



County of Santa Cruz

HEALTH SERVICES AGENCY

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HEALTH SERVICES AGENCY
ADMINISTRATION

May 31, 2002

Agenda: June 11, 2002

BOARD OF SUPERVISORS
County of Santa Cruz
701 Ocean Street
Santa Cruz, CA 95060

Subject: Status Report on Efforts for Water Resource Protection and Cleanup of Groundwater Contamination in Santa Cruz County-

Dear Members of the Board:

On January 29, 2002, your Board directed Environmental Health Services and the Planning Department to incorporate, in their respective workplans, comprehensive actions to improve groundwater protection. Additionally staff were directed to develop measures for limiting potentially contaminating uses in "critical water resource protection areas", and to evaluate the feasibility/expectations of expanding Environmental Health Services regulatory oversight/cleanup of contaminated soil or groundwater cases from hazardous chemicals, with a report back scheduled for June 11, 2002. Staff have further developed the programs identified in the January 15 report and have identified a number of recommendations for further action. Detailed discussion is presented in the attached report and is summarized in this letter. It is recommended that your Board accept this report and direct staff to implement the recommendations for improved protection of the County's critical water resource protection areas.

Background

On April 24, 2001, in response to concern over contamination of groundwater by Methyl-tertiary-butyl-ether (MTBE), the Board of Supervisors directed that a report be prepared to address issues related to evaluation and clean up of contaminated groundwater (specifically MTBE releases) and aquifer and wellhead protection programs. County Planning and Environmental Health Services staff reported to the Board on January 29, 2002 that 560 locations countywide had soil and/or groundwater

contamination, by a variety of hazardous chemicals, and 58 of the groundwater cases were contaminated with Methyl-tertiary-butyl-ether (MTBE). Most of the contamination is localized and has originated from leaking underground storage tanks, improper discharges to septic systems, or other spills and leaks. However, contamination of aquifers can occur where discharges occur in primary groundwater recharge areas, or in close proximity to old wells which can act as conduits to the deeper layers

Presently the cleanup and remediation of contaminated sites is undertaken by the responsible property owner(s)/operator(s) under the direction and mandate of the State's Central Coast Regional Water Quality Control Board (Regional Board) for groundwater contamination, and County Environmental Health Services for soil only cases. Both physical constraints and agency resource limitations can slow the pace of these sites moving towards cleanup standards.

- Staff recommended a number of actions that would improve groundwater protection through the following efforts: Improved mapping of wells and potential sources of contamination.
- Tighter restrictions on locating potential sources of contamination in critical water resource areas.
- Improved identification and destruction of old abandoned wells.
- Higher levels of state and local staff oversight to direct evaluation and remediation of contaminated sites.

Your Board accepted the January 15, 2002 report and directed staff to incorporate recommended actions into the work programs for Planning and Environmental Health Services. In addition, direction was given for staff to develop measures for limiting potentially contaminating uses in critical water resource protection areas, evaluate means to increase oversight of site remediation efforts with a feasibility analysis of assuming the Regional Board's groundwater caseload, and report back to the Board by June 11, 2002.

Summary of Report on Water Resource Protection Efforts

The attached detailed report presents a complete update on recent efforts undertaken to increase protection of water resources and recommends additional measures to be taken. The scope of the effort has been expanded from just wellhead and groundwater protection to cover surface water sources as well, with an emphasis on preventing contamination of drinking water sources. Topics covered include:

- **Definition and Mapping of Critical Water Resource Protection Areas**
Mapping of the most critical water resource protection areas of the County has been completed: public wells, primary groundwater recharge areas, critical groundwater resource areas, streamside corridors and water supply watersheds.

The wellhead protection zones will be added as work on the State's Drinking Water Source Assessment Program (DWSAP) is completed by the water agencies in 2003. An update of the County's groundwater recharge maps using current soil and geology information is also recommended.

- **Mapping and Evaluation of Potentially Contaminating Activities**
Mapping of underground storage tanks and permitted hazardous materials facilities has been completed. Work is ongoing to identify the facilities with greatest risk to water resources and to map additional contaminated sites. This information is being overlaid with the critical water resource protection areas to identify priority areas for action and to guide future assessment of risk and land use decisions.
- **Evaluation and Enhancement of Soil Groundwater Remediation Efforts**
An updated "risk based" evaluation of the present County and Regional Board soil/groundwater contamination cases has been completed and staff of both agencies have met to discuss options to enhance remediation efforts and timelines. Three options were discussed and a combination/evaluation of the three was recommended, which are: 1) focus existing agency staff resources on the 39 high priority ranked cases; 2) investigate funding/authority for Environmental Health to obtain additional staff/resources that would be dedicated to soil/groundwater remediation cases; 3) continue to evaluate funding and programmatic requirements in assuming the Regional Board's role of groundwater case regulatory oversight.
- **Restriction of Potentially Contaminating Uses in Critical Water Resource Areas**
A suite of measures currently exists to protect water resources. It is recommended that these be strengthened through adoption of new General Plan programs, and ordinance amendments to provide increased levels of protection depending on the sensitivity of the resource and the risk of contamination from a particular land use activity
- **Sealing of Old and Abandoned Wells**
Environmental Health staff has initiated an enhanced program to promote destruction or remediation of old wells that may serve as potential conduits for contamination. The initial priority area will be in the Soquel/Aptos Area, with potential funding assistance from the Soquel Creek Water District.
- **Coordination with Property Owners and Agencies**
County staff will continue to provide enhanced public education on various elements of the critical water resource protection areas and coordinate closely with affected agencies, including the Regional Water Quality Control Board, the

Interagency Water Resources Working Group, the Hazardous Materials Advisory Commission, and the Water Advisory Commission.

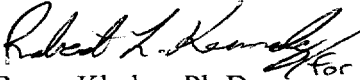
Staff respectfully submits this report and recognizes that much of this information is new and will require more collaborative effort and review to increase protection of the County's critical water resource areas.

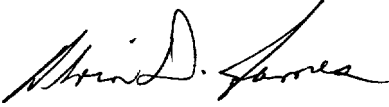
Recommended Actions

It is therefore recommended that your Board take the following actions:

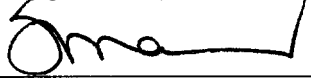
1. Accept and file this report, and direct that Planning and Environmental Health staff continue the workplan efforts outlined in the report.
2. Approve the list of recommendations for specific actions listed at the end of the attached report.
3. Direct staff to provide a status report on this program to the Board by January 21, 2003.

Sincerely,


Rama Khalsa, Ph.D.
Health Services Administrator


Alvin D. James
Planning Director

RECOMMENDED


Susan A. Mauriello
County Administrative Officer

Attachment: Status Report on Efforts for Water Resource Protection and Cleanup of Groundwater Contamination in Santa Cruz County

cc: County Administrative Officer
County Counsel
HSA Administration
Planning Department
Water Advisory Commission
Hazardous Materials Advisory Commission
Regional Water Quality Control Board
Interagency Water Resources Working Group

Status Report on Efforts for Water Resource Protection and Cleanup of Groundwater Contamination in Santa Cruz County

On April 24, 2001, the Board of Supervisors directed that a report be prepared to address issues related to evaluation and clean up of contaminated groundwater (specifically MTBE releases) and aquifer and wellhead protection programs. A report was completed and presented to the Board of Supervisors in January, 2002. Pursuant to additional direction from the Board to pursue additional protective measures, Environmental Health staff have prepared an updated status report on ongoing efforts, with recommendations for further actions. The scope of the effort has been expanded from just wellhead and groundwater protection to also include surface water sources, with an overall emphasis on preventing contamination of drinking water sources from point sources of contamination. Topics covered include:

- Definition and Mapping of Critical Water Resource Protection Areas
- Mapping and Evaluation of Potentially Contaminating Activities
- Evaluation and Enhancement of Soil/Groundwater Remediation Efforts
- Restriction of Potentially Contaminating Uses in Critical Water Resource Areas
- Sealing of Old and Abandoned Wells

Background

Soil and/or groundwater contamination, by a variety of hazardous chemicals, occurred at 560 locations throughout Santa Cruz County. After further review staff determined that 310 of the cases were closed and only 250 remain active. **(Attachment A)** Of the active sites 109 pose some significant risk of groundwater contamination, as discussed in a subsequent section of this report. Most of the contamination is localized and has originated from leaking underground storage tanks, improper discharges to septic systems, or other spills and leaks. The Central Coast - Regional Water Quality Control Board (Regional Board), who currently has primary authority and responsibility for protecting our water resources, has identified 58 sites in Santa Cruz County with reported groundwater contamination by Methyl-tertiary-butyl-ether (MTBE) **(Attachment B)**.

Although most of the above sites experience contamination in the immediate vicinity of the source, more widespread contamination has been discovered in the County. Serious contamination has occurred in the Scotts Valley area, where four public wells have detections of MTBE from leaking underground fuel tanks or trichloroethene (TCE) and chlorobenzene from unknown industrial sources. Three of the wells meet drinking water standards, but one of the wells (serving Manana Woods) requires treatment to reduce MTBE to safe levels. Although cleanup is now underway, the contamination has significantly degraded the underground water supply, constraining current options for increasing groundwater storage and improved management of the aquifer. Contaminants in groundwater have also entered surface water in Felton (PCE from a past dry cleaner)

and in Soquel (MTBE from an operating gas station), although the contamination does not currently extend significant distances downstream. Past contamination of Bean Creek in Scotts Valley has been controlled through site remediation at the old Watkins-Johnson site.

There are presently no other known instances of contamination of public water supply sources although other public wells are certainly vulnerable to potentially expanding plumes of contamination. All public wells are periodically tested for contaminants. In addition to the estimated 300 public water supply wells in the County that serve 5 or more connections, there are some 8000 private wells. Most of the private wells are located in rural areas of the county, with less potential for contamination. There is no mandated testing program for private wells, except those in the vicinity of identified contamination sites. A recent survey of private wells near a contaminated site in the Hecker Pass area identified 43 private wells within one half mile of the site. One of these was found to have low levels of contamination, requiring treatment. Older private wells in urbanized areas may also present opportunities for the leakage of contamination from shallow perched groundwater zones to the deeper aquifers that are typically tapped by municipal wells.

The occurrence of private wells on properties that are also served by municipal supplies also presents the possibility for contamination of the municipal supply if there is a cross-connection between the well and the public water system. Public water purveyors are mandated to have a cross-connection control program with appropriate safeguards on individual connections that have a potential for cross-connection.

Definition and Mapping of Critical Water Resource Protection Areas

Critical water resource protection areas have been defined as those areas where overlying land uses or sources of contamination have a significant likelihood of contaminating or degrading ground water or surface water used for water supply or for supporting critical natural values, such as endangered species. An area is more critical where the connection to the water source or habitat is more immediate and the impact of contamination would be much greater. Following is a list of the critical water resource protection areas that have been identified, with the areas of greatest concern listed first:

1. Wellhead Protection Zones: the area overlying the groundwater zone that flows to a pumping well within a 2, 5, or 10-year time, generally extending 1000-4000 feet of a municipal well. The State Drinking Water Source Assessment Program (DWSAP) regulations state the criteria for calculating each of the 3 zones, depending on depth of the well, type underlying geology, and rate of pumping. A review of DWSAP already prepared in Santa Cruz County show that the two-year zones, which are the most critical extend from 700 to 2000 feet from the wells.
2. Primary Groundwater Recharge Areas: areas where highly permeable surface soils overlay aquifers, allowing for easy percolation of contaminants directly to groundwater. These areas are designated on the County's Resource and Constraint

maps and were based on an overlay of soil and geology information. The original map was prepared prior to 1980. Although it is still generally accurate, it should be updated to better reflect more precise mapped information that is now available.

3. Critical Groundwater Areas: These are the entire area underlain by important water supply aquifers. These areas were originally mapped when the County was considering requiring meters on new wells in critical groundwater basins. Subsurface release of contaminants in these areas could eventually reach useable groundwater, particularly if there are improperly sealed wells present.
4. Streamside Corridors: The riparian corridors particularly along water supply streams, within water supply watersheds. Protective distances of 100 to 250 feet should be considered. No new septic systems may be located less than 100 feet from a stream. The Regional Board requires a 250-foot setback from any water supply reservoir.
5. Water Supply Watersheds: This is the entire watershed area that drains into a surface water diversion point. These are also designated on the County's Resource and Constraint maps. There are two areas in the upper Soquel Creek Watershed that should be considered for deletion. These are the watersheds for the past-proposed Glenwood dam on west branch of Soquel creek and the area above another proposed dam site on the East Branch. Neither of these projects are being pursued. Consideration could also be given to expanding the definition to include watersheds for critical habitat areas. Some of this has been done for the Salamander Protection areas.

All of these areas are already mapped in the County's Geographic Information System (GIS), with the exception of the wellhead protection zones. Public wells have been mapped, and some of wellhead protection zones have been determined, but much of the work is still ongoing, under the State's mandated Drinking Water Source Assessment Program (DWSAP). The zones will be added as they become available. There is also a need to update the County's groundwater recharge area maps to better reflect more accurate mapping of soil and geology, that is now available. Maps of critical water resource protection areas are contained in the Appendix.

Recommended Actions for Mapping Critical Water Resource Protection Areas:

1. Update the groundwater recharge maps to reflect current information on soil, geology and usable groundwater occurrence.
2. Incorporate source water protection zones from the Drinking Water Source Assessment Program as these efforts are completed by the various water agencies.
3. Review water supply watershed designations during the General Plan review process to eliminate those that are not used or planned to be used for water supply and consider adding watersheds above critical habitat areas.

Mapping and Evaluation of Potentially Contaminating Activities

Different types of land uses have varying potential to cause contamination of groundwater or surface water. These are summarized below and discussed more extensively in the attached report:

1. Underground Storage Tanks (UST's)
2. Landfills
3. Uses which handle or store hazardous materials, with high potential for discharge to soil or water
4. Other commercial or industrial uses with high potential to generate contaminants
5. Uses served by septic systems
6. Uses which could cause non-point pollution through the land application of fertilizers or potential contaminants or other discharges, such as animal facilities, golf courses, nurseries, agriculture

Underground storage tanks and all parcels with hazardous materials permits have been mapped. Work is still underway to map the known contaminated sites that are not already included in one of those categories. Work is also needed to distinguish which types of hazardous material facilities have significant potential to threaten water quality. The DWSAP provides a listing of potentially contaminating uses (Attachment C), which can be used to provide an initial determination. The DWSAP also requires that all potentially contaminating activities within the vicinity of a water source be mapped. Broad mapping of septic system areas, agricultural uses, and other sources of nonpoint contamination is available, but has not been brought into this current effort, which is focusing on point sources of contamination.

Once potentially contaminating activities have been mapped, their locations can be compared to wells and other critical water resource protection areas to identify priority sites for concern, and to evaluate the needs for further protective programs. Based on this mapping, primary priority areas of concern are in the mid-county Live Oak/Soquel/Aptos area, Scotts Valley, and Watsonville. The map is also being used to identify specific sites for follow-up evaluation that show potentially contaminating activities in close proximity to individual wells. The following table summarizes the current location of mapped uses compared to water resource areas:

	Number of Underground Storage Tanks Sites	Number of Permitted Hazardous Material Facilities
Within 1000 ft of public well	17	172
Within 2000 ft of public well	39	298
Within Primary Groundwater Recharge Area	8	42
Within 250 ft of a creek	19	207

Recommended Actions for Mapping: and Evaluation of Potentially Contaminating Activities:

1. Complete mapping of known contaminated sites.
2. Add mapped “Potentially Contaminating Activities” from the DWSAP efforts of the water agencies as they become available.

Evaluation and Enhancement of Soil/Groundwater Remediation Efforts

Evaluation

Since the January 29, 2002 Board report staff from the Environmental Health Services Hazardous Material Program conducted a detailed review of the 560 sites on the “Site Mitigation List” (Attachment A of the January 15, 2002 report) taking into consideration the above criteria and any potential for exposure to the public/environment. This approach was chosen as a result of your Board’s concern for the large number of contaminated sites in the County and what this office was doing to remediate them. To better clarify what the 560-inventory number represented, staff developed a “risk based” philosophy in prioritizing the caseload. Staff assessed all the sites in their respective district of responsibility and ranked each site on its overall risk to groundwater, public health, and the environment.

Once contamination is found at a site, it triggers a process of investigation and discovery which is procedurally well defined. The steps within the process are site-specific and are dictated by several factors that need to be determined. Among these factors are: the chemical(s) released and their degree of toxicity; the amount of chemical(s) released; the existence of vertical conduits (poorly sealed or improperly abandoned wells) and/or other preferential pathways (utility trenching); the annual rainfall; the depth to groundwater and proximity to drinking water sources; and, the geology, hydro-geology, lithology, and topography of the site. These and other factors were used to evaluate the sites and place them into one of three categories: 1-high risk to groundwater, 2-moderate risk or need more site information, and 3-site well defined/low risk or near closure and are shown in Table 1 below.

The Regional Board has assessed and ranked those sites which have detected MTBE in the groundwater and is displayed in Table 1 below. Their ranking system is based on a comparison of distance to nearest receptor (i.e. well) and groundwater MTBE concentration. The Regional Board system utilizes A through C, which is a similar ranking order as Environmental Health’s 1 through 3 prioritization. Sites that fall into category A, are those sites where it is predicted that the groundwater MTBE plume travel time to the nearest receptor is less than 5 years. State guidelines used by the Regional Board state that the high priority sites are required to “implement a Remedial Action Plan as soon as possible, not later than 1 year after determination of cleanup priority class”. Very often these sites are also expected to implement an Interim Remedial Action to

remove gross contamination in very short order, such as removing floating free product from the groundwater or by using a portable vacuum extraction system..

Table 1: Risk Based Ranking of Soil/Groundwater Contaminated Sites in Santa Cruz County

	County Sites (soil-only cases)	Regional Board Sites (MTBE-groundwater cases)	Non-MTBE Regional Board Sites (County ranked)
Risk ranking ()	(1) 11	(A) 14	(1) 14
Risk ranking ()	(2) 19	(B) 21	(2) 30
Risk ranking ()	(3) 60	(C) 19	(3) 38
Totals	90	54	82

In comparing the Regional Board's groundwater cases that overlap with the County's soil cases in priority category A/1, the resulting tally of high-risk cases is 39. Of these 39 sites, five have contaminated drinking water sources that presently require treatment to reduce MTBE to safe levels. Four sites have contaminated one well which supplies about 140 homes in the Manana Woods development and one site is impacting a private well that services three homes. These local examples and examples from places like South Lake Tahoe and Santa Monica raises the question "what can be enhanced locally to protect other receptors from reaching a similar fate?".

Enhancement

Before a discussion of enhanced efforts for soil/groundwater remediation can be conducted it is important to review what are the present roles of the involved regulatory agencies.

Environmental Health presently is the lead agency to require proper cleanup/remediation of hazardous substance releases in soil (not groundwater or surface water). Contamination of the soil results from a variety of causes such as: releases from vehicle accidents, leakage from underground storage tanks, or historical surface spillage. Staff, as time allows and on a priority basis, provide written direction to the responsible party to assess the extent of the contamination, review proposed remediation plans, and sign off on the closure of these sites once the final report meets the satisfaction of the Health Officer.

In addition to the soil cases, staff are indirectly involved with the Regional Board's groundwater cases. This involvement consists of reviewing/authorizing: County permits to install monitoring wells, well construction oversight (installation and destruction), any soil remediation proposals, and issuance of the final closure letter after Regional Board site closure criteria is satisfied.

Note that the above site remediation oversight role is all "adjunct" to the County's state and local mandated responsibility of inspecting permitted hazardous material/waste handling facilities (the Certified Unified Program Agency – CUPA programs). This mandate is a preventive approach to contamination and is much more effective and cheaper than any enhanced remediation effort. Any time that is spent on

soil/groundwater remediation cases or emergency response call-outs during normal business hours does infringe on the CUPA inspection mandates.

The Regional Board's role is only for sites where the contamination has impacted groundwater. Regional Board engineers/geologists (presently three) provide regulatory oversight of these groundwater cases by reviewing/commenting on engineered site assessments and remedial action plans. Board staff also review proposed cleanup standards on case-by-case basis as it complies with the Regional Board's Basin Plan. Their time is specifically budgeted for this oversight and does not impact other Regional Board responsibilities.

On May 6, 2002 staff met with Regional Board staff at their offices in San Luis Obispo to discuss the above inventories and what options were possible individually or collaboratively to increase the pace of cleanup/closure of these high risk contaminated sites. Also addressed were the various factors that affect the overall expectations of this program. Most importantly potential physical barriers can be quite formidable with existing remedial technology. Subsurface geologic and hydrologic conditions remain complicated and generally require extensive evaluation and testing prior to design and implementation of remediation measures. Future improved cleanup technologies applied to local subsurface conditions will hopefully improve remediation methods and timelines.

Given that the physical barriers can be formidable at times both agencies still felt that by directing their resources toward the high priority sites and reviewing various regulatory oversight options that improved water resource protection could be achieved. Out of the discussions three options were considered:

1. Increased collaboration/communication between agencies on priority 1/A cases
2. Enhanced the County's soil/groundwater remediation regulatory presence by acquiring a dedicated staff (one) of equal qualifications as Regional Board
3. Pursue designation as a "Local Oversight Program" from the State Water Resources Control Board, and assume full responsibility of all soil and groundwater cases in Santa Cruz County

Recommended Actions for Enhancing Soil/Groundwater Remediation Efforts:

1. Pursue increased collaboration/communication between Regional Board and County on priority 1/A cases, as time allows.
2. Evaluate what additional revenue can be collected through fees for service to offset any General Fund contributions for increased staffing costs if enhanced soil remediation efforts are pursued.
3. Provide a report detailing the funding and programmatic responsibilities of a Regional Board delegation of authority over groundwater cases, i.e. Local Oversight Program.
4. Report back to Board on January 21, 2003 or sooner if complete projections are available for the above recommendations.

In order for Environmental Health Services to participate effectively in this enhanced soil/groundwater remediation program additional staff resources will be necessary so the mandated CUPA inspection programs are not compromised. The evaluation presents a need for someone in Environmental Health Services who can focus on moving these sites through the remediation process separate from the other Hazardous Material Program responsibilities. If Environmental Health Services could acquire additional staff of equal qualifications as the Regional Board then participation in this enhanced program could occur.

Restriction of Contaminating Uses in Critical Water Resource Protection Areas

This section addresses the types of water resource areas to be protected, the types of uses that should be addressed to prevent water quality contamination, the various existing and potential mechanisms for protection, and recommendations for maintaining and enhancing protective efforts. While this section discusses the full range of potentially contaminating activities that may impact either groundwater or surface water quality, the primary focus is on specific point sources of contamination.

The types of critical water resource protection areas were described in a previous section:

1. Wellhead Protection Zones; Well Contribution Zones (DWSAP)
2. Primary Groundwater Recharge Areas
3. Critical Groundwater Resource Areas
4. Streamside Corridors along streams, particularly water supply streams
5. Water Supply Watersheds

These areas are already mapped or are in the process of being mapped, as described previously.

Different types of land uses have varying potential to cause contamination of groundwater or surface water. These are summarized below, with a detailed list of potentially contaminating activities from the States' Drinking Water Source Assessment Program listed in the Attachment C:

1. Underground Storage Tanks
2. Landfills
3. Uses, which handle or store hazardous materials, with high potential for discharge to soil or water.
4. Other commercial or industrial uses with potential to generate contaminants.
5. Uses served by septic systems
6. Uses which could cause non-point pollution through the land application of fertilizers or potential contaminants or other discharges, such as animal facilities, golf courses, nurseries, agriculture.

Each potentially contaminating activity has a risk of contamination that is dependent on the following factors:

- Nature and quantity of contaminants involved
- Site conditions such as soil, slope, depth to groundwater, stream setback

- Extent of onsite mitigation and containment measures in place
- Age of infrastructure
- Risk of spillage or discharge

The extent of regulation or restriction of these uses should be related to the risk of contamination and the likelihood of contaminants to impact a water source. Some activities pose such a high risk that their location should be more restricted. Prime examples of this are facilities with underground gasoline storage tanks. Despite the requirements for use of state-of-art containment technology, studies in the Santa Clara Valley have shown that releases of MTBE and other contaminants to underlying soil and groundwater are still being detected at upgraded facilities.

The Regional Board has recently sent a letter to all land use planning agencies recommending that agencies adopt ordinances establishing zoning restrictions around wells to limit or ban new pollutant sources (Attachment D). The Regional Board also suggests that such restrictions be extended to groundwater recharge areas. Within the DWSAP guidelines, there is great concern regarding the presence of potentially contaminating activities within the two-year contribution zone to a public well.

Following is a matrix that identifies Environmental Health staffs initial recommendation for the level of protection for various water resource protection areas relative to the type of potentially contaminating activity (work is still needed to fully evaluate the implications of these restrictions and to balance that against the benefit provided):

Table 2: Proposed Land Use Restrictions in Critical Water Resource Protection Areas

	Area within 100 ft of any well	Area within 1000 ft of public well, or 2-year contribution zone	Area within 10-year contribution zone	GW Recharge Areas	Critical GW Areas	Area within 250 ft of water Supply stream	Area within 100 ft of any stream
Prohibition of New UST's	X	X	X?	X		X	X
Limit on any new use with High Potential for Contamination (Use WRP Overly zone)	X	X		X		X	X
Limit on new Haz Mat Facilities with low potential	X						X
Phase out of existing facilities with high potential for release of contamination	X	X				X	X
Septic Systems	X					Inspection	X
Abandoned Well Abatement Programs	1	1	2		3		

There would also be a limitation on locating new wells within the restricted area near an existing hazardous materials facility with high potential for release of contaminants.

The County already has a number of mechanisms for protecting water resources from the impacts of potentially contaminating activities. While these provide some level of protection, there are a number of things that can be done to augment the level of protection. These include:

1. The General Plan contains a number of policies and programs, for water quality protection. An additional program is needed to provide more explicit authority and guidance for stricter zoning restrictions on potentially contaminating uses.
2. The Zoning Ordinance (Chapter 13.10) provides restrictions for the location of new commercial and industrial uses, and eventual phase out of nonconforming uses. These restrictions should be augmented by adding a combining district to further restrict potentially contaminating uses within primary groundwater recharge areas and two-year contribution zones to public wells.
3. Any new commercial or industrial use requires a use permit, which is subject to discretionary review, including environmental review. This can take into account potential impacts on the environment, and result in denial or permit conditions to mitigate impacts.
4. The Hazardous Materials Ordinance (County Code Chapter 7.100) requires that any hazardous material facility implement business practices and maintain adequate infrastructure necessary to protect public health and safety and the environment to the greatest extent feasible. Under these provisions, there is no need or opportunity to require more restrictive measures in critical water resource areas. While this provides a high level of protection for most facilities, the only option for providing a higher level of protection is to prohibit high-risk hazardous materials facilities in particularly critical areas (see below). Some minor amendments to the ordinance are recommended which would provide more specific guidance for water resources protection, such as requiring all facilities to abandon septic systems and connect to public sewer where that is available. The Hazardous Materials Ordinance also applies in the cities as well as the unincorporated areas.
5. The Hazardous Materials Ordinance requires an annual operating permit for any facility storing hazardous materials. Such permits can be revoked if in the judgment of the Health Officer such revocation “would be appropriate and consistent with achieving the general obligation of this Chapter for protecting human health, safety and the environment.” (7.100.080.A). Although no permit has ever been denied, this section could be invoked on an interim basis to prevent new hazardous materials facilities from locating in critical water resource protection areas. It is recommended that the ordinance be amended to specifically limit the operation of new hazardous materials facilities in critical areas. It could also provide for a more rapid phase out of existing nonconforming uses in critical areas, particularly if there was evidence of actual contamination originating from those uses.

6. The Sewage Disposal Ordinance (Chapter 7.38) restricts installation of septic systems within 100 feet of a well and requires enhanced treatment for nitrogen removal for new development in groundwater recharge areas of Bonny Doon and the San Lorenzo Watershed.
7. The Riparian Corridor Ordinance (Chapter 16.30) limits new uses within 50 of a perennial stream. Additional setbacks for uses that might release contaminants are recommended to be added to other Chapters.
8. There is a need for more explicit land use restrictions and mitigation measures for groundwater recharge areas and water supply watersheds. Staff recommends development of a new section of Title 16 to address that. This could replace the existing Chapter 16.24, Water Quality Protection, which has not been implemented for many years.
9. The Well Ordinance contains limits on locating new wells within 100 feet of septic systems. This could be expanded to provide greater setbacks from hazardous materials facilities with high potential to release contaminants

Recommended Actions for Restriction of Contaminating Uses:

1. Amend General Plan to provide a program and explicit authority for restricting uses in critical water resource areas.
2. Amend zoning ordinance to create a Water Resources Protection overlay zone (WRP) (or combining district), which would include a prohibition of hazardous materials facilities in commercial and industrial properties within that zone. The WRP zone would include all areas within Primary Groundwater Recharge Areas and within the 2-year protection zone or 1000 feet (whichever is greater) of existing municipal water supply wells.
3. Amend the Hazardous Materials Ordinance to provide more specific criteria for denial of proposed uses and phase out of existing high-risk uses in particularly critical water resource areas. Add additional provisions for water resources protection for permitted facilities in other areas.
4. As an interim measure, utilize the general authority of the Hazardous Materials Ordinance, Environmental Review, and General Plan policies to limit any new uses with potential to adversely impact water quality.
5. Amend Chapter 16.24 to remove the existing provisions and add specific restrictions and provisions for protection of water resources in water supply watersheds and primary groundwater recharge areas.
6. Direct Planning staff to update the primary groundwater recharge maps to utilize current available maps of soils and geology, and to apply the groundwater recharge policies and the rural development matrix to the updated mapped areas.

7. Amend the well ordinance to restrict new wells within 1000 feet of existing hazardous materials facilities with high risk of groundwater contamination.

Sealing of Old and Abandoned Wells

Old wells serve as potential conduits for contaminated water to move from the ground surface or from a contaminated groundwater zone down to a deeper zone. Older wells were typically not constructed to today's standards, lacking adequate surface seals and other measures to prevent the movement of contaminated water down the boring. Many of these wells have been abandoned, some may still be in use. The presence of old, improperly sealed wells becomes more critical where the aquifer is overlain by impermeable material that would normally prevent the downward migration of pollutants. Improperly sealed wells present the primary path for contamination in those situations. This situation particularly occurs in the Live Oak/Soquel/Aptos and Watsonville areas. The cost of proper well construction ranges from \$3000-15,000. This potential liability serves as a significant burden and deterrent for property owners to come forward voluntarily for well destruction. A source of public funding for destruction of old wells is believed to be essential to the success of an effective destruction program.

As a part of the effort for sealing of old wells that could serve as conduits for contamination of deeper aquifers, Environmental Health staff is undertaking the following efforts:

1. Reviewing and tightening standards and procedures for destruction of old wells at the time of new well construction. Frequently an owner desires to keep an older well for backup purposes. State and County regulations allow that if the well is kept in an active state. However, in critical areas, an old well should probably be evaluated to determine if it is a potential source of leakage before it would be allowed to be maintained. Amendment of the well ordinance to tighten standards for destruction is recommended.
2. Improved mapping of wells, wellhead protection zones, and potentially contaminating activities (discussed above).
3. Implementing targeted efforts for well identification and destruction in priority areas that are being identified based on risk of well contamination and level of support from the affected water agency. These efforts will include investigation of old well records, water district databases of connections and cross-connections, public out reach, and on the ground surveys. At this point we intend to initially focus efforts in the Soquel/Aptos area, with strong participation from the Soquel Creek Water District.
4. Establishing funding sources for cost sharing with property owners through grants, water agency contributions, or other sources. Staff is pursuing several grant sources and the Soquel Creek Water District has indicated a strong interest in providing funding assistance.

5. Once identified, working with the property owners to require proper destruction of abandoned wells and evaluation/remediation of problematic wells that may still be in use.

These efforts are already underway. We anticipate establishing priority areas in June and conducting detailed efforts for identification of old wells in those areas this summer, with remediation efforts potentially commencing as early as the fall.

As a part of well destruction, there is a need to ensure that the sealing is thorough and effective. Currently, both Santa Cruz County and state standards fall short of that. State of California Well Destruction Standards are found in California Department of Water Resources Bulletins 74-81 & 74-90. These regulations require only the top 20 feet of the well casing be sealed with suitable sealing material after filling the well with fill. Santa Cruz County Code section 7.70.100(C)(2) goes further by requiring the entire casing is filled with sealing material.

None of these regulations adequately addresses the annular space between the well casing and the soil wall of the drilled hole and/or the conductor piping, which is normally filled with gravel. This annular space forms a permeable conduit that will allow liquids to flow down the depth of the well. To correct this oversight Santa Cruz County Code should be amended to require that well destruction include sealing the annular space as well as the casing. In practice, this is done by either over-drilling the existing well and then filling the larger hole created with sealing material, or by thoroughly ripping the existing casing and pressure sealing the well from bottom to top. These procedures are more expensive, but they complete the job. Santa Clara County and San Mateo County have already implemented more strict destruction standards.

Recommendations for Sealing Old and Abandoned Wells

1. Prepare amendments to Santa Cruz County Code Chapter 7.70 for improved minimum standards for well destruction and return with a recommended amendment to the Board by January 2003.
2. Work with the water agencies to pursue a program for identification and remediation of old, substandard wells, as described above.

Coordination with Property Owners and Agencies

It is important to work closely with the public and affected agencies in implementing the various recommendations contained in this report. Staff has been working closely with the Regional Board staff and Soquel Creek Water District in developing this program. We are in consultation with other water agencies and are compiling relevant information from them. We have also consulted with the Interagency Water Resources Working Group, the Water advisory Commission, and the Hazardous Materials Advisory Commission. With regard to public education, Environmental Health staff have participated in the Groundwater Guardian program, a public outreach program undertaken in the Aptos/La Selva/Freedom area by Soquel Water District, Central Water

District, and the Pajaro Valley Water Resources agency. Provisions regarding disposal of hazardous materials in septic tanks have been incorporated into brochures provided to property owners, and a targeted mailing of information is planned to businesses with hazardous materials permits that are also on septic systems. Continued efforts for communication and coordination are planned.

Summary of Recommendations for Enhanced Water Resources Protection

1. Recommended Actions for Mapping Critical Water Resource Protection Areas:
 - a. Update the groundwater recharge maps to reflect current information on soil, geology and usable groundwater occurrence.
 - b. Incorporate source water protection zones from the Drinking Water Source Assessment Program as these efforts are completed by the various water agencies.
 - c. Review water supply watershed designations during the General Plan review process to eliminate those that are not used or planned to be used for water supply and consider adding watersheds above critical habitat areas.

2. Recommended Actions for Mapping and Evaluation of Potentially Contaminating Activities:
 - a. Complete mapping of known contaminated sites.
 - b. Add mapped "Potentially Contaminating Activities" from the DWSAP efforts of the water agencies as they become available.

3. Recommended Actions for Enhancing Soil/Groundwater Remediation Efforts:
 - a. Pursue increased collaboration/communication between Regional Board and County on priority 1/A cases, as time allows.
 - b. Evaluate what additional revenue can be collected through fees for service to offset any General Fund contributions for increased staffing costs if enhanced soil remediation efforts are pursued.
 - c. Provide a report detailing the funding and programmatic responsibilities of a Regional Board delegation of authority over groundwater cases, i.e. Local Oversight Program.
 - d. Report back to Board on January 21, 2003 or sooner if complete projections are available for the above recommendations

4. Recommended Actions for Restriction of Contaminating Uses:
 - a. Amend General Plan to provide a program and explicit authority for restricting uses in critical water resource areas.
 - b. Amend zoning ordinance to create a Water Resources Protection overlay zone (WRP) (or combining district), which would include a prohibition of hazardous materials facilities in commercial and industrial properties within that zone. The WRP zone would include all areas within Primary Groundwater Recharge Areas

- and within the 2-year protection zone or 1000 feet (whichever is greater) of existing municipal water supply wells.
- c. Amend the Hazardous Materials Ordinance to provide more specific criteria for denial of proposed uses and phase out of existing high-risk uses in particularly critical water resource areas. Add additional provisions for water resources protection for permitted facilities in other areas.
 - d. As an interim measure, utilize the general authority of the Hazardous Materials Ordinance, Environmental Review, and General Plan policies to limit any new uses with potential to adversely impact water quality.
 - e. Amend Chapter 16.24 to remove the existing provisions and add specific restrictions and provisions for protection of water resources in water supply watersheds and primary groundwater recharge areas.
 - f. Amend the well ordinance to restrict new wells within 1000 feet of existing hazardous materials facilities with high risk of groundwater contamination.
5. Recommendations for Sealing Old and Abandoned Wells
- a. Prepare amendments to Santa Cruz County Code Chapter 7.70 for improved minimum standards for well destruction and return with a recommended amendment to the Board by January 2003.
 - b. Work with the water agencies to pursue a program for identification and remediation of old, substandard wells, as described above.

5
27

Street #	Street Address	City	Site Name	Dist	Lea Agency	RWQCB Closure	Local Closure	Substance	RWQCB Rank	Local Rank
1		De Laveaga Park - Brookwood	SC	Charles Derby Small Range	3	DTS		Lead/Zinc/Copper		2
2	558	Rodriguez (40 W Lake)	WAT	Radcliff School Expansion (550 Rodriguez St)	5	DTS		Study		3
3	440	Kings Village Rd.	SV	Watkins Johnson	1	EP		Solvent (CE)		1
4	222	Mt. Hermon Rd.	SV	Kings Cleaners	1	EP		Solvent (CE)		2
5	6531	Highway 9	FEL	Valeteria Dry Cleaners	1	EP		Solvent (CE)		1
1	1601	41st Ave.	CAP	King's Plaza Shopping Center	3	L		PCE		2
2	25	Bafo Drive	WAT	Duane Allen Residence	4	L		Gasoline		3
3	6617	Bonny Doon Rd.	SC	Bonny Doon Vineyard	1	L		Gasoline		3
4		By 1515 Ocean St.	SC	Western Direct Transport	2	L		Diesel		2
5		California & Bay St.	SC	Neary Lagoon State Park Site	2	L		Study		2
6	110	California St.	SC	City of S.C. Public Works	2	L		Lead/Hydrochlorine		3
7	3908	Capitola Rd.	CAP	King's Cleaners	3	L		Solvent (CE)		2
8	195	Capitola Rd. Ext.	SC	CalTrans- S.C. Maint. Sta.	3	L		Diesel		3
9	134	Cassery Rd.	WAT	Lopez	4	L		Pesticide		3
10	155	Center St.	SC	City of Santa Cruz	2	L		Diesel/Gasoline		3
11	2101	Coast Rd.	SC	State of California	1	L		Diesel		3
12	1700	Commercial Way	SC	Lido Marietti	3	L		Gasoline		1
13	320	Coral St.	SC	Jim Wylie Property	2	L		Gasoline/Diesel		1
14	14	East Lake Ave(458-460 Main)	WAT	Marvin & Helen Van Laren Trust	4	L		Kerosene Solvent		3
15		East Lake Ave.	WAT	City of Wats Park (Parcel C)	4	L		Arsenic		2
16		East Lake Ave./Highway 152	WAT	Franich Property Develop.	4	L		Pest/Aromatic		2
17	1060	Emeline Ave.	SC	Stepping Out House	3	L		Diesel/Gasoline		2
18	8647	Empire Grade Rd.	SC	Bonny Doon Airport	1	L		Gasoline		3
19	13575	Empire Grade Rd.	BL	Ben Lomond Cons. Camp	1	L		Pest/Gas Solvent		3
20	425	Errington Rd.	WAT	DUC Housing Partners, Inc.	5	L		Diesel/Gas		3
21		Fair Ave. & Ingalls St.	SC	Tobey Trust Properties	2	L		Various		3
22	1310	Fair Ave. (Locker A-115)	SC	Crocker's Lockers	2	L		Drug Lab		3
23	125	Fallen Leaf Rd.	SC	Chris Rudloff	1	L		Diesel		3
24	129	Felker St	SC	Dyas Residence	2	L		W/O, A freeze		3
25	880	Foxglove Lane	BC	John Willott	1	L		Diesel		3
26	610	Frederick St.	SC	Dominican Property	3	L		Oil/D/Solvent		3
27	2414	Freedom Blvd.	FRE	T. Larry Jones, Inc.	4	L		Gasoline		3
28	2783	Freedom Blvd.	FRE	A. Nagamine Nursery, Inc.	4	L		HC		1
29	601	Front St. (& Soquel Ave)	SC	Santa Cruz Parking Lot #1	2	L		HC		1
30	17	Gaffey Rd.	WAT	Ruby Franzke	4	L		Gasoline		2

Site Mitigation Listing

Street #	Street Address	City	Site Name	Dist	Lead Agency	RWQCB Closure	Local Closure	Substance	RWQCB Rank	Local Rank
31	5700	Graham Hill Rd.	FEL	Mt. Hermon Conf. Center	1	L		Diesel		3
32	5843	Graham Hill Rd.	FEL	San Lorenzo Lumber	1	L		Diesel/HC		3
33		Green Valley Rd.	WAT	Ted Richardson	4	L	*	Chemical		2
34	196	Grimmer Rd.	WAT	Pajaro Valley USD Transp.	4	L		HC		3
35	218	Hames Rd.	WAT	Phil Taylor Trenching	4	L		Gasoline/Diesel		3
36	78	Hangar Way	WAT	Xltronics	5	L		M/Oil/WO		2
37	167	Harkins Slough Rd.	WAT	Proposed Elem. School Site	5	L		Study Only		3
38	620	Heather Dr.	WAT	Schwartz	4	L		Waste Oil		3
39	1035	High St.	SC	Landmark Development	2	L		Assessment		3
40	490	Highway 1	DAV	Ocean View Gas	1	L		WO/HC		3
41	1485	Highway 1	WAT	Western Farm Service	5	L		HC/Pesticide		3
42		Highway 17 & Glenwood	SC	Williams Tank Lines	1	L		Gasoline		3
43	7105	Highway 9	FEL	SLV Elementary School	1	L		Gasoline		3
44	13211	Highway 9	BC	Boulder Creek Texaco	1	L		Gasoline/Diesel		3
45	196	Holohan Rd.	WAT	Pajaro Valley USD Transp.	4	L		Diesel/WO		3
46	320	Industrial Rd.	WAT	Roma Kool, Inc.	5	L		Gasoline/Diesel		1
47	375	Industrial Rd.	WAT	Watsonville Pre-Cool/ VEC-Express	5	L		Waste Oil		3
48	328	Ingalls St.	SC	Bonny Doon Vineyard	2	L		Motor Oil		3
49	475	Lakeview Rd.	WAT	Shikuma Bros., Inc.	4	L		Gasoline		3
50	1141	Laurel Ave.	FEL	County Bank & Trust	1	L		Drug Lab		3
51	120	Lee Rd.	WAT	Berman Steel	5	L		Gasoline		3
52		Longridge Rd.	LG	(Eric) Gelhard Hagedorn	3	L		HC/HM		3
53	153	Main St.	WAT	ARCO/Smog Pro	5	L		Gasoline		1
54	9360	Monroe Ave.	APT	Carmel Marina Corp.	4	L		Gasoline/Diesel		3
55	230	Mt. Hermon Rd.	SV	Kings Village Shopping Ctr.	1	L		Assessment		3
56	255	Northridge Dr.	SV	Chris Blumenthal Residence	1	L		Diesel		3
57	919	Ocean St.	SC	Budget Car Rental	2	L		Gasoline/Oil		2
58	2630	Orchard St., #14	SOQ	Ed Farinsky	4	L	12/12/99	Waste Oil		3
59	1018	Pacific Ave.	SC	George Ow	2	L		Gasoline		1
60	1487	Ranport Rd.	WAT	Bencich Farms	5	L		Wastes		3
61		Redwood Dr.	SC	Michael & Marcelina Mahoney	2	L		Chemicals		3
62		Rider Rd.	COR	Greg Koppola/Tolford Prop.	4	L		Drug Lab		3
63	124	River St	SC	Ski Shop Santa Cruz	2	L		Arsenic/Lead		2
64	136	River St	SC	Outdoor World	2	L		Arsenic/Lead		2
65	606	River St.	SC	ADCO Electric, Inc.	2	L		HC/Gasoline		3
66		River St.	SC	River Street Widening	2	L		HW/Oil/D/ Solvent		3
67		River St./Highway 1	SC	River Plaza Shopping Center	2	L		Diesel/HC/PCE		3

57

LL50

Site Mitigation Listings

57

Street #	Street Address	City	Site Name	Dist	Lead Agency	RWQCB Closure	Local Closure	Substance	RWQCB Rank	Local Rank
68	660 Riverside	WAT	Bilco Transportation	4	L			Diesel		3
69	2 School Way	WAT	Monte Vista Christian School	4	L			HC		2
70	100 Shaffer Rd.	SC	Long Marine Lab	1	L			Pesticides		3
71	1280 Shaffer Rd.	SC	Granite Construction	2	L			HC, Arsenic, Asbestos		1
72	13500 Skyline Blvd.	LG	Calif Dept of Transportation	1	L			Diesel		3
73	1605 Soquel Ave.	SC	Wayne Merritt RV's	3	L			HC		2
74	1999 Soquel Ave.	SC	North Bay Ford/Lincoln/Merc	3	L			Gasoline/WO		2
75	Soquel Dr no of Freedom Blvd	APT	PG & E	4	L		*	M/Chem		3
76	7719 Soquel Dr.	APT	Chevron Station #9-4274	4	L			Gasoline		1
77	3711 Soquel Dr. (3715 & 3801)	SOQ	Tom Markovich	3	L			WO/Solvent/Chem		3
78	201 State Park Dr.	APT	Seacliff State Beach	4	L			Gasoline/Diesel		2
79	240 Swanton Rd.	DAV	Big Creek CDF Station	1	L			Gasoline/Diesel		3
80	Terrace Point	SC	SC Coastal Marine Research	1	L			Pesticides		3
81	2225 Trout Gulch Rd.	APT	Phil & Susan Page	4	L			Diesel/Oil		3
82	2746 Trout Gulch Rd.	APT	Von Grey Residence	4	L			Diesel		3
83	3855 Trout Gulch Rd.	APT	Miles Reiter	4	L			Diesel		3
84	475 Union St	WAT	Former Galaxy III Theaters	4	L			HC		3
85	1080 W. Beach St.	WAT	West Coast Circuits	5	L			Metal		3
86	555 Walker St.	WAT	Wats. Cogeneration Facility	5	L			Oil/Diesel/HC		3
87	Watsonville Well	WAT	Steve Dautoff	4	L		*	HC		1
88	3196 Whitehouse Canyon Rd.	SC	Skylark Girl Scout Camp	1	L			Gasoline		3

0578

Site Mitigation Listing

<u>Sireei #</u>	<u>Sireei Address</u>	<u>City</u>	<u>Site Name</u>	<u>Dist</u>	<u>Lead Agency</u>	<u>RWQCB Closure</u>	<u>Local Closure</u>	<u>Substance</u>	<u>RWQCB Rank</u>	<u>Local Rank</u>
1	1005	17th Ave.	SC	Ledyard's	3	R		Gasoline		2
2	1200	17th Ave.	SC	Santa Cruz Liquor & Food	3	R		Gasoline		2
3	1037	17th Ave. (1045)	SC	El Dorado Meat	3	R		Gasoline/MTBE	C	2
4	2255	41st Ave (2195)	CAP	41st Avenue Station #4902	3	R		Gasoline/MTBE	B	2
5	2178	41st Ave.	CAP	Mobile Oil Sta./BP Oil Fac.	3	R		Gasoline/MTBE	B	2
6	2200	7th Ave.	SC	Santa Cruz SPCA	3	R		Gasoline		3
7	455	Airport Blvd.	WAT	Southland Corp.-Unocal	5	R		Gasoline/MTBE	A	1
8	595	Airport Blvd.	WAT	Maggiora Bros. Drilling, Inc.	5	R		Gasoline		1
9	1003	Amesti Rd.	WAT	Harvest Moon Market	4	R		Gasoline		2
10	1054	Amesti Rd.	WAT	Valley View Market	4	R	6/16/87	HC		3
11	555	Auto Center Drive	WAT	Marty Franich CPDJE, Inc.	5	R		Gasoline		1
12	100	Aviation Way	WAT	Watsonville Airport	5	R		Gas/Pest.		3
13	120	Aviation Way	WAT	United Flight Service (Former Exxon #7159)	5	R		Motor Oil		2
14	434	Barson St.	SC	Hal Masini	2	R		Gasoline		2
15	819	Bay Ave.	CAP	Redtree Properties	4	R		Gasoline/MTBE	C	3
16	836	Bay Ave.	CAP	Exxon Station #7-3604	4	R		Gasoline/MTBE	C	2
17	13250	Big Basin Way	BC	Olympic Oil Company	1	R		Gas/Diesel/MTBE	C	3
18	13265	Big Basin Way	BC	Michael & Janice Schafir Mountain Mechanics	1	R		Gasoline		3
19	205	Blackburn St.	WAT	PVUSD	4	R		Gasoline/MTBE	B	2
20	4415	Bonny Doon Rd.	SC	Cameron / Zingale	1	R		HC		3
21	2711	Branciforte Dr.	SC	Branciforte Fire Prot. Dist.	3	R		Diesel		3
22	202	Buena Vista Dr.	WAT	Brothers Country Corner	5	R		Gasoline		1
23	705	Capitola Rd.	SC	Shell Station	3	R		Gasoline/MTBE	C	2
24	1670	Capitola Rd.	SC	Live Oak Texaco	3	R		Gasoline		3
25	110	Carlton Road	WAT	Keft Ranch	4	R		Gasoline/Diesel		3
26	208	Chestnut St.	SC	T. L. Anthony Group	2	R		Metal		3
27		Cliff Dr.	APT	Rio Del Mar Pump Sta - PW	5	R		Diesel		2
28	132	Doyle St.	SC	Architectural Window Prod.	2	R		Gasoline		2
29	982	East Lake Ave.	WAT	East Lake Dry Cleaners	4	R		Solvent (PCE)		2
30	2303	East Lake Ave.	WAT	Quik Stop Market #63	4	R		Gasoline/MTBE	B	2
31	601	East Lake Ave.	WAT	Scurich Property	4	R		Gasoline		2
32	800	East Lake Ave.	WAT	Former Chevron Station	4	R		Gasoline		2
33	139	Encinal St	SC	DEVCO Oil	2	R		Gasoline/MTBE	B	1
34	23060	Evergreen Lane	LG	B. Patrick Thompson	3	R		Fuel Oil		2
35	1206	Fair Ave.	SC	E.V. Moceo Co.	2	R		Gasoline		2
36	133	Fern St.	SC	Santa Cruz Petroleum	2	R		Gasoline		1
37	352	Ford St. (356)	WAT	H & H Bottling	5	R		Gasoline		3

57

0579

Street #	Street Address	City	Site Name	Dist	Lead Agency	RWQCB Closure	Local Closure	Substance	RWQCB Rank	Local Rank
38	1114	Freedom Blvd.	WAT	J's Gas & Save	4	R		Gasoline/MTBE	B	2
39	1428	Freedom Blvd.	WAT	UNOCAL Station #5535	4	R		Gas/Diesel/MTBE	A	1
40	1455	Freedom Blvd.	WAT	Regal Station #432	4	R		Gasoline/MTBE	A	1
41	1488	Freedom Blvd.	WAT	Former Chevron #9-7517	4	R		Gas/WO		2
42	2904	Freedom Blvd.	COR	Five Mile House Market	4	R		Gasoline		3
43	1597	Freedom Blvd.	WAT	Beacon Station #400	4	R		Gasoline/MTBE	A	1
44	1902	Freedom Blvd.	FRE	Freedom BP	4	R		Gasoline/MTBE	B	2
45	2001	Freedom Blvd.	FRE	Unocal Station	4	R		Gasoline/MTBE	C	3
46	2140	Freedom Blvd.	FRE	Quik Stop Market/Helen Hunt	4	R		Gasoline/MTBE	B	2
47	2482	Freedom Blvd.	FRE	H.A. Rider & Sons	4	R		Gasoline/WO		3
48	740	Front St.	SC	Galleria	2	R		Oil, Diesel		1
49	325	Front St. (812 Pacific Av)	SC	Putney & Perry	2	R	6/26/00	Waste Oil		1
50	6225	Graham Hill Rd.	FEL	Felton Exxon	1	R		Gasoline		3
51	198	Holohan Rd. (Grimmer/Cottage)	WAT	Roy Wilson Yard - P.W.	4	R		Diesel/Gas/MTBE		2
52	1	Hacienda Dr.	SV	Shell Station	1	R		Gasoline/MTBE	B	2
53	1311	Hames Rd.	APT	John Ivan-Evergreen Nursery	4	R		Gasoline		3
54	320	Harvest Dr.	WAT	Municipal Service Center	5	R	11/15/01	Gasoline		3
55	3	Hecker Pass Rd.	WAT	Hecker Pass Market	4	R		Gasoline/MTBE	A	1
56	1240	Highway	WAT	SpectraMat	5	R		Solvent		2
57		Highway (@ 129)	WAT	Petro-Chemical Transport	5	R		Gasoline		2
58	6036	Highway 9	FEL	Rogers Feed & Supply/ Winkler Plumbing	1	R		Diesel/Gasoline		3
59	8500	Highway 9	BL	Highland Park	1	R		Diesel		3
60	14560	Highway 9	BC	Gram's Deli (Williams Prop)	1	R		Gasoline		3
61	6059	Highway 9	FEL	Felton Forest Fire Sta - CDF	1	R		Diesel/Gasoline		3
62	6325	Highway 9	FEL	Chevron U.S.A. #9-4909	1	R		Gasoline/MTBE	A	1
63	6519	Highway 9	FEL	Twohig/ Valetaria Cleaners	1	R		Solvent (PCE)		2
64	118-A	Holohan Rd.	WAT	Mrs. George Braycovich	4	R		Gasoline/MTBE	B	2
65	50	Janis Way	SV	Roberson Keylock / Dassel's	1	R		Diesel/Gasoline		3
66	5	Lakeview Rd.	WAT	Western Farm Service, Inc./ Crop Production Services	4	R		Nitrate		3
67	101	Lee Rd.	WAT	Former Chevron #1001267	5	R		Gas/Diesel/MTBE	C	2
68	103	Lee Rd.	WAT	G.N. Renn	5	R		Diesel/MTBE	B	2
69	200	Lee Rd. & Hwy 1	WAT	Chevron Station #9-1927	5	R		Gasoline/MTBE	C	3
70	2750	Lode St.	SC	East Cliff Trans. Facility	3	R		Diesel/MTBE	C	3
71	222	Main St.	WAT	Chevron Station #9-0160	5	R		Gasoline/MTBE	A	3
72	570	Main St.	WAT	Desert Petroleum #7&0	5	R		Gasoline/MTBE	B	2
73	175	Main St.	WAT	Alliance Gas	5	R		Gasoline/MTBE	A	3

Site Mitigation Listing

Street #	Street Address	City	Site Name	Dist	Lead Agency	RWQCB Closure	Local Closure	Substance	RWQCB Rank	Local Rank
74	640 Main St.	WAT	Peter Dewares AAMCO Auto Service	5	R			Gasoline		2
75	1180 Main St.	WAT	Kayo - Fast Gas - Beacon	5	R			Gasoline/MTBE	B	2
76	30 Maple St.	WAT	Recreation Building	4	R			Solvent		3
77	335 Mission St.	SC	Beacon Station #528	2	R			Gasoline/MTBE	C	1
78	823 Mission St.	SC	Chevron Station #9-3865	2	R			Gasoline/MTBE	C	1
79	904 Mission St.	SC	Mission Street Unocal #4576	2	R			Gasoline		1
80	1129 Mission St.	SC	Former Shell Station	2	R			Gasoline		2
81	1130 Mission St.	SC	Former Gulf Station	2	R			Gasoline		2
82	1203 Mission St.	SC	Westside Mobil #10-HMG	2	R			Gasoline		2
83	1224 Mission St.	SC	One Hour Martinizing	2	R			PCE		2
84	1504 Mission St.	SC	Former Service Station - Also Goodwill Industries	2	R			Gasoline		3
85	1725 Mission St.	SC	HER Co. Service Station	2	R			Gasoline/MTBE	C	2
86	2003 Mission St.	SC	BP Service Station	2	R			Gasoline/MTBE	B	1
87	2202 Mission St.	SC	Beacon Station #734	2	R			Gasoline/MTBE	A	1
88	2203 Mission St.	SC	Tobey's Rasp Service	2	R			Gasoline		2
89	2429 Mission St.	SC	Robert N. Rudolph	2	R			Gasoline		2
90	Mission St.	SC	Cal Transp Widening Project	2	R			Solvents		3
91	Mt. Hermon Rd.	SV	Camp Evers	1	R			Gasoline		1
92	90 Mt. Hermon Rd.	SV	Shell Service Station	1	R			Gasoline/MTBE	A	1
93	99 Mt. Hermon Rd.	SV	Unocal Station #6153 Cross Reference Camp Evers	1	R			Gasoline/MTBE	A	1
94	200 Mt. Hermon Rd.	SV	Former Chevron Station	1	R			Gasoline/MTBE	A	1
95	201 Mt. Hermon Rd.	SV	BP Oil Facility #11239	1	R			Gasoline/MTBE	A	1
96	272 Mt. Hermon Rd.	SV	Scotts Valley Dry Cleaners	1	R			Solvent (PCE)		1
97	1104 Ocean St.	SC	Former Regal/Beach City Gas	2	R			Gasoline/MTBE	B	1
98	1415 Ocean St.	SC	Sav-On Gasoline	2	R			Gasoline/MTBE	B	1
99	433 Ocean St.	SC	Unocal Station #0292	2	R			Gasoline/MTBE	C	2
100	745 Ocean St.	SC	Shell Station	2	R			Gasoline/MTBE	B	1
101	1319 Ocean St.	SC	Beacon Station	2	R			Gas/Diesel/MTBE	C	2
102	1415 Ocean St.	SC	Exxon Station #7-3176	2	R			Gasoline/MTBE	B	2
103	805 Ocean St. / Water St.	SC	Chevron Station #9-1361	2	R			Gasoline/MTBE	C	1
104	411 Soquel Ave. (500 Ocean)	SC	Best Western / was Former ARCO Station	2	R			Gasoline		3
105	812 Pacific Ave (325 Front St)	SC	Haber Brothers	2	R			Gasoline		2
106	503 Pacific Ave.	SC	Former Prolo Chevrolet	2	R			Gasoline/D/Oil		1
107	13215 Pine St.	BC	SLV Rental & Rockery	1	R			Gasoline		3
108	3129 Porter Gulch Rd.	SOQ	Pacific Painting	4	R			Solvent		3

52

1850

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22

Street #	Street Address	City	Site Name	Dist	Lead Agency	RWQCB Closure	Local Closure	Substance	RWQCB Rank	Local Rank
109	3801	Portola Dr.	SC	Ed's Portola ARCO	3	R		Gasoline		3
110	4000	Portola Dr.	SC	Former Chevron Sta #3-2346	3	R		Gasoline		3
111	4001	Portola Dr.	SC	Opal Cliffs Auto Center	3	R		Gasoline		3
112	18	Rancho Del Mar	APT	Shell Station	4	R	10/15/92	Gasoline		2
113	125	River St.	SC	Wilson Bros. Redevelopment	2	R		Gasoline		1
114	1040	River St.	SC	Salz Leather	2	R		Gasoline/MTBE	C	1
115	1125	River St.	SC	City of SC Corporation Yard	2	R		Gasoline		2
116	215	Riverside	WAT	Puregro (Wastewater)	4	R		Nitrate		3
117	2501	S. Main St.	SOQ	Exxon Service Station #0281	4	R		Gasoline/MTBE	B	2
118	5620	Scotts Valley Dr.	SV	Exxon/ Sturdy Oil	1	R		Gasoline		3
119	6012	Scotts Valley Dr.	SV	Chevron Station #9-2623	1	R		Gasoline/MTBE		1
120	2001	Soquel Ave	SC	Whalers Carwash	3	R		Gasoline		2
121	404	Soquel Ave.	SC	Beacon Station	2	R		Gasoline/MTBE	C	1
122	1505	Soquel Ave.	SC	Union Station #4818	3	R		Gasoline		2
123	1516	Soquel Ave.	SC	Beacon (was Kayo Fast Gas)	3	R		Gasoline/MTBE	B	2
124	1500	Soquel Dr.	SC	Unocal Station #6193	3	R		Gasoline		2
125	4860	Soquel Dr.	SOQ	Unocal Station	4	R		Gasoline/MTBE	C	2
126	4901	Soquel Dr.	SOQ	E-Z Serve	4	R		Gasoline/MTBE	C	2
127	5505	Soquel Dr.	SOQ	Quik Stop Market #78	4	R		Gasoline/MTBE	A	1
128	411	Swift St.	SC	Santa Cruz Industries	2	R		Organic Solvents		2
129	580	W. Beach St.	WAT	Granite Const. Service Ctr.	5	R	4/15/99	Diesel		2
130	735	W. Beach St.	WAT	Green Giant Facility	5	R		Gasoline		2
131	950	W. Beach St. (SS Office)	WAT	Venture Oil (Airport Petro.)	5	R		Gas/Diesel		1
132	285	Water St.	SC	Vapor Cleaners	2	R		Solvent		1
133	1024	Water St.	SC	Exxon Station	2	R		Gasoline/MTBE	B	1
134	100	Westgate Dr.	WAT	Spectra-Mat	5	R		Solvent (PCE)		3
135	110	Whiting Rd.	WAT	Watsonville Nurseries	4	R		Gasoline		3

0582

Regionwide MTBE Listing and High Priority Sites

*based on SWRCB guidelines

**DHS well distance data may not be accurate

***approximate distance from Lake San Antonio

MONTEREY COUNTY				Sampling Date	Distance** feet	MtBE conc. nob.	Rank*
Site Name	Street Address	City					
MONTEREY COUNTY							
AROMAS BEACON	2961 SAN JUAN RD	AROMAS		9/11/01	1548	88000	A
LAKE SAN ANTONIO RESORTS	LAKE SAN ANTONIO SOUTH SHORE	BRADLEY		9/15/01	10***	1200000	A
TOSCO #30683 (FORMER UNOCAL #4)	544 CARMEL RANCHIC BLVD	CARMEL		8/24/01	500	2700	A
UNOCAL #6024	1400 MERRITT ST	CASTROVILLE		7/19/01	1400	1600C	A
FERM'S SERVICE	41 PORTER DR	PAJARO		9/19/01	700	29000	A
EXXON SERVICE STATION	2347 SAN MIGUEL CANYON RD	PRINEDALE		6/5/01	125	32000	A
QUIK STOP MARKET #77	PORTER DR	WATSONVILLE		9/12/01	700	13000	A
MID VALLEY FIRE PROJECT DIST	1455 CARMEL VALLEY RD	CARMEL VALLEY		10/27/00	1200	74	B
BEACON OIL STATION #479	0899 MERRITT ST	CASTROVILLE		8/1/01	3000	830	B
EXXON (FORMER)	1399 MERRITT ST	CASTROVILLE		7/31/01	3400	620	B
DEL REY CAR WASH	810 CANYON DEL REY	DEL REY OAKS		8/7/01	5000	37000	B
EXXON SERVICE STATION	1042 DEL MONTE AVE	MONTEREY		9/12/01	1500	1600	B
USA GASOLINE STATION #42	2338 DEL MONTE AVE	MONTEREY		9/14/01	1961	3700	B
EXXON STATION 7-0228	595 MUNRAS ST	MONTEREY		09/16/01	10700	18000	B
SHELL STATION	212 ALISAL ST E	SALINAS		5/3/01	1800	1050	E
BEACON SERVICE STATION #530	215 ALISAL ST E	SALINAS		5/3/01	1800	2600	B
ARCO STATION NO 2188	145 KERN ST	SALINAS		8/13/01	5500	160000	B
BP OIL CO.S/S#11165(MOBIL 318)	1240 MAIN ST N	SALINAS		5/5/81	4400	17500	B
NORTH MAIN EXXON	225 MAIN ST N	SALINAS		10/24/01	700	9	B
UNOCAL SERVICE STATION #1011	201 MONTEREY ST	SALINAS		5/1/01	2271	541	B
CHEMICAL TIME NATIVIDAD PLANT	11771 OLD STAGE RD	SALINAS		9/16/01	1000	8	B
TOM LONG'S TIRE	81 SANBORN RD N	SALINAS		6/9/01	2504	5000	B
MUSHROOM FARMS	415 HALL RD	WATSONVILLE		9/27/01	1200	290	B
CHEVRON STATION	3645 RIO RD	CARMEL		8/29/01	7600	660	C
GIL'S TEXACO	100 ALTA ST	GONZALES		5/6/01	1600	21	C
CHEVRON STATION #9-6381	715 BROADWAY	KING CITY		10/27/00	2808	13	C
LOCKWOOD STORE	PO BOX 174	LOCKWOOD		9/15/01	23000	860	C
BP FACILITY #11168	312 DEL MONTE AVE	MONTEREY		4/2/01	10100	403	C
CHEVRON SERVICE #91060	351 FREMONT ST	MONTEREY		4/12/01	10600	1430	C

P.2

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P. 8
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SANTA BARBARA COUNTY

Site Name	Street Address	CITY	Sampling Date	Distance** feet	MtBE conc. ppb.	Rank*
Chess Motors Inc	110 State St	SANTA BARBARA	8/1/00	2949	6	C
Chevron #9-0421	1800 State St	SANTA BARBARA	1/22/97	2400	90	C
UCSB Bldg 336, Tank 2	2 UCSB Bldg 336	SANTA BARBARA	6/1/01	20300	12	C
Circle K Store	3506 Black Rd	SANTA MARIA	8/17/00	2884	9	C
Beacon #44	801 Main St West	SANTA MARIA	2/1/98	2350	230	C
Lakeview Unocal	3596 Orcutt Rd	SANTA MARIA	1/12/00	1800	120	C
Santa Ynez Chevron	3595 Sagunto	SANTA YNEZ	6/19/01	1750	32	C
Jim's Service Center	2015 Mission Dr	SOLVANG	3/13/01	3800	200	C

SANTA CLARA COUNTY

GAVILAN COLLEGE SWIM POOL T#3	5055 SANTA TERESA BLVD	GILROY	9/29/99	3300	1500	B
GAVILAN COLLEGE CORP YARD	5055 SANTA TERESA BLVD	GILROY	3/22/01	3279	2300	B
CITY OF MORGAN HILL CORP YARD	105 EDES CT	MORGAN HILL	11/6/00	2900	60000	B
WORLD OIL STATION #52	16720 MONTEREY HWY	MORGAN HILL	2/9/01	2400	780	B
BP SS#11224	16995 MONTEREY HWY	MORGAN HILL	6/21/01	1500	1210	B
SHELL SERVICE STATION	17905 MONTEREY HWY	MORGAN HILL	6/29/01	3300	1800	B
SAN MARTIN TIRE	13425 MONTEREY HWY	SAN MARTIN	9/8/00	800	10	B
SHELL SERVICE STATION	8385 MONTEREY RD N	GILROY	5/18/00	2668	14	C
MARX CHEVROLET - BUICK	8655 MONTEREY ST	GILROY	12/8/99	3487	30	C
CHEVRON CASA DE FRUTA	10001 PACHECO PASS HWY	HOLLISTER	2/20/97	1700	52	C
SABEK/SABER/CAVA	16270 MONTEREY HWY	MORGAN HILL	2/17/00	2400	31	C
GUNTER BROTHERS FEEDS	17620 MONTEREY HWY	MORGAN HILL	7/19/00	2400	15	C
RUTH JONES RESIDENCE	14905 SANTA THERESA RD	MORGAN HILL	9/8/00	2912	50	C

SANTA CRUZ COUNTY - 615

ULTRAMAR BEACON #734	2202 MISSION ST	SANTA CRUZ	1/22/01	1600	5200	A
QUIK STOP MARKET NO 78	5505 SOQUEL DR	SOQUEL	9/4/01	1600	160000	A
76 SERVICE STATION 5535	1428 FREEDOM BLVD	WATSONVILLE	7/13/01	2200	58000	A
REGAL STATION #432	1455 FREEDOM BLVD	WATSONVILLE	7/19/01	1500	19000	A
ULTRAMAR BEACON #400	1597 FREEDOM BLVD	WATSONVILLE	8/1/01	150	32000	A
HECKER PASS MARKET	3 HECKER PASS RD	WATSONVILLE	4/3/01	300	5100	A
ULTRAMAR BEACON #131	1180 MAIN ST	WATSONVILLE	7/31/01	1320	12000	A
FORMER ALLIANCE GAS	175 MAIN ST	WATSONVILLE	9/3/01	400	550	A
CHEVRON STATION #9-0160	222 MAIN ST	WATSONVILLE	7/13/01	880	2500	A
BP OIL FACILITY NO. 11240	2178 41ST AVE	CAPITOLA	7/3/01	3500	14700	B
UNOCAL SERVICE STATION #4902	2255 41ST AVE	CAPITOLA	9/8/01	3900	1900	B

0584

SANTA CRUZ COUNTY				Sampling Date	Distance** feet	MtBE conc. ppb.	Rank*
Site Name	Street Address		City				
CHEVRON STATION 9-4909	6325	HWY 9	FELTON	7/12/01	2200	5400	B
LOVE BP STATION	1902	FREEDOM BLVD	FREEDOM	2/6/01	1900	350	B
QUIK STOP MARKET #41	2140	FREEDOM BLVD	FREEDOM	6/5/01	2800	10000	B
SHELL STATION	705	CAPITOLA RD	SANTA CRUZ	4/20/01	6800	32000	B
DEVCO OIL	139	ENCINAL ST	SANTA CRUZ	4/25/01	2400	3700	B
GAS & SHOP	2003	MISSION ST	SANTA CRUZ	10/3/01	10800	17000	B
EXXON STATION 7-3176	1415	OCEAN ST	SANTA CRUZ	5/31/01	4200	86000	B
SHELL STATION	745	OCEAN ST	SANTA CRUZ	4/26/01	6100	41500	B
ULTRAMAR BEACON #735	1516	SOQUEL AVE	SANTA CRUZ	4/26/01	6000	12000	B
FORMER EXXON SERVICE STATION 7	1024	WATER ST	SANTA CRUZ	5/7/01	7300	32000	B
SHELL STATION	1	HACIENDA DR	SCOTTS VALLEY	7/16/01	2300	6100	B
CHEVRON STATION 9-1337	200	MOUNT HERMON RD	SCOTTS VALLEY	5/30/01	2800	3870	B
BP OIL FACILITY NO 11239	201	MOUNT HERMON RD	SCOTTS VALLEY	10/19/01	2300	734	B
SHELL STATION	90	MOUNT HERMON RD	SCOTTS VALLEY	5/30/01	2600	920	B
EXXON ST 7-0281(SECOND LEAK)	2501	MAIN ST S	SOQUEL	8/27/01	2400	2000	B
SOUTHLAND CORPORATION SITE NO	455	AIRPORT BLVD	WATSONVILLE	7/22/01	2000	7900	B
PAJARO VALLEY USD	205	BLACKBURN ST	WATSONVILLE	6/12/01	2800	2200	B
BRAYCOVICH PROPERTY	118-A	HOLOHAN RD	WATSONVILLE	6/11/01	5604	3200	B
QUIK STOP MARKET NO 63	2303	LAKE BLVD E	WATSONVILLE	6/5/01	2100	2500	B
UNOCAL BULK PLANT #846 (N EW TO	103	LEE RD	WATSONVILLE	2/15/01	5300	13200	B
DESERT PETROLEUM #780	570	MAIN ST	WATSONVILLE	3/14/01	2000	230	B
FORMER OLYMPIC STATION	13250	BIG BASIN WAY	BOULDER CREEK	10/3/01	5204	435	C
SAN LORENZO ROCKERY	1325	PINE ST	BOULDER CREEK	4/11/00	3000	36	C
REDTREE PROPERTIES	819	BAY AVE	CAPITOLA	2/6/01	2900	87	C
EXXON STATION 7-3604	836	BAY AVE	CAPITOLA	8/27/01	2900	100	C
SCHIAVON UNOCAL STATION	2001	FREEDOM BLVD	FREEDOM	3/6/01	3100	35	C
EL DORADO MEAT COMPANY	1037	17TH AVE	SANTA CRUZ	4/24/01	4000	110	C
SCCSD EAST CLIFF PUMP STATION	2750	LODE ST	SANTA CRUZ	5/22/01	1700	95	C
HER COMPANY	1725	MISSION ST	SANTA CRUZ	7/30/01	10600	25	C
ULTRAMAR BEACON #528	335	MISSION ST	SANTA CRUZ	5/5/01	6000	2600	C
CHEVRON STATION 9-3865	823	MISSION ST	SANTA CRUZ	1/3/01	7442	163	C
BEACON STATION #503	1319	OCEAN ST	SANTA CRUZ	3/2/01	4400	120	C
UNOCAL STATION #0292	433	OCEAN ST	SANTA CRUZ	9/27/01	8100	130	C
CHEVRON STATION 9-1361	805	OCEAN ST	SANTA CRUZ	4/4/01	5843	1170	C

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P. 110
29

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SANTA CRUZ COUNTY				Sampling Date	Distance** feet	MtBE conc. ppb.	Rank*
Site Name	Street Address		City				
CHEVRON STATION #9-0801	303	PACIFIC AVE	SANTA CRUZ	1/10/00	10400	24	C
SALZ LEATHERS	1040	RIVER ST	SANTA CRUZ	6/18/01	2144	92	C
CHEVRON STATION 9-0499	404	SOQUEL AVE	SANTA CRUZ	2/23/01	7800	12	C
UNOCAL STATION #6153	99	MOUNT HERMON RD	SCOTTS VALLEY	5/30/01	2000	150	C
CHEVRON STATION 9-2623	6012	SCOTTS VALLEY DR	SCOTTS VALLEY	1/19/99	4500	7	C
UNOCAL STATION #2452	4860	SOQUEL DR	SOQUEL	7/3/01	3400	380	C
HOLOHAN MAINTENANCE YARD	198	HOLOHAN RD	WATSONVILLE	3/22/01	5300	140 ¹	C
SOUTHLAND SITE NO 17296	261	LAKE AVE E	WATSONVILLE	3/9/00	2300	12	C
UNOCAL STATION #3741	676	LAKE AVE E	WATSONVILLE	2/15/01	4773	18	C
FORMER CHEVRON BULK PLANT #100	101	LEE RD	WATSONVILLE	1/19/01	5325	55	C
CHEVRON STATION 9-1927	200	LEE RD	WATSONVILLE	7/25/01	4900	890	C

PCA Checklist Table D-1, page 1 of 2 COMMERCIAL/INDUSTRIAL						
PCA (Risk Ranking)	If Zones Established			PCA in Watershed	Unknown	Comments
	No PCA in zones	PCA in Zone A?	PCA in Zone B?			
Auto/mobile-related activities						
Body shops (H)						
Car washes (M)						
Gas stations (VH)						
Repair shops (H)						
Boat services/repair/ refinishing (H)						
Chemical/petroleum processing/storage (VH)						
Chemical/petroleum pipelines (H)						
Dry cleaners (VH)						
Electrical/electronic manufacturing (H)						
Fleet/truck/bus terminals (H)						
Furniture repair/ manufacturing (H)						
Home manufacturing (H)						
Junk/scrap/salvage yards (H)						
Machine shops (H)						
Metal plating/ finishing/fabricating (VH)						
Photo processing/printing (H)						
Plastics/synthetics producers (VH)						
Research laboratories (H)						

PCA Checklist Table D-1, page 2 of 2 COMMERCIAL/INDUSTRIAL						
PCA (Risk Ranking)	If Zones Established			PCA in Watershed	Unknown	Comments
	No PCA in zones	PCA in Zone A?	PCA in Zone B?			
Wood preserving/treating (H)						
Wood/pulp/paper processing and mills (H)						
Lumber processing and manufacturing (H)						
Sewer collection systems (H, if in Zones, otherwise L)						
Parking lots/malls (>50 spaces) (M)						
Cement/concrete plants (M)						
Food processing (M)						
Funeral services/graveyards (M)						
Hardware/lumber/parts stores (M)						
Appliance/Electronic Repair (L)						
Office buildings/complexes (L)						
Rental Yards (L)						
RV/mini storage (L)						
Other (list)						

PCA Checklist Table D-2, page 1 of 2						
RESIDENTIAL MUNICIPAL						
PCA (Risk Ranking)	If Zones Established			PCA in Watershed	Unknown Unknown	Comments Comments
	No PCA in zones	PCA in Zone A?	PCA in Zone B?			
Airports - Maintenance/ fueling areas (VH)						
Landfills/dumps (VH)						
Railroad yards/ maintenance/ fueling areas (H)						
Septic systems - high density (>1/acre) (VH if in Zones, otherwise M)						
Sewer collection systems (H, if in Zones, otherwise L)						
Utility stations - maintenance areas (H)						
Wastewater treatment and disposal facilities (VH in Zones, otherwise H)						
Drinking water treatment plants (M)						
Golf courses (M)						
Housing - high density (>1 house/0.5 acres) (M)						
Motor pools (M)						
Parks (M)						
Waste transfer/recycling stations (M)						

PCA Checklist						
Table D-2, page 2 of 2						
RESIDENTIAL/MUNICIPAL						
PCA (Risk Ranking)	If Zones Established			PCA in Watershed	Unknown	Comments
	No PCA in zones	PCA in Zone A?	PCA in Zone B?			
Apartments and condominiums (L)						
Campgrounds1 Recreational areas (L)						
Fire stations (L)						
RV Parks (L)						
Schools (L)						
Hotels, Motels (L)						
Other (list)						

PCA Checklist						
Table D-3, page 1 of 3						
AGRICULTURAL/RURAL						
PCA (Risk Ranking)	If Zones Established					Comments
	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	
Grazing (> 5 large animals or equivalent per acre) (H in Zones, otherwise M)						
Concentrated Animal Feeding Operations (CAFOs) as defined in federal regulation' (VH in Zones, otherwise H)						
Animal Feeding Operations as defined in federal regulation' (VH in Zones, otherwise H)						
Other Animal operations (H in Zones, otherwise M)						
Concentrated Aquatic Animal Production Facilities, as defined in federal regulation (VH in Zones, otherwise H)						
Other Aquatic Animal production operations (H in Zones, otherwise M)						
Managed Forests (VH in Zones, otherwise H) (unless additional detail provided*)						
Farm chemical distributor/application service (H)						
Farm machinery repair (H)						

PCA Checklist						
Table D-3, page 2 of 3						
AGRICULTURAL/RURAL						
PCA (Risk Ranking)	If Zones Established			PCA in Watershed	Unknown	Comments
	No PCA in zones	PCA in Zone A?	PCA in Zone B?			
Septic systems – Low density (<1/acre) (H in Zones, otherwise L)						
Lagoons / liquid wastes (H)						
Machine shops (H)						
Pesticide/fertilizer/ petroleum storage & transfer areas (H)						
Agricultural Drainage (H in Zones, otherwise M)						
Wells - Agricultural/ Irrigation (H)						
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)						
Sewage sludge/biosolids application (M)						
Fertilizer, Pesticide/ Herbicide Application (M)						
Crops, nonirrigated (e.g., Christmas trees, grains, grass seeds, hay, pasture) (L) (includes drip-irrigated crops)						
Other (list)						

PCA Checklist						
Table D-3, page 3 of 3						
AGRICULTURAL/RURAL						
PCA (Risk Ranking)	If Zones Established			PCA in Watershed	Unknown	Comments
	No PCA in zones	PCA in Zone A?	PCA in Zone B?			
* Additional Detail for Managed Forests The following categories can be used in lieu of the default risk ranking for Managed Forests:						
* Managed Forests - Broadcast fertilized areas (M in Zones, otherwise L)						
* Managed Forests - Clearcut harvested <30 years (VH in Zones, otherwise H)						
* Managed Forests - Partial harvested <10 years (H in Zones, otherwise M)						
* Managed Forests - Road density > 2 mi/sq. mi) (H in Zones, otherwise M)						

1. Concentrated Animal Feeding Operation: Animal Feeding Operation (requires NPDES permit) with greater than:

If pollutants discharged (directly or indirectly) to navigable waters	If pollutants not discharged
300 slaughter or feeder cattle	1,000 slaughter or feeder cattle
200 mature dairy cows	700 mature dairy cows
750 swine	2500 swine
150 horses	500 horses
3000 sheep or lambs	10,000 sheep or lambs
16,500 turkeys	55,000 turkeys
9,000 laying hens or broilers (liquid manure system)	30,000 laying hens or broilers (liquid manure system)
1500 ducks	5000 ducks
300 animal units	1000 animal units

2. Animal Feeding Operation: lot or facility where animals (other than aquatic) have been or will be stabled or confined and fed or maintained for total of **45** days or more in any 12 month period.

PCA Checklist						
Table D-4, page 1 of 3						
OTHER ACTIVITIES						
PCA (Risk Ranking)	If Zones Established			PCA in Watershed	Unknown	Comments
	No PCA in zones	PCA in Zone A?	PCA in Zone B?			
NPDES/WDR permitted discharges (H)						
Underground Injection of Commercial/Industrial Discharges (VH)						
Historic gas stations (VH)						
Historic waste dumps/landfills (VH)						
Illegal activities/unauthorized dumping (H)						
Injection wells/ dry wells/sumps (VH)						
Known contaminant plumes (VH)						
Military installations (VH)						
Mining operations - Historic (VH)						
Mining operations - Active (VH)						
Mining - Sand/Gravel (H)						
Wells - Oil, Gas, Geothermal (H)						
Salt Water Intrusion (H)						
Recreational area - surface water source (H)						
Snow Ski Areas (H in Zones, otherwise M)						
Recent (< 10 years) Bum Areas (H in Zones, otherwise M)						

PCA Checklist Table D-4, page 2 of 3 OTHER ACTIVITIES						
PCA (Risk Ranking)	If Zones Established			PCA in Watershed	Unknown	Comments
	No PCA in zones	PCA in Zone A?	PCA in Zone B?			
Dredging (H in Zones, otherwise M)						
Underground storage tanks						
Confirmed leaking tanks (VH)						
Decommissioned - inactive tanks (L)						
Non-regulated tanks (tanks smaller than regulatory limit) (H)						
Not yet upgraded or registered tanks (H)						
Upgraded and/or registered - active tanks (L)						
Above ground storage tanks (M)						
Wells – Water supply (M)						
Construction/demolition staging areas (M)						
Contractor or government agency equipment storage yards (M)						
Transportation corridors						
Freeways/state highways (M)						
Railroads (M)						
Historic railroad right-of-ways (M)						
Road Right-of-ways (herbicide use areas) (M)						
Roads/ Streets (L)						

PCA Checklist Table D-4, page 3 of 3 OTHER ACTIVITIES						
PCA (Risk Ranking)	If Zones Established			PCA in Watershed	Unknown	Comments
	No PCA in zones	PCA in Zone A?	PCA in Zone B?			
Hospitals (M)						
Storm Drain Discharge Points (M)						
Storm Water Detention Facilities (M)						
Artificial Recharge Projects						
Injection wells (potable water) (L)						
Injection wells (non-potable water) (M)						
Spreading Basins (potable water) (L)						
Spreading Basins (non-potable water) (M)						
Medical/dental offices/clinics (L)						
Veterinary offices/clinics (L)						
Surface water - streams/lakes/rivers (L)						
Other (list)						



California Regional Water Quality Control Board Central Coast Region



John Hickox
Secretary for
Environmental
Protection

Internet Address: <http://www.swrcb.ca.gov>
81 Higuera Street, Suite 200, San Luis Obispo, California 93401-5427
Phone (805) 549-3147 • FAX (805) 543-0397

Gray Davis
Governor

0597

May 1, 2002

Planning Agency

Dear Planning Agency:

As you've likely heard for the last few years, the gasoline additive MTBE has become a continuing water quality problem in the Central Coast area as well as throughout the State of California. The additive has shown an ability to escape underground tank systems either through leaks in tank and pipe components or through vapor releases. **As** a result, this elusive additive has degraded water quality and threatens many water supply wells.

While we are addressing the problem by requiring cleanup wherever it is discovered, other means of correcting or minimizing the problem are possible. One way to help minimize the problem is to set buffer areas (wellhead protection areas) around existing water supply wells. Setting a minimum distance between an existing well and a new potential pollutant source will allow more time for a response when a leak is found. Local permitting agencies have the authority to set such distances or zones. In that capacity, we ask that you consider an ordinance or other means of establishing a zoning restriction around existing wells where new pollutant sources are limited or banned. Another, more aggressive but protective step would be to restrict such potential pollution sources in key recharge areas, where critical aquifers are most vulnerable.

My staff is available to assist in any way we can. If you have any questions, please contact the staff person assigned to your area as indicated on the attached Staff Assignments list.

Sincerely,

Roger W. Briggs
Roger W. Briggs
Executive Officer

Attachment: List of City and County Agencies

S:\icb\usa\ja\mtbe-agency letter