedures for responsible parties to develop corrective strategies for polluted waters to restore such waters for beneficial uses within a **reasonable** time frame. In the case of the A-aquifer where the Regional Board will enforce the MUN use designation, the highest allowable numerical cleanup level would in most cases be the drinking water standards. Lower cleanup levels would be required if another numerical standard has been promulgated as protective of one or more of the other beneficial uses assigned in the Basin Plan (i.e., industrial service, industrial process, and/or agricultural). The cleanup strategy used (i.e., active or passive) and the time frame to restore beneficial uses (i.e., achieve cleanup levels) are subject to numerous technical, economic, and social factors as referenced in Res. 92-49. No further action (NFA), as defined in the CERCLA process, is not considered to be a cleanup strategy because cleanup goals and/or management tools are not a component of the action.

Ultimately, the reasonable nature of the proposed time frame for cleanup is subject to the discretion of the Regional Board. If in consideration of applicable factors, the Regional Board determines that beneficial uses can not be restored within a reasonable time frame, Res. 92-49 provides a process for the responsible party(ies) to develop and implement a strategy for long-term protection of human health and the environment (i.e., containment zone). In these cases, the responsible party(ies) would not be required to restore the beneficial uses of the ground water. However, the responsible parties would be required to develop a management action plan to implement technically and economically feasible cleanup, prevent migration of the plume, and prevent adverse impacts to human health and the environment (ex., ROD for Parcel B).

Point of Compliance

The above-referenced Memorandum discusses the point of compliance (POC) for achieving cleanup levels as potentially being the shoreline and/or seawalls at Parcel D. Board staff has provided written comments on several occasions indicating that using the shoreline/seawalls at the POC would be unacceptable. Most recently, Board staff's September 1999 response letter in regards to the Memorandum indicated that a buffer zone would be needed inland from the shoreline to protect aquatic organisms from exposure to contaminants. The extent of tidal influence is one critical item that must be considered in determining the appropriate buffer zone.

Note that Res. 92-49 references the SWRCB's Anti-Degradation Policy (Resolution 68-16). Res. 68-16 is a part of the Basin Plan and is a policy of the Regional Board. In accordance with Res. 92-49 and the Anti-Degradation Policy, the POC for achieving cleanup levels in the A-aquifer is considered to be any point in the ground water of the A-aquifer. Cleanup strategies, if required, must be capable of restoring beneficial uses for the entire area of impacted ground water.

Only if the Navy demonstrates that an area of polluted ground water meets the requirements for a containment zone as described in Res. 92-49 would the Regional Board allow an alternative POC. If such were the case, then the POC would be the geographic boundary in which the Navy would be required to control the extent of polluted ground water. This geographic boundary would not be used as a method of compliance for a cleanup standard because the goal of a containment zone is management of polluted ground water rather than restoring beneficial uses (i.e., no cleanup goal). Protection of aquatic organisms and other possible receptors would be considered in establishing the location of any POC for the purposes of a containment zone.

Board staff is aware that the Navy may not concur that Res. 68-16 is an ARAR. Language contained in Table 6 of the ROD for Parcel B states: "*...the Navy and the State disagree as to whether Resolution No. 68-16 is an ARAR. With the exception of GW-1, the State believes that by removing source areas and continued monitoring, Alternatives GW-2, GW-3, and GW-5 would meet the requirements of Resolution 68-16 regardless of whether it is an ARAR.*" Board staff continues to believe that Res. 68-16 is an ARAR, and thus the issue may continue to be unresolved.

Soil Cleanup Levels

Board staff is aware that the Navy is developing soil cleanup levels for Parcel D primarily based upon risk to human health and other possible environmental receptors. Soil cleanup levels must also consider protection of ground water resources. Any contaminants left in the soil must be considered in developing corrective action strategies for restoration of the beneficial uses of the ground water and/or plume containment. Note that Res. 92-49 emphasizes the need for source removal as one element of providing justification for a containment zone.

Considering the obvious link between soil and ground water cleanup levels, Board staff recommends that the Navy fully resolve ground water cleanup issues before implementing soil cleanup strategies at HPS. Specifically, soil cleanup levels that are developed solely in consideration of human and other environmental receptors may not be adequate to restore beneficial uses of ground water and/or achieve the source control and plume management requirements of a containment zone.

Summary

Boards staff believes that there are numerous areas of polluted ground water within the A-aquifer that have a MUN beneficial use designation and are not subject to the discretion of the Regional Board. As such, these areas will require development of corrective action strategies pursuant to the procedures outlined in Res. 92-49. These areas include polluted ground water that is in direct contact with ground waters of the B-aquifer and/or bedrock water-bearing zone.

Although corrective action strategies may be passive rather than active, the Navy must demonstrate that the proposed strategy is capable of achieving cleanup levels and must clearly demonstrate that the time frame is reasonable in accordance with Res. 92-49. It may be appropriate for the Navy to develop plans for management of polluted ground water rather than restore beneficial uses (i.e., containment zone). However, the Navy will be required to provide an appropriate demonstration in accordance with containment zone provisions in Res. 92-49.

If you have questions regarding this matter, please feel free to call me at (510) 622-2377.

Sincerely,



Chris Maxwell
Associate Engineering Geologist
Ground Water Protection and Waste
Containment Division

att: Res. 92-49

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cc: Ms. Claire Trombadore (SFD-8-2)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Ms. Sheryl Lauth (SFD-8-2)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Mr. Richard Powell
Engineering Field Activity, West
900 Commodore Drive
San Bruno, CA 94066-2402

Mr. Chein Kao
Department of Toxic Substances Control
Northern California Region
700 Heinz Avenue, Suite 200
Berkeley, CA 94710

Ms. Amy Brownell
San Francisco Department of Public Health
1390 Market Street, Suite 910
San Francisco, CA 94102

STATE WATER RESOURCES CONTROL BOARD

RESOLUTION NO. 92-49

(As Amended on April 21, 1994 and October 2, 1996)

POLICIES AND PROCEDURES FOR INVESTIGATION AND CLEANUP AND ABATEMENT OF DISCHARGES UNDER WATER CODE SECTION 13304

WHEREAS:

1. California Water Code (WC) Section 13001 provides that it is the intent of the Legislature that the State Water Resources Control Board (State Water Board) and each Regional Water Quality Control Board (Regional Water Board) shall be the principal state agencies with primary responsibility for the coordination and control of water quality. The State and Regional Water Boards shall conform to and implement the policies of the Porter-Cologne Water Quality Control Act (Division 7, commencing with WC Section 13000) and shall coordinate their respective activities so as to achieve a unified and effective water quality control program in the state;
2. WC Section 13140 provides that the State Water Board shall formulate and adopt State Policy for Water Quality Control;
3. WC Section 13240 provides that Water Quality Control Plans shall conform to any State Policy for Water Quality Control;
4. WC Section 13304 requires that any person who has discharged or discharges waste into waters of the state in violation of any waste discharge requirement or other order or prohibition issued by a Regional Water Board or the State Water Board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance may be required to clean up the discharge and abate the effects thereof. This section authorizes Regional Water Boards to require complete cleanup of all waste discharged and restoration of affected water to background conditions (i.e., the water quality that existed before the discharge). The term waste discharge requirements includes those which implement the National Pollutant Discharge Elimination System;
5. WC Section 13307 provides that the State Water Board shall establish policies and procedures that its representatives and the representatives of the Regional Water Boards shall follow for the oversight of investigations and cleanup and abatement activities resulting from discharges of hazardous substances, including:
 - a. The procedures the State Water Board and the Regional Water Boards will follow in making decisions as to when a person may be required to undertake an investigation to determine if an unauthorized hazardous substance discharge has occurred;
 - b. Policies for carrying out a phased, step-by-step investigation to determine the nature and extent of possible soil and ground water contamination or pollution at a site;
 - c. Procedures for identifying and utilizing the most cost-effective methods for detecting contamination or pollution and cleaning up or abating the effects of contamination or pollution;
 - d. Policies for determining reasonable schedules for investigation and cleanup, abatement, or other

remedial action at a site. The policies shall recognize the danger to public health and the waters of the state posed by an unauthorized discharge and the need to mitigate those dangers while at the same time taking into account, to the extent possible, the resources, both financial and technical, available to the person responsible for the discharge;

6. "Waters of the state" include both ground water and surface water;

7. Regardless of the type of discharge, procedures and policies applicable to investigations, and cleanup and abatement activities are similar. It is in the best interest of the people of the state for the State Water Board to provide consistent guidance for Regional Water Boards to apply to investigation, and cleanup and abatement;

8. WC Section 13260 requires any person discharging or proposing to discharge waste that could affect waters of the state, or proposing to change the character, location, or volume of a discharge to file a report with and receive requirements from the Regional Water Board;

9. WC Section 13267 provides that the Regional Water Board may require dischargers, past dischargers, or suspected dischargers to furnish those technical or monitoring reports as the Regional Water Board may specify, provided that the burden, including costs, of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports;

10. WC Section 13300 states that the Regional Water Board may require a discharger to submit a time schedule of specific actions the discharger shall take in order to correct or prevent a violation of requirements prescribed by the Regional Water Board or the State Water Board;

11. California Health and Safety Code (HSC) Section 25356.1 requires the Department of Toxic Substances Control (DTSC) or, if appropriate, the Regional Water Board to prepare or approve remedial action plans for sites where hazardous substances were released to the environment if the sites have been listed pursuant to HSC Section 25356 (state "Superfund" priority list for cleanup of sites);

12. Coordination with the U.S. Environmental Protection Agency (USEPA), state agencies within the California Environmental Protection Agency (Cal/EPA) (e.g., DTSC, Air Resources Control Board), air pollution control districts, local environmental health agencies, and other responsible federal, state, and local agencies: (1) promotes effective protection of water quality, human health, and the environment and (2) is in the best interest of the people of the state. The principles of coordination are embodied in many statutes, regulations, and interagency memoranda of understanding (MOU) or agreement which affect the State and Regional Water Boards and these agencies;

13. In order to clean up and abate the effects of a discharge or threat of a discharge, a discharger may be required to perform an investigation to define the nature and extent of the discharge or threatened discharge and to develop appropriate cleanup and abatement measures;

14. Investigations that were not properly planned have resulted in increases in overall costs and, in some cases, environmental damage. Overall costs have increased when original corrective actions were later found to have had no positive effect or to have exacerbated the pollution. Environmental damage may increase when a poorly conceived investigation or cleanup and abatement program allows pollutants to spread to previously unaffected waters of the state;

15. A phased approach to site investigation should facilitate adequate delineation of the nature and extent of the pollution, and may reduce overall costs and environmental damage, because: (1) investigations inherently build on information previously gained; (2) often data are dependent on seasonal and other

temporal variations; and (3) adverse consequences of greater cost or increased environmental damage can result from improperly planned investigations and the lack of consultation and coordination with the Regional Water Board. However, there are circumstances under which a phased, iterative approach may not be necessary to protect water quality, and there are other circumstances under which phases may need to be compressed or combined to expedite cleanup and abatement;

16. Preparation of written workplans prior to initiation of significant elements or phases of investigation, and cleanup and abatement generally saves Regional Water Board and discharger resources. Results are superior, and the overall cost-effectiveness is enhanced;

17. Discharger reliance on qualified professionals promotes proper planning, implementation, and long-term cost-effectiveness of investigation, and cleanup and abatement activities. Professionals should be qualified, licensed where applicable, and competent and proficient in the fields pertinent to the required activities. California Business and Professions Code Sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgements be performed by or under the direction of registered professionals;

18. WC Section 13360 prohibits the Regional Water Boards from specifying, but not from suggesting, methods that a discharger may use to achieve compliance with requirements or orders. It is the responsibility of the discharger to propose methods for Regional Water Board review and concurrence to achieve compliance with requirements or orders;

19. The USEPA, California state agencies, the American Society for Testing and Materials, and similar organizations have developed or identified methods successful in particular applications. Reliance on established, appropriate methods can reduce costs of investigation, and cleanup and abatement;

20. The basis for Regional Water Board decisions regarding investigation, and cleanup and abatement includes: (1) site-specific characteristics; (2) applicable state and federal statutes and regulations; (3) applicable water quality control plans adopted by the State Water Board and Regional Water Boards, including beneficial uses, water quality objectives, and implementation plans; (4) State Water Board and Regional Water Board policies, including State Water Board Resolutions No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California) and No. 88-63 (Sources of Drinking Water); and (5) relevant standards, criteria, and advisories adopted by other state and federal agencies;

21. Discharges subject to WC Section 13304 may include discharges of waste to land; such discharges may cause, or threaten to cause, conditions of soil or water pollution or nuisance that are analogous to conditions associated with migration of waste or fluid from a waste management unit;

22. The State Water Board has adopted regulations governing discharges of waste to land (California Code of Regulations (CCR), Title 23, Division 3, Chapter 15);

23. State Water Board regulations governing site investigation and corrective action at underground storage tank unauthorized release sites are found in 23 CCR Division 3, Chapter 16, in particular Article 11 commencing with Section 2720;

24. It is the responsibility of the Regional Water Board to make decisions regarding cleanup and abatement goals and objectives for the protection of water quality and the beneficial uses of waters of the state within each Region;

25. Cleanup and abatement alternatives that entail discharge of residual wastes to waters of the state, discharges to regulated waste management units, or leaving wastes in place, create additional regulatory

constraints and long-term liability, which must be considered in any evaluation of cost-effectiveness;

26. It is not the intent of the State or Regional Water Boards to allow dischargers, whose actions have caused, permitted, or threaten to cause or permit conditions of pollution, to avoid responsibilities for cleanup. However, in some cases, attainment of applicable water quality objectives for ground water cannot reasonably be achieved. In these cases, the State Water Board determines that establishment of a containment zone is appropriate and consistent with the maximum benefit to the people of the State if applicable requirements contained in the Policy are satisfied. The establishment of a containment zone does not limit or supersede obligations or liabilities that may arise under other laws;

27. The Porter-Cologne Water Quality Control Act allows Regional Water Boards to impose more stringent requirements on discharges of waste than any statewide requirements promulgated by the State Water Board (e.g., in this Policy) or than water quality objectives established in statewide or regional water quality control plans as needed to protect water quality and to reflect regional and site-specific conditions; and

28. Pursuant to Section 13320 of the Water Code, aggrieved persons may petition the State Water Board to review any decisions made under this policy.

THEREFORE BE IT RESOLVED:

These policies and procedures apply to all investigations, and cleanup and abatement activities, for all types of discharges subject to Section 13304 of the WC.

I. The Regional Water Board shall apply the following procedures in determining whether a person shall be required to investigate a discharge under WC Section 13267, or to clean up waste and abate the effects of a discharge or a threat of a discharge under WC Section 13304. The Regional Water Board shall:

A. Use any relevant evidence, whether direct or circumstantial, including, but not limited to, evidence in the following categories:

1. Documentation of historical or current activities, waste characteristics, chemical use, storage or disposal information, as documented by public records, responses to questionnaires, or other sources of information;
2. Site characteristics and location in relation to other potential sources of a discharge;
3. Hydrologic and hydrogeologic information, such as differences in upgradient and downgradient water quality;
4. Industry-wide operational practices that historically have led to discharges, such as leakage of pollutants from wastewater collection and conveyance systems, sumps, storage tanks, landfills, and clarifiers;
5. Evidence of poor management of materials or wastes, such as improper storage practices or inability to reconcile inventories;
6. Lack of documentation of responsible management of materials or wastes, such as lack of manifests or lack of documentation of proper disposal;
7. Physical evidence, such as analytical data, soil or pavement staining, distressed vegetation, or unusual

odor or appearance;

8. Reports and complaints;

9. Other agencies' records of possible or known discharge; and

10. Refusal or failure to respond to Regional Water Board inquiries;

B. Make a reasonable effort to identify the dischargers associated with the discharge. It is not necessary to identify all dischargers for the Regional Water Board to proceed with requirements for a discharger to investigate and clean up;

C. Require one or more persons identified as a discharger associated with a discharge or threatened discharge subject to WC Section 13304 to undertake an investigation, based on findings of I.A and I.B above;

D. Notify appropriate federal, state, and local agencies regarding discharges subject to WC Section 13304 and coordinate with these agencies on investigation, and cleanup and abatement activities.

II. The Regional Water Board shall apply the following policies in overseeing: (a) investigations to determine the nature and horizontal and vertical extent of a discharge and (b) appropriate cleanup and abatement measures.

A. The Regional Water Board shall:

1. Require the discharger to conduct investigation, and cleanup and abatement, in a progressive sequence ordinarily consisting of the following phases, provided that the sequence shall be adjusted to accommodate site-specific circumstances, if necessary:

a. Preliminary site assessment (to confirm the discharge and the identity of the dischargers; to identify affected or threatened waters of the state and their beneficial uses; and to develop preliminary information on the nature, and vertical and horizontal extent, of the discharge);

b. Soil and water investigation (to determine the source, nature and extent of the discharge with sufficient detail to provide the basis for decisions regarding subsequent cleanup and abatement actions, if any are determined by the Regional Water Board to be necessary);

c. Proposal and selection of cleanup and abatement action (to evaluate feasible and effective cleanup and abatement actions, and to develop preferred cleanup and abatement alternatives);

d. Implementation of cleanup and abatement action (to implement the selected alternative, and to monitor in order to verify progress);

e. Monitoring (to confirm short- and long-term effectiveness of cleanup and abatement);

2. Consider, where necessary to protect water quality, approval of plans for investigation, or cleanup and abatement, that proceed concurrently rather than sequentially, provided that overall cleanup and abatement goals and objectives are not compromised, under the following conditions:

a. Emergency situations involving acute pollution or contamination affecting present uses of waters of the state;

- b. Imminent threat of pollution;
 - c. Protracted investigations resulting in unreasonable delay of cleanup and abatement; or
 - d. Discharges of limited extent which can be effectively investigated and cleaned up within a short time;
3. Require the discharger to extend the investigation, and cleanup and abatement, to any location affected by the discharge or threatened discharge;
 4. Where necessary to protect water quality, name other persons as dischargers, to the extent permitted by law;
 5. Require the discharger to submit written workplans for elements and phases of the investigation, and cleanup and abatement, whenever practicable;
 6. Review and concur with adequate workplans prior to initiation of investigations, to the extent practicable. The Regional Water Board may give verbal concurrence for investigations to proceed, with written follow-up. An adequate workplan should include or reference, at least, a comprehensive description of proposed investigative, cleanup, and abatement activities, a sampling and analysis plan, a quality assurance project plan, a health and safety plan, and a commitment to implement the workplan;
 7. Require the discharger to submit reports on results of all phases of investigations, and cleanup and abatement actions, regardless of degree of oversight by the Regional Water Board;
 8. Require the discharger to provide documentation that plans and reports are prepared by professionals qualified to prepare such reports, and that each component of investigative and cleanup and abatement actions is conducted under the direction of appropriately qualified professionals. A statement of qualifications of the responsible lead professionals shall be included in all plans and reports submitted by the discharger;
 9. Prescribe cleanup levels which are consistent with appropriate levels set by the Regional Water Board for analogous discharges that involve similar wastes, site characteristics, and water quality considerations;

B. The Regional Water Board may identify investigative and cleanup and abatement activities that the discharger could undertake without Regional Water Board oversight, provided that these investigations and cleanup and abatement activities shall be consistent with the policies and procedures established herein.

III. The Regional Water Board shall implement the following procedures to ensure that dischargers shall have the opportunity to select cost-effective methods for detecting discharges or threatened discharges and methods for cleaning up or abating the effects thereof. The Regional Water Board shall:

A. Concur with any investigative and cleanup and abatement proposal which the discharger demonstrates and the Regional Water Board finds to have a substantial likelihood to achieve compliance, within a reasonable time frame, with cleanup goals and objectives that implement the applicable Water Quality Control Plans and Policies adopted by the State Water Board and Regional Water Boards, and which implement permanent cleanup and abatement solutions which do not require ongoing maintenance, wherever feasible;

B. Consider whether the burden, including costs, of reports required of the discharger during the

investigation and cleanup and abatement of a discharge bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports;

C. Require the discharger to consider the effectiveness, feasibility, and relative costs of applicable alternative methods for investigation, and cleanup and abatement. Such comparison may rely on previous analysis of analogous sites, and shall include supporting rationale for the selected methods;

D. Ensure that the discharger is aware of and considers techniques which provide a cost-effective basis for initial assessment of a discharge.

1. The following techniques may be applicable:

a. Use of available current and historical photographs and site records to focus investigative activities on locations and wastes or materials handled at the site;

b. Soil gas surveys;

c. Shallow geophysical surveys;

d. Remote sensing techniques;

2. The above techniques are in addition to the standard site assessment techniques, which include:

a. Inventory and sampling and analysis of materials or wastes;

b. Sampling and analysis of surface water;

c. Sampling and analysis of sediment and aquatic biota;

d. Sampling and analysis of ground water;

e. Sampling and analysis of soil and soil pore moisture;

f. Hydrogeologic investigation;

E. Ensure that the discharger is aware of and considers the following cleanup and abatement methods or combinations thereof, to the extent that they may be applicable to the discharge or threat thereof:

1. Source removal and/or isolation;

2. In-place treatment of soil or water:

a. Bioremediation;

b. Aeration;

c. Fixation;

3. Excavation or extraction of soil, water, or gas for on-site or off-site treatment by the following techniques:

- a. Bioremediation;
 - b. Thermal destruction;
 - c. Aeration;
 - d. Sorption;
 - e. Precipitation, flocculation, and sedimentation;
 - f. Filtration;
 - g. Fixation;
 - h. Evaporation;
4. Excavation or extraction of soil, water, or gas for appropriate recycling, re-use, or disposal;

F. Require actions for cleanup and abatement to:

1. Conform to the provisions of Resolution No. 68-16 of the State Water Board, and the Water Quality Control Plans of the State and Regional Water Boards, provided that under no circumstances shall these provisions be interpreted to require cleanup and abatement which achieves water quality conditions that are better than background conditions;
 2. Implement the provisions of Chapter 15 that are applicable to cleanup and abatement, as follows:
 - a. If cleanup and abatement involves corrective action at a waste management unit regulated by waste discharge requirements issued under Chapter 15, the Regional Water Board shall implement the provisions of that chapter;
 - b. If cleanup and abatement involves removal of waste from the immediate place of release and discharge of the waste to land for treatment, storage, or disposal, the Regional Water Board shall regulate the discharge of the waste through waste discharge requirements issued under Chapter 15, provided that the Regional Water Board may waive waste discharge requirements under WC Section 13269 if the waiver is not against the public interest (e.g., if the discharge is for short-term treatment or storage, and if the temporary waste management unit is equipped with features that will ensure full and complete containment of the waste for the treatment or storage period); and
 - c. If cleanup and abatement involves actions other than removal of the waste, such as containment of waste in soil or ground water by physical or hydrological barriers to migration (natural or engineered), or in-situ treatment (e.g., chemical or thermal fixation, or bioremediation), the Regional Water Board shall apply the applicable provisions of Chapter 15, to the extent that it is technologically and economically feasible to do so; and
 3. Implement the applicable provisions of Chapter 16 for investigations and cleanup and abatement of discharges of hazardous substances from underground storage tanks;
- G. Ensure that dischargers are required to clean up and abate the effects of discharges in a manner that promotes attainment of either background water quality, or the best water quality which is reasonable if background levels of water quality cannot be restored, 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; in approving any alternative cleanup levels less stringent than background, apply Section 2550.4 of Chapter 15, or, for cleanup and abatement associated with underground storage tanks, apply Section 2725 of Chapter 16, provided that the Regional Water Board considers the conditions set forth in Section 2550.4 of Chapter 15 in setting alternative cleanup levels pursuant to Section 2725 of Chapter 16; any such alternative cleanup level shall:

1. Be consistent with maximum benefit to the people of the state;
2. Not unreasonably affect present and anticipated beneficial use of such water; and
3. Not result in water quality less than that prescribed in the Water Quality Control Plans and Policies adopted by the State and Regional Water Boards; and

H. Consider the designation of containment zones notwithstanding any other provision of this or other policies or regulations which require cleanup to water quality objectives. A containment zone is defined as a specific portion of a water bearing unit where the Regional Water Board finds, pursuant to Section III.H. of this policy, it is unreasonable to remediate to the level that achieves water quality objectives. The discharger is required to take all actions necessary to prevent the migration of pollutants beyond the boundaries of the containment zone in concentrations which exceed water quality objectives. The discharger must verify containment with an approved monitoring program and must provide reasonable mitigation measures to compensate for any significant adverse environmental impacts attributable to the discharge. Examples of sites which may qualify for containment zone designation include, but are not limited to, sites where either strong sorption of pollutants on soils, pollutant entrapment (e.g. dense non-aqueous phase liquids [DNAPLS]), or complex geology due to heterogeneity or fractures indicate that cleanup to applicable water quality objectives cannot reasonably be achieved. In establishing a containment zone, the following procedures, conditions, and restrictions must be met:

1. The Regional Water Board shall determine whether water quality objectives can reasonably be achieved within a reasonable period by considering what is technologically and economically feasible and shall take into account environmental characteristics of the hydrogeologic unit under consideration and the degree of impact of any remaining pollutants pursuant to Section III.H.3. The Regional Water Board shall evaluate information provided by the discharger and any other information available to it:

- a. Technological feasibility is determined by assessing available technologies, which have been shown to be effective under similar hydrogeologic conditions in reducing the concentration of the constituents of concern. Bench-scale or pilot-scale studies may be necessary to make this feasibility assessment;
- b. Economic feasibility is an objective balancing of the incremental benefit of attaining further reductions in the concentrations of constituents of concern as compared with the incremental cost of achieving those reductions. The evaluation of economic feasibility will include consideration of current, planned, or future land use, social, and economic impacts to the surrounding community including property owners other than the discharger. Economic feasibility, in this Policy, does not refer to the discharger's ability to finance cleanup. Availability of financial resources should be considered in the establishment of reasonable compliance schedules;
- c. The Regional Water Board may make determinations of technological or economic infeasibility after a discharger either implements a cleanup program pursuant to III.G. which cannot reasonably attain cleanup objectives, or demonstrates that it is unreasonable to cleanup to water quality objectives, and may make determinations on the basis of projection, modeling, or other analysis of site-specific data without necessarily requiring that remedial measures be first constructed or installed and operated and their

performance reviewed over time unless such projection, modeling, or other analysis is insufficient or inadequate to make such determinations;

2. The following conditions shall be met for all containment zone designations:

a. The discharger or a group of dischargers is responsible for submitting an application for designation of a containment zone. Where the application does not have sufficient information for the Regional Water Board to make the requisite findings, the Regional Water Board shall request the discharger(s) to develop and submit the necessary information. Information requirements are listed in the Appendix to this section;

b. Containment and storage vessels that have caused, are causing, or are likely to cause ground water degradation must be removed or repaired, or closed in accordance with applicable regulations. Floating free product must be removed to the extent practicable. If necessary, as determined by the Regional Water Board, to prevent further water degradation, other sources (e.g., soils, nonfloating free product) must be either removed, isolated, or managed. The significance and approach to be taken regarding these sources must be addressed in the management plan developed under H.2.d.;

c. Where reasonable, removal of pollutant mass from ground water within the containment zone may be required, if it will significantly reduce the concentration of pollutants within the containment zone, the volume of the containment zone, or the level of maintenance required for containment. The degree of removal which may be required will be determined by the Regional Water Board in the process of evaluating the proposal for designation of a containment zone. The determination of the extent of mass removal required will include consideration of the incremental cost of mass removal, the incremental benefit of mass removal, and the availability of funds to implement the provisions in the management plan for as long as water quality objectives are exceeded within the containment zone;

d. The discharger or a group of dischargers must propose and agree to implement a management plan to assess, cleanup, abate, manage, monitor, and mitigate the remaining significant human health, water quality, and environmental impacts to the satisfaction of the Regional Water Board. Impacts will be evaluated in accordance with Section III.H.3. The management plan may include management measures, such as land use controls(footnote 1), engineering controls(footnote 2), and agreements with other landowners or agreements with the landlord or lessor where the discharger is a tenant or lessee(footnote 3). The contents of the management plan shall be dependent upon the specific characteristics of the proposed containment zone and must include a requirement that the Regional Water Board be notified of any transfer of affected property to a new owner(s);

e. The proposed management plan must provide reasonable mitigation measures to substantially lessen or avoid any significant adverse environmental impacts attributable to the discharge. At a minimum, the plan must provide for control of pollutants within the containment zone such that water quality objectives are not exceeded outside the containment zone as a result of the discharge. The plan must also provide, if appropriate, for equivalent alternative water supplies, reimbursement for increased water treatment costs to affected users, and increased costs associated with well modifications. Additional mitigation measures may be proposed by the discharger based on the specific characteristics of the proposed containment zone. Such measures must assist in water quality improvement efforts within the ground water basin and may include participating in regional ground water monitoring, contributing to ground water basin cleanup or management programs, or contributing to research projects which are publicly accessible (i.e., not protected by patents and licenses) and aimed at developing remedial technologies that would be used in the ground water basin. Proposals for off-site cleanup projects may be considered by the Regional Water Board as a mitigation measure under the following criteria:

1. Off-site cleanup projects must be located in the same ground water basin as the proposed containment

zone, and

2. Implementation of an off-site project must result in an improvement in the basin's water quality or protect the basin's water quality from pollution, and
3. Off-site projects must include source removal or other elements for which water quality benefits or water quality protection can be easily demonstrated, and
4. Off-site projects may be proposed independently by the discharger or taken from projects identified as acceptable by the Regional Water Board through a clearinghouse process, or
5. In lieu of choosing to finance a specific off-site project, the discharger may contribute moneys to the SWRCB's Cleanup and Abatement Account (Account) or other funding source. Use of such contributions to the Account or other source will be limited to cleanup projects or water quality protection projects for the basin in which the containment zone is designated. Contributions are not to exceed ten percent of the savings in continued active remediation that discharger will accrue over a ten-year period due to designation of a containment zone (less any additional costs of containment zone designation during this period, e.g., additional monitoring requirements, Regional Water Board application costs, etc.). Contributions of less than ten percent must be accompanied by a detailed justification as to why a lesser contribution would provide adequate mitigation.

Except where prohibited by Federal law, Federal agencies may be required, based on specific site conditions, to implement mitigation measures;

f. The proposed management plan must include a detailed description of the proposed monitoring program, including the location and construction of monitoring points, a list of proposed monitoring parameters, a detailed description of sampling protocols, the monitoring frequency, and the reporting requirements and frequency. The monitoring points must be at or as close as reasonable to the boundary of the containment zone so as to clearly demonstrate containment such that water quality objectives outside the containment zone are not violated as the result of the discharge. Specific monitoring points must be defined on a case-by-case basis by determining what is necessary to demonstrate containment, horizontally and vertically. All technical or monitoring program requirements and requirements for access shall be designated pursuant to WC Section 13267. The monitoring program may be modified with the approval of the Regional Water Board's Executive Officer based on an evaluation of monitoring data;

g. The management plan must include a detailed description of the method to be used by the discharger to evaluate monitoring data and a specific protocol for actions to be taken in response to evidence that water quality objectives have been exceeded outside the containment zone as a result of the migration of pollutants from within the containment zone;

3. In order for a containment zone to be designated, it shall be limited in vertical and lateral extent; as protective as reasonably possible of human health and safety and the environment; and should not result in violation of water quality objectives outside the containment zone. The following factors must be considered by the Regional Water Board in making such findings:

a. The size of a containment zone shall be no larger than necessary based on the facts of the individual designation. In no event shall the size of a containment zone or the cumulative effect of containment zones cause a substantial decline in the overall yield, storage, or transport capacity of a ground water basin;

b. Evaluation of potentially significant impacts to water quality, human health, and the environment, shall

take into consideration the following, as applicable to the specific factual situation:

1. The physical and chemical characteristics of the discharge, including its potential for migration;
2. The hydrogeological characteristics of the site and surrounding land;
3. The quantity of ground water and surface water and the direction of ground water flow;
4. The proximity and withdrawal rates of ground water users;
5. The patterns of rainfall in the region and the proximity of the site to surface waters;
6. The present and probable future uses of ground water and surface water in the area;
7. The existing quality of ground water and surface water, including other sources of pollution and their cumulative impact on water quality;
8. The potential for health impacts caused by human exposure to waste constituents;
9. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;
10. The persistence and permanence of any potential adverse effects;
11. Exposure to human or other biological receptors from the aggregate of hazardous constituents in the environment;
12. The potential for the pollutants to attenuate or degrade and the nature of the breakdown products; and
13. Potential adverse effects on approved local development plans, including plans approved by redevelopment agencies or the California Coastal Commission.

c. No provision of this Policy shall be interpreted to allow exposure levels of constituents of concern that could have a significant adverse effect on human health or the environment;

d. A containment zone shall not be designated in a critical recharge area. A critical recharge area is an artificial recharge area or an area determined by the Regional Water Board to be a critical recharge area after the consultation process required by Section III.H.9. Further, a containment zone shall not be designated if it would be inconsistent with a local ground water management plan developed pursuant to Part 2.75 of Division 6 of the WC (commencing at Section 10750) or other provisions of law or court order, judgment or decree;

4. After designation, no further action to reduce pollutant levels, beyond that which is specified in the management plan, will be required within a containment zone unless the Regional Water Board finds that the discharger(s) has failed to fully implement the required management plan or that violation of water quality objectives has occurred beyond the containment zone, as a result of migration of chemicals from inside the containment zone. If the required tasks contained in the approved management plan are not implemented, or appropriate access is not granted by the discharger to the Regional Water Board for purposes of compliance inspection, or violation of water quality objectives occurs outside the containment zone and that violation is attributable to the discharge in the containment zone, the Regional Water Board, after 45 days public notice, shall promptly revoke the zone's containment status and shall take appropriate

enforcement action against the discharger;

5. The designation of a containment zone shall be accomplished through the adoption of a cleanup and abatement order as authorized by WC Section 13304. The Regional Water Board shall make a finding of fact with regard to each of the conditions which serve as a prerequisite for containment zone designation in the cleanup and abatement order. All applicable criteria of Section III.H. must be met as a prerequisite to designation. The Regional Water Board may reject an application for designation of a containment zone for failure to meet any applicable criteria without having to make findings with regard to each prerequisite. Such orders shall be adopted by the Regional Water Boards themselves and not issued by the Executive Officers of the Regional Water Boards. These orders shall ensure compliance with all procedures, conditions, and restrictions set forth in Section III.H. As authorized by WC Section 13308, time schedules issued as part of the establishment of a containment zone may prescribe a civil penalty which shall become due if compliance is not achieved in accordance with that time schedule;

6. A containment zone shall be implemented only with the written agreement of all fee interest owners of the parcel(s) of property containing the containment zone. Exceptions may be allowed by the Regional Water Board where opposition is found to be unreasonable. In such cases, the Regional Water Board may use the authority of WC Section 13267 to assure access to property overlying the containment zone;

7. Local agencies which are supervising cleanup under contract with the State Water Board or by agreement with the Regional Water Board pursuant to provisions of the Underground Storage Tank Program may propose containment zones for consideration by the Regional Water Board. The local agency will forward its files and proposal to the Regional Water Board for consideration. Regional Water Boards shall use the same procedures, processes, public notice, and criteria that are noted elsewhere in this policy. Approval of Technical Impracticability Waivers by the Department of Toxic Substances Control or the United States Environmental Protection Agency under the requirements of the Federal Resource Conservation and Recovery Act or the Comprehensive Environmental Response, Compensation, and Liability Act are deemed to be equivalent to the actions outlined in Section H. of this Policy if :

a. the substantive provisions of Sections III.H.2.b., e., f., and g. are met;

b. interested parties described in III.H.8.a. are included in the public participation process; and

c. site information is forwarded from the approving agency to the Regional Water Board so that sites for which Technical Impracticability Waivers have been approved can be included in the master listings described in Section III.H.10.;

8. The Regional Water Board shall comply with the following public participation requirements, in addition to any other legal requirements for notice and public participation, prior to the designation of a containment zone:

a. Public notice of an intention to designate a containment zone shall be provided to all known interested persons, including the owner of the affected property(s), owners and residents of properties adjacent to the containment zone, and agencies identified in Section III.H.9, at least 45 days prior to the proposed designation of a containment zone;

b. Interested persons shall be given the opportunity to review the application, including the proposed management plan, and any other available materials and to comment on any proposed designation of a containment zone. These materials, which contain information upon which the proposed designation of a containment zone is based, must be available for review at least 45 days prior to the proposed designation of a containment zone;

c. The proposed designation of a containment zone shall be placed on the agenda for consideration at a Regional Water Board meeting;

9. At least 45 days prior to the proposed designation of a containment zone, the Regional Water Board shall invite a technical advisory committee to review any proposed designation and shall meet as a committee at the request of any committee member. The committee or any committee member shall provide advice to the Regional Water Board as to the appropriateness of the requested designation and such designation will become part of the public record. No person or agency shall be made a member of the committee who is employed by or has a financial interest with the discharger seeking the designation. The following agencies shall be invited to participate in the advisory committee:

a. The California Department of Toxic Substances Control;

b. The California Department of Health Services, Drinking Water Branch;

c. The California Department of Fish and Game;

d. The local health authority;

e. The local water purveyor, in the event ground water is used or planned to be used as a source of water supply;

f. Any local ground water management agency including an appointed water master;

g. The United States Environmental Protection Agency; and

h. The California Coastal Commission if the site is located within the coastal zone of California.

10. The Regional Water Boards shall keep a master listing of all designated containment zones. The master listing shall describe the location and physical boundaries of the containment zone, the pollutants which exceed applicable water quality objectives, and any land use controls associated with the containment zone designation. The Regional Water Board shall forward the information on the master list to the State Water Board and to the local well permitting agency whenever a new containment zone is designated. The State Water Board will compile the lists from the Regional Water Boards into a comprehensive master list;

11. To assure consistency of application of this Policy, the State Water Board will designate a Containment Zone Review Committee consisting of staff from the State Water Board and each of the Regional Water Boards. This review committee shall meet quarterly for two years and review all designation actions taken. The committee shall review problems and issues and make recommendations for consistency and improved procedures. In any event the State Water Board shall review the containment zone issue not later than five years after the adoption of Section III.H... and periodically thereafter. Such review shall take place in a public proceeding;

12. In the event that a Regional Water Board finds that water quality objectives within the containment zone have been met, after public notice, the Regional Water Board will rescind the designation of the containment zone and issue a closure letter; and

13. The Regional Water Board's cost associated with review of applications for containment zone designation will be recoverable pursuant to Section 13304 of the Water Code, provided a separate source

of funding has not been provided by the discharger.

14. Designation of a containment zone shall have no impact on a Regional Water Board's discretion to take appropriate enforcement actions except for the provisions of Section III.H.4.

IV. The Regional Water Board shall determine schedules for investigation, and cleanup and abatement, taking into account the following factors:

A. The degree of threat or impact of the discharge on water quality and beneficial uses;

B. The obligation to achieve timely compliance with cleanup and abatement goals and objectives that implement the applicable Water Quality Control Plans and Policies adopted by the State Water Board and Regional Water Boards;

C. The financial and technical resources available to the discharger; and

D. Minimizing the likelihood of imposing a burden on the people of the state with the expense of cleanup and abatement, where feasible.

V. The State and Regional Water Boards shall develop an expedited technical conflict resolution process so when disagreements occur, a prompt appeal and resolution of the conflict is accomplished.

Appendix to Section III.H.

Application for a Containment Zone Designation

The discharger is responsible for submitting an application for designation of a containment zone. Supporting information which is readily available to the Regional Water Board and which would be cumbersome or costly to reproduce can be included in the application by reference. In order to facilitate the preparation of an acceptable application, the discharger may request that the Regional Water Board provide a preliminary review of a partial application. The partial application should be detailed enough to allow the Regional Water Board to determine if the site passes the threshold criteria for establishment of a containment zone (e.g., it is not reasonable to achieve water quality objectives at that site, plume management measures are likely to be effective, etc.). As appropriate, the application shall include:

a) Background information (location, site history, regulatory history);

b) Site characterization information, including a description of the nature and extent of the discharge. Hydrogeologic characterization must be adequate for making the determinations necessary for a containment zone designation;

c) An inventory of all wells (including abandoned wells and exploratory boreholes) that could affect or be affected by the containment zone;

d) A demonstration that it is not reasonable to achieve water quality objectives;

e) A discussion of completed source removal and identification of any additional sources that will be addressed during implementation of the management plan;

f) A discussion of the extent to which pollutant mass has been reduced in the aquifer and identification of any additional mass removal that will be addressed during implementation of the management plan;

- g) If necessary, information related to the availability of funds to implement the provisions of the management plan throughout the expected duration of the containment zone designation;
- h) The proposed boundaries for the proposed containment zone pursuant to Section III.H.3.a.;
- i) An evaluation of potential impacts to water quality, human health and the environment pursuant to Sections III.H.3.b. and c.;
- j) A statement that the discharger believes that the site is not located in a critical recharge area, as required by Section III.H.3.d.;
- k) Copies of maps and cross sections that clearly show the boundaries of the proposed containment zone and that show the locations where land use restrictions will apply. Maps must include at least four points of reference near the map corners. Reference points must be identified by latitude and longitude (accurate to within 50 feet), as appropriate for possible inclusion in a geographic information system (GIS) database; and
- l) A management plan for review and approval. The management plan must contain provisions for:
 - 1) source removal as appropriate;
 - 2) pollutant mass removal from the aquifer as appropriate;
 - 3) land use or engineering controls necessary to prevent the migration of pollution, including the proper abandonment of any wells within the vicinity of the containment zone that could provide a conduit for pollution migration beyond the containment zone boundary;
 - 4) land use or engineering controls necessary to prevent water quality impacts and risks to human health and the environment;
 - 5) mitigation measures, an implementation schedule for mitigation, and reporting requirements for compliance with mitigation measures;
 - 6) a detailed description of the proposed monitoring program;
 - 7) a detailed description of the method to be used by the discharger to evaluate monitoring data;
 - 8) a specific protocol for actions to be taken if there is evidence that water quality objectives have been exceeded outside the containment zone as a result of the migration of pollutants from within the containment zone;
 - 9) a detailed description of the frequency and content of reports to be submitted to the Regional Water Board;
 - 10) detailed procedures and designs for well maintenance, replacement and decommissioning;
 - 11) a protocol for submittal to and approval by the Executive Officer of minor modifications to the management plan as necessary to optimize monitoring and containment; and
 - 12) a description of file and database maintenance requirements.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on June 18, 1992, and amended at meetings of the State Water Resources Control Board held on April 21, 1994, and October 2, 1996.

/s/

Maureen Marché

Administrative Assistant to the Board

FOOTNOTES:

1. For the purposes of this section, "land use controls" means recorded instruments, proposed by the discharger and agreed to by the owner of the affected property, restructuring the present and future uses of the affected property, including, but not limited to, recorded easements, covenants, restrictions or servitudes, or any combination thereof, as appropriate. Land use controls shall run with the land from the date of recordation, shall bind all of the owners of the land, and their heirs, successors, and assignees, and the agents, employees, and lessees of the owners, heirs, successors, and assignees. Such instruments shall provide for (a) amendment or rescission of the restriction upon application of the holder of fee interest in the property and upon the approval of the Regional Water Board if warranted by changed circumstances (e.g., new information demonstrates that a modification to land use restriction is appropriate, the containment zone designation has been rescinded because water quality objectives have been attained throughout the containment zone, etc.), and (b) except for the restriction contained in the instrument, the establishment of a containment zone shall not prohibit the full use of enjoyment of the property.

2. For the purposes of this section, "engineering controls" means measures to prevent migration of pollutants and to prevent, minimize or mitigate environmental damage which may otherwise result from a release of threatened release, including, but not limited to, caps, covers, dikes, trenches, leachate collection systems, treatment systems, and ground water containment systems or procedures and decommissioning of wells.

3. For the purposes of this section, these agreements could be formal, private agreements between parties related to the property use, existing or potential water use, etc.

ADDITIONAL INFORMATION RELATED TO ADOPTION OF CONTAINMENT ZONE POLICY

1. ADDITIONAL PROVISIONS OF RESOLUTION NO. 96-079

State Water Resources Control Board (SWRCB) Resolution No. 96-079, which adopted the Containment Zone Policy Amendment to Resolution No. 92-49, also:

o Directs the Containment Zone Review Committee established pursuant to Section III.H.11. of the amendment to review the implementation of this policy and the incorporation of risk assessment into this policy and provide recommendations to the SWRCB by May 1, 1997, on any further adjustments to the

policy.

o Expands the Containment Zone Review Committee to include other public officials and private individuals as determined by the State Board.

2. ANTICIPATED FUTURE MINOR CHANGES TO BE MADE TO CONTAINMENT ZONE PROVISIONS OF RESOLUTION NO. 92-49

On October 2, 1996, the SWRCB adopted Resolution No. 96-079 which amended SWRCB Resolution No. 92-49 to include provisions for a containment zone policy.

Pursuant to Government Code Section 11355, this amendment was submitted to the Office of Administrative Law (OAL) for review and approval. Staff of OAL approved this amendment on January 13, 1997 and brought to our attention two minor matters which need correction. In the first sentence of Section III.H.4., the word "pollutant" should be substituted for the word "chemical". In the second sentence of Section III.H.9. the word "advice" should be substituted for the word "designation".

These minor changes will be corrected the next time Resolution No. 92-49 is revised.