

County of Santa Cruz

HEALTH SERVICES AGENCY

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ENVIRONMENTAL HEALTH October 11,2001

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

Subject: Status Report on MTBE and Groundwater Pollution

Members of the Board:

On April 24,2001, your Board directed the Planning Department to work with the Hazardous Materials Advisory Commission and the Water Advisory Commission to address issues related to evaluation and clean-up of contaminated groundwater (specifically MTBE releases) and aquifer and wellhead protection programs, with a report back scheduled for August 21,2001. The report was subsequently deferred to October 23, 2001. Staff from Environmental Health Services and the Planning Department prepared the attached draft report and have discussed it with both commissions. The commissions have requested that additional information be included in the report prior to making recommendations for action to your Board. This matter will be further discussed by the commissions in November and December

It is, therefore, RECOMMENDED that your Board schedule further consideration of actions to promote cleanup of contaminated groundwater and promote aquifer and wellhead protection to your second meeting in January 2002.

Sincerely,

Alvin D. James

Planning Director

RECOMMENDED

Susan A. Mauriello County Administrative Officer

Attachment

Cc: Hazardous Materials Advisory Commission Water Advisory Commission

Rana Rhaltap

Rama Khalsa, Ph.D. Health Services Agency Administrator

DRAFT REPORT

An Overview of Efforts for Aquifer and Wellhead Protection and Cleanup of Groundwater Contamination in Santa Cruz County

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An Overview of Efforts for Aquifer and Wellhead 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. This report has been prepared by staff in Environmental Health Services and the Planning Department for review by the Hazardous Materials Advisory Commission and the Water Advisory Commission prior to submittal to the Board of Supervisors.

Background

Groundwater contamination by a variety of hazardous chemicals occurs in many locations throughout Santa Cruz County. Most of the contamination is localized and has originated from leaky underground storage tanks, improper discharges to septic systems, or other spills or leaks. The Central Coast - Regional Water Quality Control Board has identified some 56 sites contaminated by Methyl-tertiary-butyl-ether (MTBE) and some 250 additional sites contaminated by other chemicals. A prime example of what can occur can be found in the Scotts Valley area, the contamination has seriously degraded the underground water supply, requiring costly water treatment and limiting options for management of the aquifer. Municipal and private wells in other areas of the county may also be threatened by groundwater contamination.

Numerous efforts are underway at the local, state and national level to clean up existing contamination, prevent further contamination, and to protect water supply wells and underground aquifers. This report presents a summary of those efforts.

Clean-up of Existing Contamination

The Legislature established the State Water Resources Control Board and nine Regional Water Quality Control Boards under the California Environmental Protection Agency umbrella to administer the adjudicatory and regulatory functions of water resources. Santa Cruz County resides within the auspice of the Central Coast Regional Water Quality Control Board (Regional Board), located in San Luis Obispo. Santa Cruz County Environmental Health Services is defined as a Local Implementing Agency (LTA) which retains local authority to oversee the cleanup of sites with soil contamination, while the Regional Board retains "lead" authority when the contamination impacts water.

The Regional Boards set the priorities and drive the rate at which sites with contaminated groundwater are remediated. Environmental Health staff request, receive, and review copies of all workplans and reports in an effort to stay abreast of the work and progress of sites under the Regional Board's lead. Environmental Health staff provide comments to the Regional Board and/or Responsible Party(ies) when appropriate, necessary, or in the best interest of the overall cleanup effort.

Sites which have contaminated groundwater take much longer to clean up due to the nature of the data that must be collected prior to determining and designing the best remedial alternative. These projects are also more difficult and exponentially more expensive than cases involving only soil contamination. The work on these sites is completed in "phases", with each phase providing additional definition of the problem. State funding is available to assist in the evaluation and cleanup of contaminated sites according to a relatively complicated formula and allocated to correspond with these phases.

As a result of MTBE impacts on drinking water wells in Santa Monica and South Lake Tahoe, as well as the yet undetermined potential harm of this gasoline additive, the State Water Resources Control Board has been prioritizing sites based on their proximity to municipal wells and other sensitive water resources. In the past year there has been a noticeable increase in effort on the part of the Regional Board to expedite sites with the greatest potential for impacts to our drinking water and it is expected these efforts will continue.

As a regular part of these assessment and cleanup efforts, the Regional Board is requiring testing of all water supply wells located within a one-half mile radius of contaminated sites. Current mapping of existing wells is not complete for most parts of the County. While the State is working to improve mapping of all large municipal supply wells in relation to contaminated sites, Environmental Health staff is also working to better identify and map all individual wells and surface water sources. The locations of existing or closed hazardous material facilities will also be mapped.

Prevention of Future Contamination

All facilities which handle, store, or generate hazardous materials are subject to significant regulatory oversight under State law and County ordinance (County Code Chapter 7.100). Facilities submit a hazardous materials management plan and implement practices to prevent, contain, and detect any leaks or spills. Environmental Health staff have jurisdiction over all facilities in the cities and unincorporated areas and regularly inspect facilities to ensure compliance. Despite recent State mandated upgrades of underground storage tank systems, what appear to be new discharges of MTBE continue to occur from many facilities throughout the state. Studies are currently underway to determine the source(s) of these discharges prior to a further tightening of requirements.

Aquifer and Wellhead Protection

Various programs for aquifer and wellhead protection are already in place or under development at the local, state and national level. Wellhead protection programs seek to protect the quality of drinking water by preventing the introduction of contaminants into the part of a groundwater basin tapped by a producing water supply well. Aquifer protection seeks to protect the overall water quality of the larger groundwater basin on a long term basis by ensuring that contaminants do not enter and accumulate in the groundwater basin at harmful concentrations. Wellhead and aquifer protection programs target all potential contaminants: nutrients, salts and pathogens, as well as hazardous chemicals.

Designation of Protection Areas

The first step for groundwater protection is to appropriately identify the areas where contaminants can readily move into the aquifer and into a producing well. This involves identifying broad primary groundwater recharge areas and more localized wellhead protection zones. Santa Cruz County first established protective policies and mapped primary groundwater recharge areas as part of the 1980 General Plan. Although the policies and designations have changed little since 1980, knowledge of groundwater conditions, reliance on groundwater, and potential threats to the resource have all increased dramatically. It is anticipated that the designations and policies will both be reviewed during the next General Plan update.

Federal and state regulations have mandated the designation and assessment of more localized wellhead protection areas through the Drinking Water Source Assessment and Protection program (DWSAP). The assessment includes locating the drinking water sources with Global Positioning System (GPS) technology, defining protection zones around sources, inventorying Possible Contaminating Activities (PCAs) within the zones, and ranking the PCAs to determine which are most threatening to the water source.

Environmental Health is nearing completion of the Drinking Water Source Assessment and Protection program for each of the 123 sources used by Community Water Systems (15 to 199 connections) and Non-Community Water Systems (schools, camps). The program is conducted under contract with the State Department of Health Services (DHS). Water sources serving Large Community Water Systems (more than 199 connections) are being assessed by the individual water agencies, under the review of DHS. Systems with less than 15 connections, and individual wells are not being assessed as part of this program. An example of the protection zones for two Scotts Valley Water District wells is attached (Attachment A).

Regulation of Uses in Groundwater Protection Areas

Once critical aquifer and wellhead protection areas have been identified, the next step is to restrict or regulate land use activities which have a high potential to contribute contaminants to the aquifer or the wellhead protection area. This can range from a simple prohibition of septic systems within 100 feet of a well, to a prohibition of specific land uses through zoning. A listing of potential wellhead protection tools from the USEPA's guide to Wellhead Protection is also attached (Attachment B).

Santa Cruz County currently has policies in the General Plan to limit development density and generally restrict land uses which could contaminate groundwater within groundwater recharge areas. However, there are no specific restrictions on siting of gas stations, hazardous materials facilities, or any other specific uses within either the zoning ordinance or the hazardous materials management ordinance. This issue may need to be considered and the ordinance(s) revised if determined appropriate.

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Potential Additional Protection Measures

Santa Cruz County and the incorporated cities should consider implementing the following efforts to improve aquifer and wellhead protection within the county:

- 1. Complete mapping of wells, water sources and hazardous material facilities as part of the County's Geographic Information System (GIS). Review the mapped information to assist the Regional Board in prioritizing cleanup sites with the greatest potential to impact water supply wells.
- 2. Work with the State Department of Health Services, Environmental Health Services, and the larger water purveyors to complete the Drinking Water Source Assessment and Protection Program and incorporate the designated water source protection zones into the County's GIS.
- 3. Review and update mapping and protection policies for groundwater recharge areas and wellhead protection areas as part of the General Plan update.
- 4. Develop overlay zoning or other restrictions to restrict the location of new gas stations and other hazardous material facilities within critical groundwater protection areas. Evaluate options to encourage phasing out of existing facilities in critical areas.
- 5. Work with water agencies that have groundwater management authority under AB 3030 to implement protective measures as needed for their groundwater basins.
- 6. Actively pursue the identification and proper destruction of abandoned wells in order to eliminate pathways for contamination of deeper aquifers. A priority should be given to areas near wellhead protection zones, known cleanup sites and other hazardous material facilities.
- 7. Provide more property owner education to prevent the discharge of hazardous chemicals into home septic systems.

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ENVIRONMENTAL HEALTH SERVICES

DRINKING WATER SOURCE ASSESSMENT and PROTECTION

(DWSAP)

for

Scotts Valley Water District Scotts Valley, California

September 2001

Todd Engineers 2200 Powell Street, Suite 225 Emeryville, Califoffia 94608 phone: (510) 595-2120 fax: (510) 595-2112 www.toddengineers.com







A GUIDE TO WELLHEAD PROTECTION

Jon Witten and Scott Horsley with Sanjay Jeer and Erin K. Flanagan





American Planning Association

Planning Advisory Service Report Number 4571458

	Applicability to Wellhead Protection	Land Use Practice	Legal Considerations	Administrative Considerations
Regulatory: Zoning Overlay GW Protection Districts	Used to map WHPAs. Provides for identification of sensitive areas for protection. Used in conjunction with other tools that follow.	Community identifies WHPAs on practical base/zoning map.	Well-accepted method of identifying sensitive areas. May face legal challenges if WHYA boundaries are based solely on abitrary delineation.	Requires staff to develop overlay map. Inherent nature of zoning provides "grandfather" protection to pre-existing uses and structures
Prohibition of Various Land Uses	Used within mapped WHPAs to prohibit known groundwater contaminants and uses that generate contaminants.	Community adopts prohibited uses list within their zoning ordinance.	Well-recognized function of zoning. Appropriate technique to protect natural resources from contamination.	Requires amendment to zoning ordinance. Requires enforcement by both visual inspection and on-site investigations.
Special Permitting	Used to restrict uses within WHPAs that may cause ground- water contamination if left unregulated.	Community adopts special permit "thresholds" for various uses and structures within WHPAs. Community grants special permits for "threshold" uses only if ground water quality will not be compro- mised.	Well-recognized method of segregating land uses within critical resource areas such as WHPAs. Requires case-by-case analysis to ensure equal treatment of applicants.	Requires detailed understanding of WHPA sensitivity by local permit granting authority. Requires enforcement of special permit requirements and on-site investigations.
Large-Lot Zooing	Used to reduce impacts of residential development by limiting numbers of units within WHPAs.	Community "downzones" to increase minimum acreage needed for residential development.	Well-recognized perogative of local government. Requires rational connection between minimum lot size selected and resource protection goals. Arbitrary large lot zones have been struck down without logical	Requires amendment to zoning ordinance.
Transfer of Development Rights	Used to transfer development from WHPAs to locations outside WHPAs.	Community offers transfer option within zoning ordinance. Community identifies areas where development is to be transferred "from" and "to".	connection to Master Plan or WHPA program. Accepted land-use planning tool.	Cumbersome administrative requirements. Not well-suited for small communities without significant 0 administrative resources. 6

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Cluster/PUD Design	Used to guide residential development outside of WHPAs. Allows for "point source" discharges that are more casily monitored.	Community offers cluster/PUD as development option within zoning ordinance. Community identifies areas where cluster/PUD is allowed (i.e., within WLIPAs).	Well-accepted option for residential land development.	Slightly more complicated to administer than traditional "grid" subdivision. Enforement/inspection require- ments are similar to "grid" subdivision.
Growth Controls/Timing	Used to time the occurrence of development within WHPAs. Allows communities the opportunity to plan for wellhead delineation and protection.	Community imposes growth controls in the form of building caps, subdivision phasing or other limitation fied to planning concerns.	Well-accepted option for commu- nities facing development pressures within sensitive resource areas. Growth controls may be challenged if they are imposed without a rational connection to the resource being protected.	Generally complicated administra- tive process. Requires administrative staff to issue permits and enforce growth control ordinances.
Performance Standards	Used to regulate development within WHPAs by enforcing pre- determined standards for water quality. Alldws for aggressive protection of WHPAs by limiting develop- ment within WHPAs to an accepted level.	Community identifies WHPAs and establishes "thresholds" for water quality.	Adoption of specific WHPA performance standards requires sound technical support. Performance standards must be enforced on a case-by-case basis.	Complex administrative require- ments to evaluate impacts of land development within WHPAs.
Regulatory: Subdivision Control Drainage Requirements	Used to ensure that subdivision road drainage is directed outside of WHPAs. Used to employ advanced engineering designs of subdivision roads within WHPAs.	Community adopts stringent subdivision rules and regulations to regulate road drainage/runotf in subdivisions within WHPAs.	Well-accepted purpose of subdivision control.	kequires moderate level of inspection and enforcement by administrative staff.

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	Applicability to Wellhead Protection	Land Use Practice	Legal Considerations	Administrative Considerations
Regulatory: Health Regulations Underground Fuel Storage Systems	Used to prohibit underground fuel storage systems (UST) within WHPAs. Used to regulate USTs within WHPAs.	Community adopts health/zoning ordinance prohibiting USTs within WHPAs. Community adopts special permit or performance standards for use of USTs within WHPAs.	Well-accepted regulatory option for local government.	Prohibition of USTs require little administrative support. Regulating USTs require moderate amounts of administrative support for inspection follow-up and enforcement.
Privately Owned Wastewater Treatment Plants (Small Sewage Treatment Plants)	Used to prohibit Small Sewage Treatment Plants (SSTP) within WHPAs.	Community adopts health/zoning ordinance prohibiting SSTPs within WLIPAs. Community adopts special permit or performance standards for use of SSTPs within WHPAs.	Well-accepted regulatory option for local government.	Prohibition of SSTPs require little administrative support. Regulating SSTPs require moderate amount of administra- tive support for inspection followup and enforcement.
Septic Cleaner Ban	Used to prohibit the application of certain solvent septic cleaners within WHPAs, a known groundwater contaminant.	Community adopts health/zoning ordinance prohibiting the use of septic cleaners containing 1,1,1- Trichloroethane or other solvent compounds within WHPAs.	Well-accepted method of protecting groundwater quality.	Difficult regulation to enforce even with sufficient administrative support.
Septic System Upgrades	Used to require periodic inspection and upgrading of septic systems.	Community adopts leadth/zoning, ordinance requiring inspection and, if necessary, upgrading of septic systems on a time basis (e.g. every 2 years) or upon title/ property transfer.	Well-accepted purview of government to ensure protection of groundwater.	Significant administrative resources required for this option to be successful.
Toxic and Hazardous Materials Handling Regulations	Used to ensure proper handling and disposal of toxic materials/ waste.	Community adopts health/zoning ordinance requiring registration and inspection of all businesses within WHPA using toxic/ hazardous materials above certain quantities.	Well-accepted purview of government to ensure protection of groundwater.	Requires administrative support and on-site inspections.

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Private Well Protection	Used to protect private on-site water supply wells.	Community adopts health/zoning ordinance to require permits for new private wells and to ensure appropriate well to septic system setbacks. Also requires pump and water- quality testing.	Well-accepted purview of government to ensure protection of groundwater.	Requires administrative support and review of applications.
Nonregulatory: Land Transfer and Voluntary Restrictions Sale/Donation	Land acquired by a community within W11PAs, either by purchase or donation. Provides broad protection to the groundwater supply.	As nonregulatory technique, communities generally work in partnership with nonprofit land conservation organizations.	There are many legal conse- quences of accepting land for donation or sale from the private sector, mostly involving liability.	There are few administrative requirements involved in accepting donations or sales of land from the private sector. Administrative requirements for maintenance of land accepted or purchased may be substantial, particularly if the community does
Conservation Easements	Can be used to limit development within W11PAs.	Similar to sales/donations, conservation easements are generally obtained with the assistance of nonprofit land conservation organization.	Same as above.	not have a program for open space maintenance. Same as above.
Limited Development	As the title implies, this technique limits development to portions of a land parcel outside of WHPAs.	Land developers work with community as part of a cluster/ PUD to develop limited portions of a site and restrict other portions, particularly those within WHPAs.	Similar to those noted in cluster/ PUD under zoning:	Similar to those noted in cluster/ PUD under zoning.
Monitoring	Used to monitor groundwater quality within WHPAs.	Communities establish groundwater monitoring program within WHPA. Communities require developers within WHPAs to monitor groundwater quality downgradi- ent from their development.	Accepted method of ensuring groundwater quality.	Requires moderate administrative staffing to ensure routine sampling and response if sampling indicates contamination.

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	Applicability to Wellhead Protection	Land Use Practice	. I eral Considerations	Administrative Considerations
Contingency Plans	Used to ensure appropriate response in cases of contaminant release or other emergencies within WHPA.	Community prepares a contin- gency plan involving wide range of municipal/county officials.	Neme	Requires significant up-front planning to anticipate and be prepared for emergencies.
Hazardous Waste Collection	Used to reduce accumulation of hazardous materials within WHPAs and the community at large.	Communities, in cooperation with the state, regional planning commission, or other entity, sponsor a "hazardous waste collection day" several times per year.	There are several legal issues raised by the collection, transport, and disposal of hazardous waste.	Hazardous waste collection programs are generally sponsored by government agencies, but administered by a private contractor.
Public Education	Used to inform community residents of the connection between land use within WHPAs and drinking water quality.	Communities can employ a variety of public education techniques ranging from bro- chures detailing their WHPA program to seminars to involve- ment in events such as hazardous waste collection days.	No outstanding legal considera- tions.	Requires some degree of adminis- trative support for programs, such as brochure mailing, to more intensive support for seminars and hazardous waste collection days.
Legislative: Regional WHPA Districts	Used to protect regional aquifer systems by establishing new legislative districts that often transcend existing corporate boundaries. Used to acquire and protect land within WHPAs.	Requires state legislative action to create a new legislative authority. I and banks are usually accom- plished with a transfer tax established by state government empowering local government to impose a tax on the transfer of	Well-accepted method of protecting regional groundwater resources. Land banks can be subject to legal challenge as an unjust tax, but have been accepted as a legitimate method of raising revenue for resource protection.	Administrative requirements will vary depending on the goal of the regional district. Mapping of the regional WHPAs requires moderate administrative support, while creating land-use controls within the WHPA will require significant administrative personnel and support. Land banks require significant administrative support if they are to function effectively.
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