Rubidoux Community Services District; Water Department

Street address of Organization: 3590 Rubidoux Boulevard; Riverside, CA 92509
Mailing address of Organization: P.O. Box 3098; Riverside, CA 92509

PROGRAM: Rubidoux Large Water Supply Systems Monitoring

The community water system (consisting of more than 5,500 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled quarterly for minerals, organic compounds, and radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Rubidoux, Northeastern section of Riverside County
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 05/01/1989 (dates may be approximate).
KEYWORDS: administrative support, ground water modeling, ground water monitoring, pertinent reports available, planning, site inspection, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: David Lopez, Secretary - Manager
PHONE: (714) 684-7580 This summary information was LAST VERIFIED on: 05/01/1989

PROJECT: Santa Ana Riverbasin Plan Upgrade

The purpose of the Project is to upgrade the Santa Ana Watershed plan by coupling EPA and the Santa Ana Regional Water Resources Control Board models for TDS and nitrates.

GEOGRAPHIC COVERAGE: Rubidoux, Northeastern section of Riverside County
THIS ACTIVITY STARTED: 02/01/1988 and CONTINUING as of: 05/01/1989 (dates may be approximate).
KEYWORDS: ground water modeling, basin plan modeling, TDS, nitrates.
FOR DETAILS, CONTACT: David Lopez, Secretary - Manager
PHONE: (714) 684-7580 This summary information was LAST VERIFIED on: 05/01/1989

STUDY: Management of Water Resources of the Santa Ana Watershed River Basin

The objective of the study is to develop long-range plans for managing the water resources of the Santa Ana Watershed River Basin. The study is being undertaken in conjunction with the Bureau of Reclamation.

GEOGRAPHIC COVERAGE: Rubidoux, Northeastern section of Riverside County
THIS ACTIVITY STARTED: 04/01/1988 and CONTINUING as of: 05/01/1989 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, water resources, santa ana watershed river basin.
FOR DETAILS, CONTACT: David Lopez, Secretary - Manager
PHONE: (714) 684-7580 This summary information was LAST VERIFIED on: 05/01/1989

Sacramento County; Environmental Management Department

Street address of Organization: 8475 Jackson Road Suite 240; Sacramento, CA 95826

PROGRAM: Sacramento County Hazardous Waste Management Plans

Each county develops a plan for the management of all hazardous wastes produced by industries, homes, and other sources in their jurisdiction. The hazardous waste management plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste facilities. The existing facilities that can be expanded are identified, as are sites that would be suitable for the placement of future facilities.

Reference: AB2948 (1986, Tanner)

GEOGRAPHIC COVERAGE: Sacramento County
THIS ACTIVITY STARTED: 12/15/1988 and CONTINUING as of: 07/29/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, permitting, planning, site investigation, technical support, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: Kenneth Stuart, Chief, Environmental Health Division
PHONE: (916) 386-6111 This summary information was LAST VERIFIED on: 07/29/1988

CONTINUED FROM: **Sacramento County; Environmental Management Department**
PROGRAM: Sacramento County Small Water Supply Systems Monitoring Program

KEYWORDS: ground water monitoring, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Kenneth Stuart, Chief, Environmental Health Division
PHONE: (916) 386-6111 This summary information was LAST VERIFIED on: 08/05/1988

PROGRAM: Sacramento County Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring systems installed at the tank locations.
Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 5 years, whereas the underground tank and the monitoring records are inspected every year.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: Sacramento County
THIS ACTIVITY STARTED: 01/01/1985 and CONTINUING as of: 08/08/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Mel Knight, Chief of Hazardous Material Division
PHONE: (916) 386-6160 This summary information was LAST VERIFIED on: 08/08/1988

PROGRAM: Sacramento County Water Well Permitting

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells. Regulations are enforced through a permit program.

References: California Water Code Sections 231, 13800, Sacramento County Code, Chapter 6.28.

After 1990, all counties will be required to adopt a well permitting ordinance, either a State model ordinance or their own.

References: Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: Sacramento County
THIS ACTIVITY STARTED: 01/01/1955 and CONTINUING as of: 08/05/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, site inspection, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Kenneth Stuart, Chief, Environmental Health Division
PHONE: (916) 386-6111 This summary information was LAST VERIFIED on: 08/05/1988

STUDY: Sacramento Urban Area Ground Water Study for Chemical Contaminates

This study was along the same lines as AB1803, except it was executed for private wells pumping shallow ground water. A total of 60 private wells were tested for heavy metals, pesticides, petroleum-based fuels, and other organic chemicals. The grant for the study was provided by the Central Valley Regional Quality Control Board.

GEOGRAPHIC COVERAGE: Sacramento County
THIS ACTIVITY STARTED: 04/08/1986 and ENDED: 06/29/1987 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, private wells, shallow ground water, heavy metals, pesticides, petroleum-based fuels, organic chemicals, AB1803.
FOR DETAILS, CONTACT: Ken Knight, Principal Environmental Health Sanitarian
PHONE: (916) 386-6191 This summary information was LAST VERIFIED on: 08/05/1988

Sacramento County; Public Works Department; Water Quality Division

Street address of Organization: 9660 Ecology Lane; Sacramento, CA 95827

STUDY: Geologic and Hydrologic Study for an Area Northeast of Elk Grove for the County of Sacramento

Purpose: To determine the impact of septic tank effluent on nitrate concentration in ground water.

Methodology: Computer modeling, followed by ground water sampling for purposes of model calibration.

Objective: To determine allowable density of septic tanks which would not adversely impact ground water.

CONTINUED FROM: **Sacramento County; Public Works Department; Water Quality Division**
STUDY: Geologic and Hydrologic Study for an Area Northeast of Elk Grove for the County of Sacramento

GEOGRAPHIC COVERAGE: 33 square miles: one and a half mile northeast of Elk Grove
THIS ACTIVITY STARTED: 07/01/1987 and ENDED: 09/01/1988 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, hydrogeology, pertinent reports available, studies ground water pollutant transport, septic tanks, nitrates, septic tank effluent.
FOR DETAILS, CONTACT: Pat Gaffney, Principal Civil Engineer
PHONE: (916) 855-8255 This summary information was LAST VERIFIED on: 07/22/1988

Sacramento County; Public Works Department; Water Resources Division

Street address of Organization: 827 Seventh Street Room 301; Sacramento, CA 95814

PROGRAM: Sacramento County Ground Water Contour Elevation Monitoring Program

This program maintains monitoring information on ground water depth and pumping holes.

GEOGRAPHIC COVERAGE: Sacramento County
THIS ACTIVITY STARTED: 01/01/1968 and CONTINUING as of: 08/01/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water monitoring, planning, ground water depth, pumping holes.
FOR DETAILS, CONTACT: Wil Nishina, Assistant Civil Engineer
PHONE: (916) 440-6851 This summary information was LAST VERIFIED on: 08/01/1988

San Ardo Water District

Mailing address of Organization: P.O. Box 238; San Ardo, CA 93450

PROGRAM: San Ardo Water District Small Water Supply Systems Monitoring

The community water system (consisting of less than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: San Ardo
THIS ACTIVITY STARTED: 01/01/1958 and CONTINUING as of: 07/12/1989 (dates may be approximate).
KEYWORDS: allocates funds, ground water cleanup, ground water monitoring, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Pam Harrington, Clerk
PHONE: (408) 627-2349 This summary information was LAST VERIFIED on: 07/12/1989

PROGRAM: San Ardo Water District Regulation of On-Site Sewage Disposal Systems

The installation and maintenance of individual waste disposal systems (consisting of septic tanks) are regulated by a permit program. Various parameters, setbacks, ground water levels, lot size, and the proximity of water supply wells are checked before issuing building permits. Monitoring tests are conducted by an outside agency to determine the suitability of the leach field to accept waste loads.

GEOGRAPHIC COVERAGE: San Ardo
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 07/12/1989 (dates may be approximate).
KEYWORDS: allocates funds, ground water cleanup, ground water monitoring, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Pam Harrington, Clerk
PHONE: (408) 627-2349 This summary information was LAST VERIFIED on: 07/12/1989

San Benito County Water District

Mailing address of Organization: P.O. Box 899; Hollister, CA 95024

PROGRAM: San Benito County Water District Recharge Program

Water is allowed to percolate into the ground water at four points within the District known to readily accept surface water. Meters measure the rate and amount of water that is released for recharge. Records are stored at the district office.

GEOGRAPHIC COVERAGE: Hollister and San Juan Valleys
THIS ACTIVITY STARTED: 01/01/1987 and CONTINUING as of: 11/13/1989 (dates may be approximate).
KEYWORDS: enforcement, pertinent reports available, site inspection, site investigation, technical support, percolation points, meters, streams, ground water.

CONTINUED FROM: **San Benito County Water District**
PROGRAM: San Benito County Water District Recharge Program

FOR DETAILS, CONTACT: William Rupert, District Manager
PHONE: (408) 637-8218 This summary information was LAST VERIFIED on: 11/13/1989

San Bernardino County; Department of Environmental Health

Street address of Organization: 385 North Arrowhead; San Bernardino, CA 92415

PROGRAM: San Bernardino County--Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and for radioactivity every 4 years. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: San Bernardino County
THIS ACTIVITY STARTED: 01/01/1979 and CONTINUING as of: 08/24/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Paul Ryan, Director
PHONE: (714) 387-4646 This summary information was LAST VERIFIED on: 08/24/1988

PROGRAM: San Bernardino County--Small Water Supply Systems Monitoring Program

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: San Bernardino County
THIS ACTIVITY STARTED: 01/01/1974 and CONTINUING as of: 08/24/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Paul Ryan, Director
PHONE: (714) 387-4646 This summary information was LAST VERIFIED on: 08/24/1988

PROGRAM: San Bernardino County--Regulation of On-Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program conducts percolation tests to determine the suitability of the leach field for treating wastes, checks for setback before issuing building permits, and ensures that there is good separation from water supply wells.

GEOGRAPHIC COVERAGE: San Bernardino County
THIS ACTIVITY STARTED: 01/01/1963 and CONTINUING as of: 08/24/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, septic tanks, sewage, leach fields, seepage pits, percolation tests, wells,.
FOR DETAILS, CONTACT: Paul Ryan, Director
PHONE: (714) 387-4646 This summary information was LAST VERIFIED on: 08/24/1988

PROGRAM: San Bernardino County--Hazardous Waste Management Plans

San Bernardino County has a general plan for the management of all hazardous wastes produced by industries, homes, and other sources in their jurisdiction. Their hazardous waste management plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste facilities. The existing facilities that can be expanded are identified, as are sites that would be suitable for the placement of future facilities.

Reference: AB2948 (1986, Tanner)

CONTINUED FROM: **San Bernardino County; Department of Environmental Health**
PROGRAM: San Bernardino County--Hazardous Waste Management Plans

GEOGRAPHIC COVERAGE: San Bernardino County
THIS ACTIVITY STARTED: 01/01/1987 and CONTINUING as of: 08/24/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, enforcement, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: Paul Ryan, Director
PHONE: (714) 387-4646 This summary information was LAST VERIFIED on: 08/24/1988

PROGRAM: San Bernardino County--Hazardous Materials Spills

San Bernardino County has prepared an area-wide emergency response plan to hazardous materials spills as outlined by the Office of Emergency Services. The emergency response plan outlines the responsibilities of the agencies involved. Events are coordinated with the appropriate incident commander, resources necessary to handle the spill are gathered, the spill is isolated and the media is informed. Appropriate people are called in to assess the extent of needed cleanup procedures.

All individual businesses that handle hazardous materials must submit to the county their own plan for responding to an accidental release of these materials as well as an annual inventory of their hazardous materials. This information is on file at the governing agency and is available to the public.

A city may assume the responsibility of preparing an emergency response plan within its jurisdiction by enacting an ordinance. If a city assumes this responsibility, it must coordinate its activities with the county.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: San Bernardino County
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 08/24/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, enforcement, ground water modeling, ground water monitoring, pertinent reports available, planning, site inspection, site investigation, technical support, hazardous material spills, emergency response plan, inventory, land use decisions, AB2185.
FOR DETAILS, CONTACT: Paul Ryan, Director
PHONE: (714) 387-4646 This summary information was LAST VERIFIED on: 08/24/1988

PROGRAM: San Bernardino County--Sanitary Landfill Ground Water Monitoring Program

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located in the vicinity of the landfill. The samples are obtained from the first encountered ground water and are tested monthly for pH, and specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness.

The results of the monitoring program are maintained by the Regional Water Quality Control Board in the 'Waste Discharger Monitoring Files' as well as by the county office.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: San Bernardino County
THIS ACTIVITY STARTED: 10/01/1979 and CONTINUING as of: 08/24/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, enforcement, ground water modeling, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, landfill, well, ph, conductance, COD, chloride, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Paul Ryan, Director
PHONE: (714) 387-4646 This summary information was LAST VERIFIED on: 08/24/1988

PROGRAM: San Bernardino County--Water Well Permitting

The siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells are regulated through a permit program. After 1990, all counties will be required to adopt a well permitting ordinance, either a State model ordinance or their own.

References: California Water Code Sections 231, 13800; DWR Bulletin 74-81 (Water Well Standards: State of California); Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: San Bernardino County
THIS ACTIVITY STARTED: 11/01/1974 and CONTINUING as of: 08/24/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, permitting, pertinent reports available, site inspection, site investigation, technical support, water wells, construction, abandonment, destruction, permitting.
FOR DETAILS, CONTACT: Paul Ryan, Director
PHONE: (714) 387-4646 This summary information was LAST VERIFIED on: 08/24/1988

PROGRAM: San Bernardino County--Proposition 65 Notification Program

Proposition 65 prohibits the release of chemicals known to the state to cause cancer or reproductive toxicity into the water or onto land where groundwater contamination could occur. A log is maintained of designated government employees who disclose information on illegal releases to the local Board of Supervisors or to the local health officer and the action they take as a result. The information is also given to the local newspapers for publication.

GEOGRAPHIC COVERAGE: San Bernardino County
THIS ACTIVITY STARTED: 01/01/1987 and CONTINUING as of: 08/25/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, pertinent reports available, site inspection, site investigation, technical support, proposition 65, notification, cancer, reproductive toxicity.
FOR DETAILS, CONTACT: Peter Briterey, Supervisor of Hazardous Materials Emergency Program
PHONE: (714) 387-3044 This summary information was LAST VERIFIED on: 08/25/1988

PROGRAM: San Bernardino County--Land Use Approval Process

The County Health Department approves land use plans for the construction and development of large water supply systems within San Bernardino County.

GEOGRAPHIC COVERAGE: San Bernardino County
THIS ACTIVITY STARTED: 01/01/1979 and CONTINUING as of: 08/24/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, planning, site investigation, land use, planning, water supply.
FOR DETAILS, CONTACT: Paul Ryan, Director
PHONE: (714) 387-4646 This summary information was LAST VERIFIED on: 08/24/1988

PROGRAM: San Bernardino County--Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.
Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 5 years, whereas the underground tank and the monitoring records are inspected every year.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: San Bernardino County
THIS ACTIVITY STARTED: 01/01/1984 and CONTINUING as of: 08/24/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, enforcement, ground water modeling, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Paul Ryan, Director
PHONE: (714) 387-4646 This summary information was LAST VERIFIED on: 08/24/1988

San Bernardino Valley Water Conservation District

Street address of Organization: 303 Brookside; Redlands, CA 92373

PROGRAM: Groundwater Recharge (Water Spreading)

The major role of the San Bernardino Valley Water Conservation District is to recharge groundwater from the Santa Ana River and Mill Creek. The District also measures water levels in certain wells within the District.

GEOGRAPHIC COVERAGE: Eastern Portion of San Bernardino Valley
THIS ACTIVITY STARTED: 01/01/1909 and CONTINUING as of: 11/15/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water monitoring, planning, site inspection, site investigation, technical support, recharge, spreading, water level.
FOR DETAILS, CONTACT: William Hiltgen, Manager
PHONE: (714) 793-2503 This summary information was LAST VERIFIED on: 11/15/1988

San Diego County; Environmental Health Department

Street address of Organization: 5201 Ruffin Road, Suite C-0564; San Diego, CA 92123

PROGRAM: San Diego County Regulation of On-Site Sewage Disposal Systems

The installation and maintenance of individual waste disposal systems (consisting of septic tanks and leach fields) are regulated by a permit program. Various parameters, setbacks, ground water levels, lot size, and the proximity of water supply wells are checked before issuing building permits. Percolation tests are conducted to determine the suitability of the leach field to accept waste loads.

CONTINUED FROM: **San Diego County; Environmental Health Department**
PROGRAM: San Diego County Regulation of On-Site Sewage Disposal Systems

GEOGRAPHIC COVERAGE: San Diego County
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 03/23/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Frank Gabrian, Environmental Health Specialist
PHONE: (619) 338-2222 This summary information was LAST VERIFIED on: 03/23/1990

PROGRAM: San Diego County Small Water Supply Systems Monitoring

The community and non-community water systems (consisting of less than 200 service connections) are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and inorganic compounds. Non-community supply wells are sampled only one time for minerals and inorganic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: San Diego County
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 03/23/1990 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Mary Lou White, Environmental Health Specialist
PHONE: (619) 565-5173 This summary information was LAST VERIFIED on: 03/23/1990

PROGRAM: San Diego County Water Well Permitting

The siting, drilling, and construction of new water wells, the deepening and reperforation of existing wells, and the abandonment and destruction of old wells are regulated through a permit program. All counties will be required to adopt a well permitting ordinance in 1990, either the State of California's model ordinance or their own.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California); Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: San Diego County
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 03/23/1990 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, pertinent reports available, site inspection, site investigation, technical support, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Mary Lou White, Environmental Health Specialist
PHONE: (619) 565-5173 This summary information was LAST VERIFIED on: 03/23/1990

San Diego County; Environmental Health Services; Hazardous Materials Management Division

Mailing address of Organization: P.O. Box 85261; San Diego, CA 92138-5261

PROGRAM: San Diego County Ground Water Monitoring Program

Monitoring wells are located in areas where hazardous materials are stored or expected to be stored. Wells are regularly sampled for indications of ground water contamination. Ground water levels and aquifer characteristics in these areas are also measured as part of the program.

References: DWR Bulletin 74-81 (Water Well Standards: State of California); San Diego County Well Ordinance.

GEOGRAPHIC COVERAGE: San Diego County
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 03/28/1990 (dates may be approximate).
KEYWORDS: ground water cleanup, enforcement, ground water monitoring, permitting, pertinent reports available, site inspection, site investigation, technical support, water wells, hazardous materials, contamination, abandonment, destruction.
FOR DETAILS, CONTACT: Custodian of Records, Supervising Clerk
PHONE: (619) 338-2222 This summary information was LAST VERIFIED on: 03/28/1990

PROGRAM: San Diego County Underground Storage Tanks Regulation

The design, construction, closure and abandonment of storage tanks are regulated by a permit program. Permits for underground tanks are renewed, modified, or terminated based on an inspection of the tank, drainage system, and monitoring system. The permit is valid for 5 years and cannot be renewed unless the underground tank has been inspected within the prior 3 years. More frequent testing is usually required since any monitoring system must be capable of determining the containment ability of the underground storage tank and detecting any unplanned releases.

References: California Code of Regulations, Title 23, Chapter 3, Subchapter 16; California Health and Safety Code, Division 20, Chapter 6.7.

GEOGRAPHIC COVERAGE: San Diego County
THIS ACTIVITY STARTED: 05/01/1984 and CONTINUING as of: 03/28/1990 (dates may be approximate).
KEYWORDS: enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Custodian of Records, Supervising Clerk
PHONE: (619) 338-2222 This summary information was LAST VERIFIED on: 03/28/1990

San Francisco County; Solid Waste Management Program

Street address of Organization: City Hall; San Francisco, CA 94102

PROGRAM: San Francisco County Hazardous Waste Management Plan

The county developed a plan for the management of all hazardous wastes produced by industries, homes, and other sources in its jurisdiction. The hazardous waste management plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste facilities. The existing facilities that can be expanded are identified, as are sites that would be suitable for the placement of future facilities.

Reference: AB2948 (1986, Tanner)

GEOGRAPHIC COVERAGE: San Francisco County
THIS ACTIVITY STARTED: 10/01/1987 and CONTINUING as of: 07/18/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, permitting, pertinent reports available, planning, site investigation, technical support, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: Joseph E. Johnson, Program Manager
PHONE: (415) 554-6187 This summary information was LAST VERIFIED on: 07/18/1988

PROGRAM: San Francisco County Solid Waste Management Plan

The following elements are included in the plan:
1) a summary of the solid waste management goals within the city for the next 20 years;
2) estimates of the quantity of waste, including composition of the waste stream and recycling levels;
3) projections of future waste quantity and composition;
4) an assessment of future solid waste disposal needs;
5) an analysis of collection and disposal practices; and
6) methods to reduce the waste stream, including minimization, recycling, composting and waste to energy conversion processes.

GEOGRAPHIC COVERAGE: San Francisco County
THIS ACTIVITY STARTED: 10/01/1987 and CONTINUING as of: 07/18/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, pertinent reports available, planning, site inspection, solid waste, waste composition, recycling, waste collection, waste disposal, future projections, minimization, waste to energy.
FOR DETAILS, CONTACT: Joseph E. Johnson, Program Manager
PHONE: (415) 554-6187 This summary information was LAST VERIFIED on: 07/18/1988

San Gabriel County Water District

Street address of Organization: P. O. Box 475; Rosemead, CA 91770

PROGRAM: San Gabriel County Water District Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

CONTINUED FROM: **San Gabriel County Water District**
PROGRAM: San Gabriel County Water District Large Water Supply Systems Monitoring

GEOGRAPHIC COVERAGE: Cities of San Gabriel, Rosemead, and Temple
THIS ACTIVITY STARTED: 08/01/1987 and CONTINUING as of: 08/08/1990 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Phillip Crocker, District Manager
PHONE: (213) 283-2629 This summary information was LAST VERIFIED on: 08/08/1990

San Gabriel River Watermaster

Street address of Organization: 100 North Brand, Suite 600; Glendale, CA 91203

PROGRAM: San Gabriel River Watermaster Program

The transfer of water from the San Gabriel Basin to the Central Basin was adjudicated by action of the State Superior Court to guarantee both surface and subsurface flow to Central Basin. A court-appointed Board (Watermaster) ensures confirmation with court orders and water use agreements through an accounting system and ground water level monitoring network. Their duties include:

1. Maintaining current daily streamflow records of water import, export, and use.
2. Recording ground water levels.
3. Monitoring water quality.
4. Compiling annual reports.

GEOGRAPHIC COVERAGE: Southern Part of Los Angeles County
THIS ACTIVITY STARTED: 01/01/1964 and CONTINUING as of: 07/03/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water monitoring, pertinent reports available, planning, technical support, adjudication, watermaster,.
FOR DETAILS, CONTACT: Bill O'Brien, Civil Engineer
Bookman-Edmonston Engineering, Inc.
100 North Brand, Suite 600; Glendale, CA 91203
PHONE: (818) 244-0117 This summary information was LAST VERIFIED on: 07/03/1990

San Gabriel Valley Water Company

Mailing address of Organization: P.O. Box 6010; El Monte, CA 91734

PROGRAM: San Gabriel Valley Water Company Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals, quarterly for organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Includes Central and Mid-Western Part of Los Angeles County
THIS ACTIVITY STARTED: 01/01/1959 and CONTINUING as of: 05/09/1990 (dates may be approximate).
KEYWORDS: ground water monitoring, planning, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Dan Arrighi, Water Quality Superintendent
PHONE: (818) 448-6183 This summary information was LAST VERIFIED on: 05/09/1990

San Joaquin County; County Office of Emergency Services

Street address of Organization: 222 East Weber Avenue Rm. 610; Stockton, CA 95202

PROGRAM: San Joaquin County Hazardous Materials Management Program

The County Office of Emergency Services prepares an area-wide emergency response plan to hazardous materials spills. The emergency response plan outlines the responsibilities of the agencies involved. Events are coordinated with the appropriate incident commander, resources necessary to handle the spill are gathered, the spill is isolated and the media is informed. Appropriate people are called in to assess the extent of needed cleanup procedures.

All individual businesses that handle hazardous materials in certain quantities must submit to the County Office of Emergency Services, their own Hazardous Materials Management Plan for responding to an accidental release of these materials as well as an annual inventory of their hazardous materials. This information is on file at the administering agency and is available to the public.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: San Joaquin County
THIS ACTIVITY STARTED: 10/01/1986 and CONTINUING as of: 08/18/1988 (dates may be approximate).

CONTINUED FROM: **San Joaquin County; County Office of Emergency Services**
PROGRAM: San Joaquin County Hazardous Materials Management Program

KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, pertinent reports available, planning, site inspection, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Janet S. Keeter, Hazardous Materials Program Manager
PHONE: (209) 944-2116 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Cleanup at San Joaquin County Toxic Contamination Sites

The purpose of this study was to establish a comprehensive picture of the toxic sites in San Joaquin County in order to prioritize the extent of the risk to public health, and therefore, develop an effective system for administering site cleanups.

GEOGRAPHIC COVERAGE: San Joaquin County
THIS ACTIVITY STARTED: 04/01/1985 and ENDED: 01/01/1986 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, toxic sites, contamination, cleanup, hazardous materials.
FOR DETAILS, CONTACT: Janet S. Keeter, Hazardous Materials Program Manager
PHONE: (209) 944-2116 This summary information was LAST VERIFIED on: 08/18/1988

San Joaquin County; Environmental Health Division

Street address of Organization: 1601 East Hazleton; Stockton, CA 95201
Mailing address of Organization: P.O. Box 2009; Stockton, CA 95201

PROGRAM: San Joaquin County Regulation of On-Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program conducts percolation tests on new lots to determine the suitability of the leach field for treating wastes, checks for setback before issuing building permits, and ensures that there is good separation from water supply wells.

GEOGRAPHIC COVERAGE: The Unincorporated Areas of San Joaquin County
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 08/09/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, planning, site inspection, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Fred Kaufman, Supervising Sanitarian
PHONE: (209) 468-3426 This summary information was LAST VERIFIED on: 08/09/1988

PROGRAM: San Joaquin County Sanitary Landfill Ground Water Monitoring Program

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located in the vicinity of the landfill. The samples are obtained from the first encountered ground water and are tested monthly for pH and specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness.
The results of the monitoring program are maintained by the county office.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: San Joaquin County
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 09/14/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, planning, site inspection, technical support, landfill, well, ph, conductance, COD, chloride, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Al Olsen, Supervising Sanitarian
PHONE: (209) 468-3420 This summary information was LAST VERIFIED on: 09/14/1988

PROGRAM: San Joaquin County Small Water Supply Systems Monitoring Program

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration. Individual community supply wells are sampled every 3 years for minerals, inorganic compounds, and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.
The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

CONTINUED FROM: **San Joaquin County; Environmental Health Division**
PROGRAM: San Joaquin County Small Water Supply Systems Monitoring Program

GEOGRAPHIC COVERAGE: San Joaquin County
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 08/09/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Carl Borgman, Supervising Engineer
PHONE: (209) 468-3423 This summary information was LAST VERIFIED on: 08/09/1988

PROGRAM: San Joaquin County Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.
Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 5 years, whereas the underground tank and the monitoring records are inspected every year.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: San Joaquin County
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 09/09/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, planning, site inspection, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Laurie Cotulla, Supervising Sanitarian
PHONE: (209) 468-3423 This summary information was LAST VERIFIED on: 09/09/1988

PROGRAM: San Joaquin County Water Well Permitting

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells. Regulations are enforced through a permit program.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California).

After 1990, all counties will be required to adopt a well permitting ordinance, either a State model ordinance or their own.

References: Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: All of San Joaquin County Except Stockton and Tracy
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 08/09/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Carl Borgman, Supervising Engineer
PHONE: (209) 468-3423 This summary information was LAST VERIFIED on: 08/09/1988

San Joaquin County; Public Works Department

Street address of Organization: 1810 East Hazelton; Stockton, CA 95202
Mailing address of Organization: P.O. Box 1810; Stockton, CA 95201

PROGRAM: San Joaquin County Hazardous Waste Management Plans

Each county develops a plan for the management of all hazardous wastes produced by industries, homes, and other sources in their jurisdiction. The hazardous waste management plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste facilities. The existing facilities that can be expanded are identified, as are sites that would be suitable for the placement of future facilities.

Reference: AB2948 (1986, Tanner)

GEOGRAPHIC COVERAGE: San Joaquin County
THIS ACTIVITY STARTED: 07/01/1987 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, permitting, pertinent reports available, planning, site investigation, technical support, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: Gordon Lillis, Hazardous Waste Plan Coordinator
PHONE: (209) 468-3066 This summary information was LAST VERIFIED on: 08/18/1988

PROGRAM: San Joaquin County Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and for radioactivity every 4 years. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: San Joaquin County Service Areas
THIS ACTIVITY STARTED: 01/01/1960 and CONTINUING as of: 07/29/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Tom Iwamiya, Water Resources Engineer
PHONE: (209) 468-3062 This summary information was LAST VERIFIED on: 07/29/1988

PROGRAM: Semiannual Ground Water Monitoring Program for San Joaquin County

This program involves measuring ground water levels, and sampling for chlorides and total dissolved solids on a semiannual basis around the San Joaquin county metropolitan area.

GEOGRAPHIC COVERAGE: San Joaquin County
THIS ACTIVITY STARTED: 01/01/1970 and CONTINUING as of: 07/29/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, ground water levels, semiannual, chlorides, total dissolved solids (tds).
FOR DETAILS, CONTACT: Tom Iwamiya, Water Resources Engineer
PHONE: (209) 468-3062 This summary information was LAST VERIFIED on: 07/29/1988

STUDY: Eastern San Joaquin County Ground Water Study

The purpose of this study was to estimate if a trend in the depletion of ground water was one which would require more water to be obtained from the surface supply, rather than the ground supply. This study also examined the existence of salt water intrusion and its affects on the surrounding area.

GEOGRAPHIC COVERAGE: Most of Eastern San Joaquin County
THIS ACTIVITY STARTED: 01/01/1983 and ENDED: 01/01/1986 (dates may be approximate).
KEYWORDS: ground water usage, pertinent reports available, project planning, studies sources of pollution, salt water intrusion, surface water.
FOR DETAILS, CONTACT: Tom Iwamiya, Water Resources Engineer
PHONE: (209) 468-3062 This summary information was LAST VERIFIED on: 07/29/1988

San Joaquin County; Public Works Department; Solid Waste Division

Street address of Organization: 1810 East Hazleton Ave.; Stockton, CA 95201
Mailing address of Organization: P.O. Box 1810; Stockton, CA 95201

PROGRAM: San Joaquin County Harney Lane Sanitary Landfill Ground Water Monitoring Program

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located in the vicinity of the landfill. The samples are obtained from the first encountered ground water and are tested quarterly for pH and specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness. Water is annually sampled for Volatile Organic Compounds (VOCs).

The results of the monitoring program are maintained by the county office.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273.

GEOGRAPHIC COVERAGE: San Joaquin County
THIS ACTIVITY STARTED: 08/01/1988 and CONTINUING as of: 10/03/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, landfill, well, ph, conductance, COD, chloride, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Mark Urquhart, Associate Civil Engineer
PHONE: (209) 468-3066 This summary information was LAST VERIFIED on: 10/03/1988

San Jose Municipal Water System

Street address of Organization: 3025 Tuers Rd; San Jose, CA 95121

PROGRAM: San Jose Municipal Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: City of San Jose
THIS ACTIVITY STARTED: 01/01/1962 and CONTINUING as of: 01/03/1990 (dates may be approximate).
KEYWORDS: allocates funds, ground water modeling, ground water monitoring, planning, site inspection, site investigation, technical support, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Mansour Nasser, Associate Civil Engineer
PHONE: (408) 277-4218 This summary information was LAST VERIFIED on: 01/03/1990

San Jose Water Company; Water Quality Division

Street address of Organization: 374 West Santa Clara St; San Jose, CA 95196

PROGRAM: San Jose Water Company Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration. Individual community supply wells are sampled, at minimum, every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Metropolitan San Jose Area
THIS ACTIVITY STARTED: 01/01/1925 and CONTINUING as of: 01/05/1990 (dates may be approximate).
KEYWORDS: ground water monitoring, planning, site inspection, site investigation, technical support, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Scott Yoo, Water Quality Manager
PHONE: (408) 279-7818 This summary information was LAST VERIFIED on: 01/05/1990

San Juan Basin Authority

Street address of Organization: 31241 Andrews Pico Street; San Juan Capistrano, CA 92675

PROGRAM: San Juan Basin Authority Water Quality Improvement Program

Water system facilities and water conservation projects are jointly funded which conserve and make water reserves available to member agencies utilizing the San Juan Creek Watershed. These include new wells, small dams, and ground water recharge facilities. Member agencies which make up the San Juan Basin Authority are: the Santa Margarita Water District, Moulton Niguel Water District, Trubuco Canyon Water District, and Capistrano Valley Water District.

GEOGRAPHIC COVERAGE: Southeast Orange County
THIS ACTIVITY STARTED: 11/22/1971 and CONTINUING as of: 07/05/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, pertinent reports available, planning, technical support, water conservation, water system, watershed, wells, ground water recharge.
FOR DETAILS, CONTACT: Thomas Meadows, General Manager
PHONE: (714) 831-8053 This summary information was LAST VERIFIED on: 07/05/1990

San Lorenzo Valley Water Company in cooperation w/ the Scotts Valley Water District; Santa Cruz County

Street address of Organization: 13060 Central Avenue; Boulder Creek, CA 95006
Mailing address of Organization: P.O. Box H; Boulder Creek, CA 95006

STUDY: Scotts Valley Nitrate Study

The San Lorenzo Valley Water Company, in cooperation with the Scotts Valley Water District, conducted this study to assess the nitrate problem in two groundwater aquifers in the Scotts Valley area. A total of 6 new monitoring wells were drilled. Both the monitoring wells and existing production wells were sampled over the 2-1/2 years of the study. The samples were analyzed for nitrates, ammonia and pH.

CONTINUED FROM: **San Lorenzo Valley Water Company in cooperation w/ the Scotts Valley Water District; Santa Cruz County**
STUDY: Scotts Valley Nitrate Study

The shallow, unconfined aquifer was determined to have a nitrate contamination problem. Nitrate levels in the deep, confined aquifer were well within standards.

GEOGRAPHIC COVERAGE: City of Scotts Valley Area
THIS ACTIVITY STARTED: 06/01/1983 and ENDED: 11/01/1985 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, assessment, contamination, nitrates, ammonia, ph.
FOR DETAILS, CONTACT: Al Haynes, Watershed Planner
San Lorenzo Valley Water Company; Santa Cruz County
13060 Central Avenue; Boulder Creek, CA 95006
mailing address: P.O. Box H; Boulder Creek, CA 95006
PHONE: (408) 338-2153 This summary information was LAST VERIFIED on: 06/07/1988

San Lorenzo Valley Water Company; Santa Cruz County

Street address of Organization: 13060 Central Avenue; Boulder Creek, CA 95006
Mailing address of Organization: P.O. Box H; Boulder Creek, CA 95006

PROGRAM: San Lorenzo Valley Water Company Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.
The results of the water analyses are stored at the Department of Health Services regional office and at the water company.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: North Santa Cruz County
THIS ACTIVITY STARTED: 06/01/1969 and CONTINUING as of: 06/07/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, site inspection, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Al Haynes, Watershed Planner
PHONE: (408) 338-2153 This summary information was LAST VERIFIED on: 06/07/1988

STUDY: San Lorenzo Valley On-Site Wastewater Management Study

The purpose of this study was to assess the problems associated with the impacts of septic systems on groundwater in the district. Existing wells located near septic tanks were sampled to determine groundwater quality and the contents of the septic tanks were analyzed.
The following data were obtained in the study from the well sampling:
1) groundwater hydrology, including depth to groundwater and geologic formation;
2) measurements of pH, TDS, COD, electroconductivity and specific conductance; and
3) concentrations of nitrates, chlorides, sulfates and phosphates.

GEOGRAPHIC COVERAGE: San Lorenzo Valley
THIS ACTIVITY STARTED: 01/01/1981 and ENDED: 10/01/1981 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, assessment, septic systems, tank contents, depth to groundwater, geology, quality, chlorides, nitrates, electroconductivity, ph, TDS, COD, phosphates,.
FOR DETAILS, CONTACT: Al Haynes, Watershed Planner
PHONE: (408) 338-2153 This summary information was LAST VERIFIED on: 06/07/1988

San Lucas County Water District

Mailing address of Organization: P.O. Box 166; San Lucas, CA 93954

PROGRAM: San Lucas Small Water Supply Systems Monitoring

The community water system (consisting of less than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

CONTINUED FROM: **San Lucas County Water District**
PROGRAM: San Lucas Small Water Supply Systems Monitoring

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Town of San Lucas
THIS ACTIVITY STARTED: 01/01/1967 and CONTINUING as of: 07/24/1989 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, enforcement, ground water monitoring, pertinent reports available, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Linda Lassen, City Clerk
PHONE: (408) 382-4287 This summary information was LAST VERIFIED on: 07/24/1989

San Luis Obispo County; County Health Department; Division of Environmental Health

Mailing address of Organization: P.O. Box 1489; San Luis Obispo, CA 93408

PROGRAM: San Luis Obispo County Small Water Supply Systems Monitoring Program

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: San Luis Obispo County
THIS ACTIVITY STARTED: 01/01/1960 and CONTINUING as of: 08/09/1988 (dates may be approximate).
KEYWORDS: enforcement, ground water monitoring, site inspection, site investigation, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Robert Holden, Supervising Environmental Health Officer
PHONE: (805) 549-5549 This summary information was LAST VERIFIED on: 08/09/1988

PROGRAM: San Luis Obispo County Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.

Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 5 years, whereas the underground tank and the monitoring records are inspected every year.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: San Luis Obispo County (except the City of San Luis Obispo)
THIS ACTIVITY STARTED: 01/01/1984 and CONTINUING as of: 08/09/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Robert Holden, Supervising Environmental Health Officer
PHONE: (805) 549-5549 This summary information was LAST VERIFIED on: 08/09/1988

PROGRAM: San Luis Obispo County Hazardous Materials Spills

The county prepares an area-wide emergency response plan to hazardous materials spills as outlined by the Office of Emergency Services. The emergency response plan outlines the responsibilities of the agencies involved. Events are coordinated with the appropriate incident commander, resources necessary to handle the spill are gathered, the spill is isolated and the media are informed. Appropriate people are called in to assess the extent of needed cleanup procedures.

All individual businesses that handle hazardous materials must submit to the county their own plan for responding to an accidental release of these materials as well as an annual inventory of their hazardous materials. This information is on file at the governing agency and is available to the public.

A city may assume the responsibility of preparing an emergency response plan within its jurisdiction by enacting an ordinance. If the city assumes this responsibility, it must coordinate its activities with the county.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: San Luis Obispo County (except the City of San Luis Obispo)
THIS ACTIVITY STARTED: 01/01/1983 and CONTINUING as of: 08/09/1988 (dates may be approximate).

CONTINUED FROM: **San Luis Obispo County; County Health Department; Division of Environmental Health**
PROGRAM: San Luis Obispo County Hazardous Materials Spills

KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, pertinent reports available, planning, site inspection, site investigation, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Robert Holden, Supervising Environmental Health Officer
PHONE: (805) 549-5549 This summary information was LAST VERIFIED on: 08/09/1988

PROGRAM: San Luis Obispo County Water Well Permitting

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells. Regulations are enforced through a permit program.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California).

After 1990, all counties will be required to adopt a well permitting ordinance, either a State model ordinance or their own.

References: Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: San Luis Obispo County
THIS ACTIVITY STARTED: 01/01/1970 and CONTINUING as of: 08/09/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, site inspection, site investigation, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Robert Holden, Supervising Environmental Health Officer
PHONE: (805) 549-5549 This summary information was LAST VERIFIED on: 08/09/1988

PROGRAM: San Luis Obispo County Hazardous Waste Management Plans

Each county develops a plan for the management of all hazardous wastes produced by industries, homes, and other sources in their jurisdiction. The Planning Department wrote the section on the siting criteria. The hazardous waste management plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste facilities. The existing facilities that can be expanded are identified, as are sites that would be suitable for the placement of future facilities.

Reference: AB2948 (1986, Tanner)

GEOGRAPHIC COVERAGE: San Luis Obispo County
THIS ACTIVITY STARTED: 01/01/1987 and CONTINUING as of: 08/09/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, pertinent reports available, planning, technical support, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: Robert Holden, Supervising Environmental Health Officer
PHONE: (805) 549-5549 This summary information was LAST VERIFIED on: 08/09/1988

San Luis Obispo County; Department of Building and Planning

Mailing address of Organization: County Government Center; San Luis Obispo, CA 93408

PROGRAM: San Luis Obispo County Regulation of On-Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program may require percolation tests to determine the suitability of the leach field for treating wastes, checks for setback before issuing building permits, and requires that there is adequate separation from water supply wells.

GEOGRAPHIC COVERAGE: San Luis Obispo County
THIS ACTIVITY STARTED: 01/01/1957 and CONTINUING as of: 07/29/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, site inspection, septic tanks, sewage, disposal fields, leach fields, percolation tests, wells, uniform plumbing code.
FOR DETAILS, CONTACT: Fred Norton, Chief Building Official
PHONE: (805) 549-5602 This summary information was LAST VERIFIED on: 07/29/1988

San Luis Obispo County; Engineering Department

Mailing address of Organization: Room 207 Government Center; San Luis Obispo, CA 93408

PROGRAM: Los Osos Landfill Ground Water Monitoring Program

The ground water contamination detection program consists of quarterly sampling from monitoring wells located at the landfill. The samples are obtained from the first encountered ground water. The depth to groundwater is also noted. Quarterly, the water samples are tested for pH, specific conductance, chemical oxygen demand, chloride, iron, nitrate, other minerals, heavy metals, total dissolved solids, and EPA 624 organics. EPA 625 priority pollutants have also been tested for on a less frequent basis.

The results of the monitoring program are maintained by the Regional Water Quality Control Board in the 'Waste Discharger Monitoring Files' as well as by the county office.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: Los Osos Landfill, Los Osos, CA.
THIS ACTIVITY STARTED: 07/01/1987 and CONTINUING as of: 08/22/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water monitoring, planning, site inspection, technical support, landfill, well, ph, conductance, COD, chloride, iron, nitrate, TDS, EPA 624 organics, EPA 625 organics, minerals, heavy metals, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Clinton Milne, Deputy County Engineer
PHONE: (805) 549-5252 This summary information was LAST VERIFIED on: 08/22/1988

PROGRAM: San Luis Obispo County Small Water Supply Systems Monitoring Program

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: San Luis Obispo County
THIS ACTIVITY STARTED: 01/01/1950 and CONTINUING as of: 08/22/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Clinton Milne, Deputy County Engineer
PHONE: (805) 549-5252 This summary information was LAST VERIFIED on: 08/22/1988

STUDY: San Luis Obispo County Master Water Plan Update

Because the average annual groundwater overdraft at the time was estimated to be 70,000 acre-feet, the study looked into other alternatives to meet the supplemental water needs. The identified supply elements were the SWP water, Nacimiento water (through the proposed Nacimiento pipeline), water from development of possible new dams and reservoirs, water from enlargement of existing dams, water from waste water reclamation, and water from desalination.

In general, groundwater quality was fair, but, a number of problems did exist. They included high nitrate concentrations, high levels of hydrogen sulfide, and sea water intrusion.

GEOGRAPHIC COVERAGE: San Luis Obispo County
THIS ACTIVITY STARTED: 01/01/1984 and ENDED: 03/31/1986 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies sources of pollution, nitrates, sea water intrusion, hydrogen sulfide, overdraft, waste water reclamation, supplemental water, desalination, conjunctive use.
FOR DETAILS, CONTACT: Clinton Milne, Deputy County Engineer
PHONE: (805) 549-5252 This summary information was LAST VERIFIED on: 08/22/1988

San Mateo County; Department of Environmental Management; Planning and Development Division

Street address of Organization: 590 Hamilton Street; Redwood City, CA 94063

PROGRAM: San Mateo County Hazardous Waste Management Plan

Each county develops a plan for the management of all hazardous wastes produced by industries, homes, and other sources in its jurisdiction. The hazardous waste management plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste facilities. The existing facilities that can be expanded are identified, as are sites that would be suitable for the placement of future facilities.

CONTINUED FROM: **San Mateo County; Department of Environmental Management; Planning and Development Division**

PROGRAM: San Mateo County Hazardous Waste Management Plan

Reference: AB2948 (1986, Tanner)

GEOGRAPHIC COVERAGE: San Mateo County
THIS ACTIVITY STARTED: 06/01/1987 and CONTINUING as of: 08/15/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, pertinent reports available, planning, technical support, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: George Bergman, Program Coordinator/Senior Planner
PHONE: (415) 363-4161 This summary information was LAST VERIFIED on: 08/15/1988

STUDY: Master EIR for Montera and Moss Beach Water Wells in San Mateo County

Developers who won a sewer lottery to hook up to 1 of 60 new sewer connections must install individual water wells on each parcel to be developed because the area's water agency, Citizens Utility, has a moratorium on new water connections. The moratorium was required since Citizens currently has 1550 connections with a capacity to serve just 1250. The county decided to have a consultant prepare a Master Environmental Impact Report (EIR) on the impacts of all 60 proposed wells. The EIR will include:
1) projections of groundwater quality and safe yield based on pump tests of new or existing wells;
2) effects of septic tanks given local soil type, percolation rates and minimum lot size requirements on wells; and
3) biologic diversity (plant species maps will be produced based on the biological inventory).

Since those developers who did not win sewer connections may want to install septic tanks, the impact of septic tanks on the proposed wells is included in the EIR.
Two alternatives to individual wells will be considered: community wells and aquifer augmentation through recharge ponds. Other specific water development options will be included in an appendix to the EIR.

GEOGRAPHIC COVERAGE: Unincorporated areas of Montara and Moss Beach
THIS ACTIVITY STARTED: 08/08/1988 and CONTINUING as of: 10/11/1988 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, project planning, studies sources of pollution, EIR, well development, aquifer augmentation, recharge ponds, community wells, pump tests, septic tanks, soil type, percolation rate, safe yield.
FOR DETAILS, CONTACT: Bill Rozer, Senior Planner
PHONE: (415) 363-4161 This summary information was LAST VERIFIED on: 10/11/1988

STUDY: Study on the Proposed Expansion of the Aponolio Canyon Landfill in San Mateo County

A groundwater model was used to estimate the impact of expanding the existing Ox Mountain/ Apolonio Canyon Landfill on groundwater. It was also used to estimate drainage characteristics. Monitoring wells on private lands were sampled to obtain water quality data and sedimentation basins were sized. The study was conducted by a consultant.

GEOGRAPHIC COVERAGE: Apanolio Canyon
THIS ACTIVITY STARTED: 09/01/1987 and ENDED: 01/01/1988 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, project planning, studies ground water pollutant transport, landfill expansion, models, drainage, sedimentation basins.
FOR DETAILS, CONTACT: Bill Rozer, Senior Planner
PHONE: (415) 363-4161 This summary information was LAST VERIFIED on: 10/11/1988

San Mateo County; Department of Health Services, Public Health Division; Environmental Health Services

Street address of Organization: 590 Hamilton Street; Redwood City, CA 94063

PROGRAM: San Mateo County Hazardous Materials Spills

The county prepares an area-wide emergency response plan to hazardous materials spills as outlined by the Office of Emergency Services. The emergency response plan outlines the responsibilities of the agencies involved. Events are coordinated with the appropriate incident commander, resources necessary to handle the spill are gathered, the spill is isolated and the media are informed. Appropriate people are called in to assess the extent of needed cleanup procedures.
All individual businesses that handle hazardous materials must submit to the county their own plan for responding to an accidental release of these materials as well as an annual inventory of their hazardous materials. This information is on file at the governing agency and is available to the public.
A city may assume the responsibility of preparing an emergency response plan within its jurisdiction by enacting an ordinance. If a city assumes this responsibility, it must coordinate its activities with the county.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

CONTINUED FROM: **San Mateo County; Department of Health Services, Public Health Division; Environmental Health Services**

PROGRAM: San Mateo County Hazardous Materials Spills

GEOGRAPHIC COVERAGE: San Mateo County
THIS ACTIVITY STARTED: 04/01/1987 and CONTINUING as of: 08/04/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, pertinent reports available, planning, site inspection, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Brian Zamora, Environmental Health Director
PHONE: (415) 363-4305 This summary information was LAST VERIFIED on: 08/04/1988

PROGRAM: San Mateo County Reclamation Program

The purpose of this program is to generate and process reclaimed wastewater for irrigation of county facilities during drought conditions. Thus far, the wastewater has primarily been used to irrigate the landscaping at Coyote Point Park. The program includes elements to prevent cross-contamination of the groundwater used for public water supply and to decrease human contact with the wastewater. Bacteriological monitoring of the wastewater is performed to determine that health standards are met prior to use.

GEOGRAPHIC COVERAGE: City of San Mateo/Unincorporated areas of San Mateo County
THIS ACTIVITY STARTED: 03/01/1981 and CONTINUING as of: 08/04/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, site inspection, site investigation, technical support, reclaimed wastewater, irrigation, cross-contamination, drought, bacteriological.
FOR DETAILS, CONTACT: Brian Zamora, Environmental Health Director
PHONE: (415) 363-4305 This summary information was LAST VERIFIED on: 08/04/1988

PROGRAM: San Mateo County Regulation of On-Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program conducts percolation tests to determine the suitability of the leach field for treating wastes, checks for setback before issuing building permits, and ensures that there is good separation from water supply wells. The program also includes investigation of alternative systems, such as evapotranspiration, when appropriate.

GEOGRAPHIC COVERAGE: San Mateo County
THIS ACTIVITY STARTED: 03/01/1947 and CONTINUING as of: 08/04/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, planning, site inspection, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Brian Zamora, Environmental Health Director
PHONE: (415) 363-4305 This summary information was LAST VERIFIED on: 08/04/1988

PROGRAM: San Mateo County Sanitary Landfill Ground Water Monitoring Program

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located in the vicinity of the landfill. Since all of the landfills in the county are privately owned, the sampling and testing are done by the landfill operator. The samples are obtained from the first encountered ground water and are tested monthly for pH, and specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness.

The results of the monitoring program are reviewed by the county Department of Health Services and are also maintained by the Regional Water Quality Control Board in the 'Waste Discharger Monitoring Files'.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: San Mateo County
THIS ACTIVITY STARTED: 03/01/1978 and CONTINUING as of: 08/04/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water monitoring, planning, site inspection, technical support, landfill, well, ph, conductance, COD, chloride, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Brian Zamora, Environmental Health Director
PHONE: (415) 363-4305 This summary information was LAST VERIFIED on: 08/04/1988

PROGRAM: San Mateo County Small Water Supply Systems Monitoring Program

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

CONTINUED FROM: **San Mateo County; Department of Health Services, Public Health Division; Environmental Health Services**

PROGRAM: San Mateo County Small Water Supply Systems Monitoring Program

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: San Mateo County
THIS ACTIVITY STARTED: 03/01/1977 and CONTINUING as of: 08/04/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, planning, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Brian Zamora, Environmental Health Director
PHONE: (415) 363-4305 This summary information was LAST VERIFIED on: 08/04/1988

PROGRAM: San Mateo County Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.

Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 1 years, the monitoring records are inspected yearly and the underground tanks are inspected every 3 years.

On July 1, 1988, a pilot cleanup program for leaking underground tanks was begun in cooperation with the state DHS.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: San Mateo County, excl. Belmont and San Carlos
THIS ACTIVITY STARTED: 12/20/1983 and CONTINUING as of: 08/04/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Brian Zamora, Environmental Health Director
PHONE: (415) 363-4305 This summary information was LAST VERIFIED on: 08/04/1988

PROGRAM: San Mateo County Water Well Permitting

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells. Regulations are enforced through a permit program as defined in the ordinance adopted by the county.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California). San Mateo County Ordinance 03101.

GEOGRAPHIC COVERAGE: San Mateo County
THIS ACTIVITY STARTED: 02/15/1955 and CONTINUING as of: 08/04/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, planning, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Brian Zamora, Environmental Health Director
PHONE: (415) 363-4305 This summary information was LAST VERIFIED on: 08/04/1988

STUDY: El Granada Groundwater Investigation

This study had three major objectives as follows:

1) to provide a detailed hydrogeologic analysis for the area, including groundwater storage, occurrence and movement;
2) to estimate the groundwater inflow and outflow from subareas within the El Granada hydrogeological unit; and
3) to develop a basin management strategy tailored for the area, including an assessment of groundwater availability during drought conditions and recommendations for a groundwater monitoring program.

GEOGRAPHIC COVERAGE: El Granada Unincorporated Area/W. San Mateo County
THIS ACTIVITY STARTED: 04/01/1987 and ENDED: 04/01/1988 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies sources of pollution, storage, occurrence, movement, inflow, outflow, basin management, drought,.
FOR DETAILS, CONTACT: Brian Zamora, Environmental Health Director
PHONE: (415) 363-4305 This summary information was LAST VERIFIED on: 08/04/1988

San Mateo County; Public Works Department

Street address of Organization: 805 Veterans Boulevard, Suite 301; Redwood City, CA 94063

PROGRAM: San Mateo County Solid Waste Management Program

The county prepares, adopts, implements and maintains a 20-year comprehensive, coordinated solid waste management plan for all solid waste originating within the county and all solid waste disposed of within the county. This plan provides current and projected estimates of the quantity of waste, a description of existing and proposed solid waste facilities, and criteria for safe waste storage in the county. The objectives of the plan are:

1) to identify issues of regional concern;
2) to consider the feasibility of operating solid waste management systems on a regional basis;
3) to identify and reserve sites for the establishment or expansion of facilities;
4) to ensure that land uses near those sites are compatible; and
5) to establish a 20% solid waste recycling goal with methods to achieve the goal.

Source recovery and recycling help reduce the total amount of waste going to landfill and extend the capacity of existing facilities. Groundwater quality benefits from this reduction of waste and adherence to the disposal criteria included in the plan.

References: Nejedly-Z'berg-Dills Solid Waste Management and Resource Recovery Act (1972); Resource Conservation and Recovery Act of 1986, PL94-580; The California Code of Regulations, Title 14, Section 17129 et seq.; Government Code 15, Section 66710 et seq.

GEOGRAPHIC COVERAGE: San Mateo County
THIS ACTIVITY STARTED: 07/01/1972 and CONTINUING as of: 10/05/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, pertinent reports available, planning, solid waste management, landfill sites, land uses, recycling, waste composition, waste reduction, source separation.
FOR DETAILS, CONTACT: Donald Williams, Senior Civil Engineer
PHONE: (415) 363-4100 This summary information was LAST VERIFIED on: 10/05/1988

STUDY: Feasibility Study on Using the Warheit Well as Water Supply for the town of Pescadero

The purpose of this study was to determine the feasibility of using the Warheit Well as a source of water supply for the town of Pescadero. The following items were evaluated to determine the potential long-term impacts of pumping at the site:

1) geology;
2) pump tests, water levels and yield; and
3) water quality (as determined by testing for pesticides and other agricultural chemicals used in the area).

GEOGRAPHIC COVERAGE: Town of Pescadero
THIS ACTIVITY STARTED: 07/28/1987 and ENDED: 09/02/1987 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, project planning, geology, yield, pump tests, pumping impacts, water levels, water quality, pesticides, agricultural chemicals.
FOR DETAILS, CONTACT: R. G. Zinckgraf, Senior Civil Engineer
PHONE: (415) 363-4100 This summary information was LAST VERIFIED on: 07/18/1988

San Simeon Acres Community Services District

Street address of Organization: Route 1 S-17; San Simeon Acres, CA 93452
Mailing address of Organization: 1458 Hyguera Street; San Luis Obispo, CA 93401

PROGRAM: San Simeon Acres Community Services District Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and for radioactivity every 4 years. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: San Simeon Acres
THIS ACTIVITY STARTED: 01/01/1966 and CONTINUING as of: 08/19/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: John Wallace, Consulting Civil Engineer
PHONE: (805) 544-4011 This summary information was LAST VERIFIED on: 08/19/1988

CONTINUED FROM: **San Simeon Acres Community Services District**

STUDY: Pico Creek Ground Water Basin Study

The study examined ground water availability in the Pico Creek Basin and the feasibility of a subsurface barrier project that would provide water conservation facilities.

GEOGRAPHIC COVERAGE: San Simeon Acres (Pico Creek Basin)
THIS ACTIVITY STARTED: 07/01/1985 and ENDED: 11/01/1987 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, subsurface barrier, water conservation facilities.
FOR DETAILS, CONTACT: John Wallace, Consulting Civil Engineer
PHONE: (805) 544-4011 This summary information was LAST VERIFIED on: 08/19/1988

Santa Ana Watershed Project Authority; Planning and Research

Street address of Organization: 3600 Tyler Street, Suite 207; Riverside, CA 92503

PROGRAM: Basin Planning and Development of Appropriate Numerical Tools to Determine Impact on Ground Water

Numerical tools are developed to evaluate and mitigate adverse water quality impacts caused by water/waste management projects in the Santa Ana basin. Impacts on both ground and surface water are evaluated. One objective in developing these numerical tools is to assist the Regional Water Quality Control Board develop basin plans for Santa Ana River Watershed.

GEOGRAPHIC COVERAGE: Santa Ana River Watershed Basin
THIS ACTIVITY STARTED: 01/01/1974 and CONTINUING as of: 05/05/1989 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, ground water modeling, permitting, pertinent reports available, planning, site investigation, technical support, basin planning, numerical models, impact.
FOR DETAILS, CONTACT: P. Ravishanker, Deputy Manager (Planning and Research)
PHONE: (714) 785-5411 This summary information was LAST VERIFIED on: 05/05/1989

Santa Barbara County Flood Control and Water Agency

Street address of Organization: 123 Anapamu Street; Santa Barbara, CA 93101

PROGRAM: Storm Water Retainage Program

The purpose of this program is to capture surface water runoff in a retention basin. The retained water is then released for groundwater recharge.

GEOGRAPHIC COVERAGE: Orcutt Urban Area
THIS ACTIVITY STARTED: 01/01/1961 and CONTINUING as of: 08/25/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water modeling, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, storm water, retention basin, surface water runoff, groundwater recharge.
FOR DETAILS, CONTACT: Phil Holland, Hydrologist
PHONE: (805) 568-3440 This summary information was LAST VERIFIED on: 08/25/1988

PROJECT: Orcutt Recharge Project

The project consisted of a collection system that routed storm water runoff from the Orcutt area and transported it to recharge basins in the Santa Maria Valley.

GEOGRAPHIC COVERAGE: Orcutt/Santa Maria Urban Areas
PART OF A PROGRAM titled: Storm Water Retainage Program
THIS ACTIVITY STARTED: 01/01/1979 and CONTINUING as of: 08/25/1988 (dates may be approximate).
KEYWORDS: ground water modeling, ground water monitoring, pertinent reports available, planning, site investigation, storm water runoff, recharge.
FOR DETAILS, CONTACT: Phil Holland, Hydrologist
PHONE: (805) 568-3440 This summary information was LAST VERIFIED on: 08/25/1988

Santa Barbara County; Department of Health Care Services; Division of Environmental Health

Street address of Organization: 315 Camino Del Remedio; Santa Barbara, CA 93110

PROGRAM: Casmalia Resources Regulation of Facilities-Acutely Hazardous Materials Risk Management Program

Any facility that handles acutely hazardous materials must prepare and implement an emergency response plan to a release of a hazardous material. The risk management and prevention plan (RMPP) is submitted to the Department of Health Care Services.

GEOGRAPHIC COVERAGE: Santa Barbara County
THIS ACTIVITY STARTED: 01/01/1988 and CONTINUING as of: 08/24/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, site inspection, site investigation, risk management and prevention program, accutely hazardous materials, emergency response plan.
FOR DETAILS, CONTACT: Barbara Fontes, Hydrogeologist
PHONE: (805) 737-7744 This summary information was LAST VERIFIED on: 08/24/1988

PROGRAM: Santa Barbara County Hazardous Materials Spills

The county prepares an area-wide emergency response plan to hazardous materials spills as outlined by the Office of Emergency Services. The emergency response plan outlines the responsibilities of the agencies involved. Events are coordinated with the appropriate incident commander, resources necessary to handle the spill are gathered, the spill is isolated and the media is informed. Appropriate people are called in to assess the extent of needed cleanup procedures.

All individual businesses that handle hazardous materials must submit to the county their own plan for responding to an accidental release of these materials as well as an annual inventory of their hazardous materials. This information is on file at the governing agency and is available to the public.

A city may assume the responsibility of preparing an emergency response plan within its jurisdiction by enacting an ordinance. If a city assumes this responsibility, it must coordinate its activities with the county.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: Santa Barbara County
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 12/14/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, pertinent reports available, planning, site inspection, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Curtis Batson, Acting Deputy Director for Health Services
PHONE: (805) 681-5200 This summary information was LAST VERIFIED on: 12/14/1988

PROGRAM: Santa Barbara County Sanitary Landfill Ground Water Monitoring Program

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located in the vicinity of the landfill. The samples are obtained from the first encountered ground water and are tested monthly for pH, and specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness.

The results of the monitoring program are maintained by the Regional Water Quality Control Board in the 'Waste Discharger Monitoring Files'.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: Santa Barbara County
THIS ACTIVITY STARTED: 01/01/1975 and CONTINUING as of: 12/14/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water monitoring, pertinent reports available, planning, site inspection, technical support, landfill, well, ph, conductance, COD, chloride, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Curtis Batson, Acting Deputy Director for Health Services
PHONE: (805) 681-5200 This summary information was LAST VERIFIED on: 12/14/1988

PROGRAM: Santa Barbara County Small Water Supply Systems Monitoring Program

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and inorganic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

CONTINUED FROM: **Santa Barbara County; Department of Health Care Services; Division of Environmental Health**

PROGRAM: Santa Barbara County Small Water Supply Systems Monitoring Program

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Unincorporated areas in Santa Barbara County
THIS ACTIVITY STARTED: 01/01/1968 and CONTINUING as of: 12/14/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, water supply,inorganics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Curtis Batson, Acting Deputy Director for Health Services
PHONE: (805) 681-5200 This summary information was LAST VERIFIED on: 12/14/1988

PROGRAM: Santa Barbara County Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.

Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 1 year, whereas the underground tank and the monitoring records are inspected every 3 years.

Reference: The Santa Barbara County Code, Chapter 18.

GEOGRAPHIC COVERAGE: Santa Barbara County
THIS ACTIVITY STARTED: 01/01/1984 and CONTINUING as of: 12/14/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, planning, site inspection, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Curtis Batson, Acting Deputy Director for Health Services
PHONE: (805) 681-5200 This summary information was LAST VERIFIED on: 12/14/1988

PROGRAM: Santa Barbara County Water Well Permitting

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells. Regulations are enforced through a permit program.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California).

After 1990, all counties will be required to adopt a well permitting ordinance, either a State model ordinance or their own. Santa Barbara County has had a well drilling ordinance since 1974.

References: Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: Santa Barbara County (except the City of Santa Barbara)
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 12/14/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, site inspection, site investigation, technical support, water wells, construction, inactivation, destruction.
FOR DETAILS, CONTACT: Curtis Batson, Acting Deputy Director for Health Services
PHONE: (805) 681-5200 This summary information was LAST VERIFIED on: 12/14/1988

STUDY: Hydrogeologic and Geologic Gathering of Data

Data on the occurance and the depth of groundwater are examined to determine the general direction of groundwater movement and the impact of these factors on local groundwater supplies.

GEOGRAPHIC COVERAGE: Santa Barbara County
THIS ACTIVITY STARTED: 06/01/1988 and CONTINUING as of: 12/14/1988 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, hydrogeology, studies sources of pollution, movement, location, depth, supply.
FOR DETAILS, CONTACT: Barbara Fontes, Hydrogeologist
PHONE: (805) 737-7744 This summary information was LAST VERIFIED on: 12/14/1988

Santa Barbara County; Resource Management Department

Street address of Organization: 1226 Anacapa; Santa Barbara, CA 93101

PROGRAM: Santa Barbara County Hazardous Waste Management Plans

A plan has been developed for the management of all hazardous wastes produced by industries, homes, and other sources in their jurisdiction. This hazardous waste management plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste facilities. The existing facilities that can be expanded are identified, as are sites that would be suitable for the placement of future facilities.

Reference: AB2948 (1986, Tanner)

GEOGRAPHIC COVERAGE: Santa Barbara County
THIS ACTIVITY STARTED: 03/01/1987 and CONTINUING as of: 09/14/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, permitting, pertinent reports available, planning, site investigation, technical support, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: Mary Ann Scott, Project Manager
PHONE: (805) 568-2511 This summary information was LAST VERIFIED on: 09/14/1988

Santa Clara County Environmental Health and Toxics; Department of Public Health; Toxic Control Unit

Street address of Organization: 2220 Moorpark Ave; San Jose, CA 95128

PROGRAM: Santa Clara County Health Department Water Surveillance Program

Water supply systems within the county are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community and non-community supply wells are sampled every 3 years for minerals, and every four years for radioactivity. Individual water supply systems are monitored for other constituents if evidence of contamination is suspected.

The Department of Health inspects all water system in the county to identify any deficiencies in maintenance and operation that might develop. Construction of water systems consisting of 1-4 service connection is also regulated.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Santa Clara County
THIS ACTIVITY STARTED: 01/01/1960 and CONTINUING as of: 01/25/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Glenn Hildebrand, Water Program Manager
PHONE: (408) 299-6930 This summary information was LAST VERIFIED on: 01/25/1990

PROGRAM: Santa Clara County Health Department Hazardous Materials Storage Program

The design, construction, closure, storage, and abandonment of hazardous materials is regulated by a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank, drainage system, and monitoring system. The permit is valid for 1 year. More frequent testing is usually required since any monitoring system must be capable of determining the containment ability of the underground storage tank and detecting any active or future unauthorized releases.

References: California Code of Regulations, Title 23, Chapter 3, Subchapter 16; 1988 Uniform Fire Code, Articles 79 & 80.

GEOGRAPHIC COVERAGE: Unincorporated area,City of Saratoga,Los Altos,Los Altos Hill
THIS ACTIVITY STARTED: 01/01/1984 and CONTINUING as of: 03/15/1990 (dates may be approximate).
KEYWORDS: administrative support, ground water monitoring, permitting, pertinent reports available, planning, site inspection, storage, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Bob Holston, Supervising Hazardous Materials Specialist
PHONE: (408) 299-6930 This summary information was LAST VERIFIED on: 03/15/1990

STUDY: Santa Clara County Health Department Private Well Sampling Study

This pilot study, called the Private Well Sampling Program, characterized the quality of water in private wells in Santa Clara County. The primary concern was contamination due to organic chemical releases from industries.

Twelve hundred and twenty five wells throughout the county were analyzed for organic chemicals and bacteriological contamination. These were chosen from wells near known sources of ground water contamination.

GEOGRAPHIC COVERAGE: Santa Clara County
THIS ACTIVITY STARTED: 07/01/1986 and ENDED: 07/01/1988 (dates may be approximate).

CONTINUED FROM: **Santa Clara County Environmental Health and Toxics; Department of Public Health; Toxic Control Unit**
STUDY: Santa Clara County Health Department Private Well Sampling Study

KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, pertinent reports available, project planning, studies extent of ground water pollution, private well, contamination, sampling, industries.
FOR DETAILS, CONTACT: Glenn Hildebrand, Water Program Manager
PHONE: (408) 299-6930 This summary information was LAST VERIFIED on: 01/25/1990

Santa Clara Valley Water District; Ground Water Protection Division

Street address of Organization: 5750 Almadon Expressway; San Jose, CA 95118

PROGRAM: Santa Clara Valley Water District Water Well Permitting

The siting, drilling, and construction of new water wells, the deepening and reperforation of existing wells, and the abandonment and destruction of old wells are regulated through a permit program. The Water District adopts its own well permitting ordinance

GEOGRAPHIC COVERAGE: Santa Clara County
THIS ACTIVITY STARTED: 01/01/1975 and CONTINUING as of: 02/22/1990 (dates may be approximate).
KEYWORDS: enforcement, permitting, site inspection, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Tom Iwamura, Engineer Geologist
PHONE: (408) 927-0710 This summary information was LAST VERIFIED on: 02/22/1990

PROGRAM: Santa Clara Valley Water District Ground Water Basin Management

The objective of this program is to maintain ground water quality and to ensure adequate water supply by promoting efficient utilization of ground water resources. This is generally accomplished by one or more of the following:

1. Formulating ground water pumping schedules within the district;
2. Coordinating ground water pumping schedules with other districts;
3. Monitoring ground water quality;
4. Identifying areas of potential ground water pollution and sea water intrusion;
5. Providing input to federal and state regulatory agencies, especially the Regional Water Quality Control Board (RWQCB) regarding the issuing of waste discharge requirements; and
6. Recommending regulation of land use and development that impacts ground water (e.g. through zoning and building permits).

Analysis of projected needs and uses is included. Where appropriate, ground water replenishment programs may be implemented.

GEOGRAPHIC COVERAGE: Santa Clara County
THIS ACTIVITY STARTED: 01/01/1928 and CONTINUING as of: 02/22/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water modeling, ground water monitoring, permitting, pertinent reports available, planning, site investigation, technical support, basin management, recharge, pollution, sea water intrusion, discharge permits, ground water replenishment, water quality, water supply, projected need.
FOR DETAILS, CONTACT: Tom Iwamura, Engineer Geologist
PHONE: (408) 927-0710 This summary information was LAST VERIFIED on: 02/22/1990

Santa Cruz County; Health Services Agency; Environmental Health Service

Street address of Organization: 701 Ocean Street, Room 312; Santa Cruz, CA 95060

PROGRAM: Santa Cruz County Hazardous Waste Management Plan

The county developed a plan for the management of all hazardous wastes produced by industries, homes, and other sources in their jurisdiction. The hazardous waste management plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste management programs and facilities. Existing facilities are identified, as are general areas which would be suitable for the placement of future facilities.

Reference: AB2948 (1986, Tanner)

GEOGRAPHIC COVERAGE: Santa Cruz County
THIS ACTIVITY STARTED: 09/01/1987 and CONTINUING as of: 05/02/1988 (dates may be approximate).
KEYWORDS: administrative support, permitting, pertinent reports available, planning, site investigation, technical support, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: Ilse Kolbus, Hazardous Materials Program Manager
PHONE: (408) 425-2341 This summary information was LAST VERIFIED on: 05/02/1988

PROGRAM: Santa Cruz County Hazardous Materials Spills

The county prepares an area-wide emergency response plan to hazardous materials spills as outlined by the Office of Emergency Services. The emergency response plan outlines the responsibilities of the agencies involved. Events are coordinated with the appropriate incident commander, resources necessary to handle the spill are gathered, the spill is isolated and the media are informed. Appropriate people are called in to assess the extent of needed cleanup procedures.

All regulated individual businesses that handle hazardous materials must submit to the administering agency their own plan for responding to an accidental release of these materials as well as an annual inventory of their hazardous materials. This information is on file at the governing agency and is available to the public (inventory data only) and to first responders. All violations of these procedures are tracked.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: Santa Cruz County, excl. Watsonville
THIS ACTIVITY STARTED: 02/15/1986 and CONTINUING as of: 05/02/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, technical support, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Ilse Kolbus, Hazardous Materials Program Manager
PHONE: (408) 425-2341 This summary information was LAST VERIFIED on: 05/02/1988

PROGRAM: Santa Cruz County Regulation of On-Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program conducts percolation tests to determine the suitability of the leach field for treating wastes, checks for setback before issuing building permits, and ensures that there is good separation from water supply wells. In addition, site investigations are performed as necessary for high water table and problem areas.

GEOGRAPHIC COVERAGE: Santa Cruz County
THIS ACTIVITY STARTED: 06/01/1965 and CONTINUING as of: 05/03/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, planning, site inspection, site investigation, technical support, septic tanks, sewage, leach fields, percolation tests, wells, site investigations.
FOR DETAILS, CONTACT: Robert Carey, Supervising Public Health Sanitarian
PHONE: (408) 425-2341 This summary information was LAST VERIFIED on: 05/03/1988

PROGRAM: Santa Cruz County Small Water Supply Systems Monitoring Program

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Radioactivity is sampled for every 4 years. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Division of Environmental Health for seven years and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Santa Cruz County
THIS ACTIVITY STARTED: 06/01/1975 and CONTINUING as of: 04/13/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, permitting, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803, radioactivity.
FOR DETAILS, CONTACT: Dan Peterson, Senior Public Health Sanitarian
PHONE: (408) 425-2379 This summary information was LAST VERIFIED on: 04/13/1988

PROGRAM: Santa Cruz County Underground Tanks Program

The program regulates new, existing and closed underground tank facilities.

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.

Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 1 year, and the underground tank and the monitoring records are also inspected yearly. Violations of these regulations are tracked.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: Santa Cruz County, excl. Watsonville and Scotts Valley
THIS ACTIVITY STARTED: 01/01/1984 and CONTINUING as of: 05/02/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, underground tank, hazardous material spills, Subchapter 16.

CONTINUED FROM: **Santa Cruz County; Health Services Agency; Environmental Health Service**
PROGRAM: Santa Cruz County Underground Tanks Program

FOR DETAILS, CONTACT: Ilse Kolbus, Hazardous Materials Program Manager
PHONE: (408) 425-2341 This summary information was LAST VERIFIED on: 05/02/1988

PROGRAM: Santa Cruz County Water Well Permitting

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating existing wells, the abandonment and destruction of old wells. Regulations are enforced through a permit program. Site inspections are performed as a part of the permitting process.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California). Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: Santa Cruz County
THIS ACTIVITY STARTED: 12/01/1975 and CONTINUING as of: 05/03/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, site inspection, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Robert Carey, Supervising Public Health Sanitarian
PHONE: (408) 425-2341 This summary information was LAST VERIFIED on: 05/03/1988

Santa Cruz County; Planning Department

Street address of Organization: 701 Ocean Street, Room 406B; Santa Cruz, CA 95060

PROGRAM: Santa Cruz County Solid Waste Management Program

The county prepares, adopts, implements and maintains a 20-year comprehensive, coordinated solid waste management plan for all solid waste originating within the county and all solid waste disposed of within the county. This plan provides current and projected estimates of the quantity of waste, a description of existing and proposed solid waste facilities, and criteria for safe waste storage in the county. The objectives of the plan are:

1) to identify issues of regional concern;
2) to consider the feasibility of operating solid waste management systems on a regional basis;
3) to identify and reserve sites for the establishment or expansion of facilities;
4) to ensure that land uses near those sites are compatible; and
5) to establish a 20% solid waste recycling goal with methods to achieve the goal.

Source recovery and recycling help reduce the total amount of waste going to landfill and extend the capacity of existing facilities. Groundwater quality benefits from this reduction of waste and adherence to the disposal criteria included in the plan.

References: Nejedly-Z'berg-Dills Solid Waste Management and Resource Recovery Act (1972); Resource Conservation and Recovery Act of 1986, PL94-580; The California Code of Regulations, Title 14, Section 17129 et seq.; Government Code 15, Section 66710 et seq.

***Note: The county's Sanitary Landfill Monitoring Program (with its required Solid Waste Assessment Test) is a part of the overall Solid Waste Management Program defined in the plan.

GEOGRAPHIC COVERAGE: Santa Cruz County
THIS ACTIVITY STARTED: 07/01/1972 and CONTINUING as of: 10/05/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, technical support, solid waste management, landfill sites, land uses, recycling, waste composition, waste reduction, source separation.
FOR DETAILS, CONTACT: Dan DeGrassi, Senior Planner
PHONE: (408) 425-2783 This summary information was LAST VERIFIED on: 10/05/1988

Santa Cruz County; Public Works Department

Street address of Organization: 701 Ocean Street; Santa Cruz, CA 95060

PROGRAM: Santa Cruz County Sanitary Landfill Ground Water Monitoring Program

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located in the vicinity of the landfill. The samples are obtained from the first encountered ground water and are tested monthly for pH and specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness. In addition, EPA tests 624 and 625 are performed on the samples.

The monitoring requirements are the result of 'Groundwater Monitoring Plan' studies done at the Ben Lomond and Buena Vista Landfills in the county.

The results of the monitoring program are maintained by the Regional Water Quality Control Board in the 'Waste Discharger Monitoring Files' as well as by the county Public Works Department.

CONTINUED FROM: **Santa Cruz County; Public Works Department**
PROGRAM: Santa Cruz County Sanitary Landfill Ground Water Monitoring Program

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: Santa Cruz County
THIS ACTIVITY STARTED: 01/01/1977 and CONTINUING as of: 04/29/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water monitoring, permitting, planning, site inspection, technical support, landfill, well, ph, conductance, COD, chloride, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT, EPA 624, EPA 625.
FOR DETAILS, CONTACT: Bob Biddle, Associate Civil Engineer
PHONE: (408) 425-2133 This summary information was LAST VERIFIED on: 04/29/1988

PROJECT: Groundwater Monitoring Well Project for Pump Stations in Santa Cruz County

This project involved the drilling of two monitoring wells, at each of six pump stations in Santa Cruz County, to test for the presence of diesel and sodium hypochlorite. If either compound was determined to be present in concentrations above acceptable levels, two additional wells were drilled at the site to identify the extent of the contamination. The following data are listed below for each site: the name of the pump station, location, initiation and completion dates, and the number of wells drilled.

1) Eastcliff Pump Station, City of Aptos. Initiated and completed on 12/13/1986. 2 wells drilled.
2) Esplanade Pump Station, City of Aptos. Initiated on 12/09/1986 and completed on 08/01/1987. 4 wells drilled.
3) Rio Del Mar Pump Station, City of Aptos. Initiated and completed on 01/09/1987. 2 wells drilled.
4) Capitola Pump Station, City of Capitola. Initiated on 01/22/1987 and completed on 01/30/1987. 2 wells drilled.
5) New Brighton Beach Pump Station, City of Capitola. Initiated and completed on 12/10/1986. 2 wells drilled.
6) Soquel Creek Pump Station, City of Soquel. Initiated and completed on 12/12/1986. 2 wells drilled.

GEOGRAPHIC COVERAGE: Santa Cruz County
THIS ACTIVITY STARTED: 12/09/1986 and ENDED: 08/01/1987 (dates may be approximate).
KEYWORDS: ground water cleanup, ground water monitoring, site investigation, pump stations, diesel, sodium hypochlorite.
FOR DETAILS, CONTACT: Steve Jesberg, Sanitation Engineering Staff
PHONE: (408) 425-2133 This summary information was LAST VERIFIED on: 05/03/1988

STUDY: Geotechnical Study for the Buena Vista Landfill in Santa Cruz County

The county purchased 72 acres adjacent to the Buena Vista Landfill and proposed expansion of the existing landfill onto this new parcel. The purpose of this study was to produce a report containing the preparation requirements for conversion of this parcel to use as a landfill, based on its underlying geologic formation. Elements studied include:

1) soil characteristics;
2) groundwater elevations; and
3) direction of groundwater flows.

GEOGRAPHIC COVERAGE: Buena Vista Landfill Site Area
THIS ACTIVITY STARTED: 06/01/1978 and ENDED: 07/01/1985 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, project planning, geologic formation, soil characteristics, groundwater elevations, direction of flow, landfill, feasibility.
FOR DETAILS, CONTACT: Bob Biddle, Associate Civil Engineer
PHONE: (408) 425-2133 This summary information was LAST VERIFIED on: 04/29/1988

STUDY: Groundwater Monitoring Plan for the Ben Lomond Landfill in Santa Cruz County

The purpose of this study was to produce sufficient groundwater monitoring test data to allow the Regional Water Quality Control Board to set more comprehensive on-going groundwater monitoring requirements for the Ben Lomond Landfill site. To obtain the data, four wells were drilled. One upstream well and three downstream wells were drilled and sampled for both physical and chemical constituents.

The results of the sampling included EPA test 624 and EPA test 625 data. In addition, pH, specific conductance, depth to groundwater, COD, chloride, iron, nitrate, TDS and total hardness were determined.

All data are stored with the Regional Water Quality Control Board and the county Public Works Department, as a part of the Sanitary Landfill Groundwater Monitoring Program.

GEOGRAPHIC COVERAGE: Ben Lomond Landfill Site Area
THIS ACTIVITY STARTED: 07/01/1986 and ENDED: 01/01/1987 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, ground water management, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies sources of pollution, swat/calderon, monitoring requirements, landfill, EPA 624, EPA 625, ph, COD, TDS, specific conductance, depth to groundwater, chloride, iron, nitrate.
FOR DETAILS, CONTACT: Bob Biddle, Associate Civil Engineer
PHONE: (408) 425-2133 This summary information was LAST VERIFIED on: 04/29/1988

CONTINUED FROM: **Santa Cruz County; Public Works Department**

STUDY: Groundwater Monitoring Plan for the Buena Vista Landfill in Santa Cruz County

The purpose of this study was to produce sufficient groundwater monitoring test data to allow the Regional Water Quality Control Board to set more comprehensive on-going groundwater monitoring requirements for the Buena Vista Landfill site. To obtain the data, four wells were drilled. One upstream well and three downstream wells were drilled and sampled for both physical and chemical constituents.

The results of the sampling included EPA test 624 and EPA test 625 data. In addition, pH, specific conductance, depth to groundwater, COD, chloride, iron, nitrate, TDS and total hardness were determined.

All data are stored with the Regional Water Quality Control Board and the county Public Works Department, as a part of the Sanitary Landfill Groundwater Monitoring Program.

GEOGRAPHIC COVERAGE: Buena Vista Landfill Site Area
THIS ACTIVITY STARTED: 01/01/1986 and ENDED: 05/01/1986 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, ground water management, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies sources of pollution, swat/calderon, monitoring requirements, landfill, EPA 624, EPA 625, ph, COD, TDS, specific conductance, depth to groundwater, chloride, iron, nitrate.
FOR DETAILS, CONTACT: Bob Biddle, Associate Civil Engineer
PHONE: (408) 425-2133 This summary information was LAST VERIFIED on: 04/29/1988

STUDY: Study for the EIR on the Proposed Expansion of the Buena Vista Landfill in Santa Cruz County

This study was performed as a part of the EIR process to determine the environmental impacts of the proposed project to expand the Buena Vista Landfill. Included was an estimation of the impacts on groundwater. The feasibility of siting the expansion on an adjacent 72-acre parcel owned by the county was examined.

GEOGRAPHIC COVERAGE: Buena Vista Landfill Site Area
THIS ACTIVITY STARTED: 01/01/1984 and ENDED: 12/01/1984 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, project planning, studies sources of pollution, landfill siting, feasibility, impacts on groundwater, EIR.
FOR DETAILS, CONTACT: Bob Biddle, Associate Civil Engineer
PHONE: (408) 425-2133 This summary information was LAST VERIFIED on: 04/29/1988

Santa Margarita River Watershed; Watermaster Office

Mailing address of Organization: P.O. Box 631; Fallbrook, CA 92028

PROGRAM: Santa Margarita River Watershed-Watermaster

Water rights in Santa Margarita River Watershed are under the continuing jurisdiction of the United State District Court. A court-appointed Watermaster carries out court orders which include:

1. Maintaining current records of water extractions, deliveries, imports, exports, and use;
2. Collecting ground water level data from observation wells;
3. Determining historic changes of ground water storage and safe yield; and
4. Monitoring water quality.

Annual reports are prepared and distributed by the Watermaster.

GEOGRAPHIC COVERAGE: Santa Margarita Watershed
THIS ACTIVITY STARTED: 03/13/1989 and CONTINUING as of: 03/08/1990 (dates may be approximate).
KEYWORDS: enforcement, ground water monitoring, pertinent reports available, planning, site inspection, technical support, watermaster, watershed, safe yield, ground water storage, ground water level.
FOR DETAILS, CONTACT: Jim Jenks, Watermaster
PHONE: (619) 728-1028 This summary information was LAST VERIFIED on: 03/08/1990

Santa Maria Valley Water Conservation District

Mailing address of Organization: P.O. Box 364; Santa Maria, CA 93456

PROJECT: Twitchell Dam and Reservoir Project

The purpose of the project was to catch and store flood water that was later released for groundwater recharge.

GEOGRAPHIC COVERAGE: Santa Maria Valley
THIS ACTIVITY STARTED: 01/01/1956 and ENDED: 01/01/1958 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, capture flood water, storage, recharge,.
FOR DETAILS, CONTACT: Maurice Twitchell, Secretary
PHONE: (805) 925-5212 This summary information was LAST VERIFIED on: 08/15/1988

Santa Ynez River Water Conservation District

Mailing address of Organization: P.O. Box 157; Santa Ynez, CA 93460

PROGRAM: Santa Ynez River Water Conservation District Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and for radioactivity every 4 years. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Santa Ynez (East); Solvang (West); Los Olivas (North)
THIS ACTIVITY STARTED: 06/01/1961 and CONTINUING as of: 08/03/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Tom Peterson, Manager of Improvement District #1
PHONE: (805) 688-6015 This summary information was LAST VERIFIED on: 08/03/1988

Scotts Valley Water District; Santa Cruz County

Street address of Organization: 4860 Scotts Valley Drive; Scotts Valley, CA 95066

PROGRAM: Scotts Valley Water District Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every year for minerals and organic compounds (including VOCs). Radioactivity is tested every 3 years. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Scotts Valley Water District/N. Central Santa Cruz County
THIS ACTIVITY STARTED: 01/01/1961 and CONTINUING as of: 05/24/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803, EPA 601, EPA 602.
FOR DETAILS, CONTACT: John Sansing, General Manager
PHONE: (408) 438-2363 This summary information was LAST VERIFIED on: 05/24/1988

STUDY: Scotts Valley Water Resources Management Plan

The purpose of this study, conducted by the consultant, is to gather and analyze data to develop a groundwater management plan for the water district. Results of testing done by the district and information compiled from other studies and programs are gathered on the district's three aquifers. Data include the general hydrology of the area, aquifer geohydrology, groundwater quality, well information and water table maps.

Reports containing an analysis of these data are produced annually by the consultant.

GEOGRAPHIC COVERAGE: Scotts Valley Water District/N. Central Santa Cruz County
THIS ACTIVITY STARTED: 09/01/1983 and CONTINUING as of: 05/24/1988 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, groundwater management, area hydrology, aquifer hydrogeology, quality, well data, water table maps.
FOR DETAILS, CONTACT: Dr. David K. Todd, President, David Keith Todd Consulting Engineers, Inc.
David Keith Todd Consulting Engineers Inc.
2914 Domingo Avenue; Berkeley, CA 94705
PHONE: (415) 841-2091 This summary information was LAST VERIFIED on: 05/24/1988

Shasta County; Department of Emergency Services

Street address of Organization: Court Street; Redding, CA 96002
Mailing address of Organization: P.O. Box 1500; Redding, CA 96002

PROGRAM: Hazardous Materials Spills Program

This program was instituted to comply with regulations of the State Office of Emergency Services. All individual businesses that handle hazardous materials must submit to the county an inventory of hazardous materials stored, as well as their plan for responding to an accidental release of these materials.

CONTINUED FROM: **Shasta County; Department of Emergency Services**
PROGRAM: Hazardous Materials Spills Program

The initial response to a hazardous material spill includes the containment and cleanup of the material. Removal of more than 55 gallons of hazardous material is performed by a professional removal firm. After this initial response, additional cleanup (if necessary) continues. Monitoring wells may be installed for further study.

Although the primary geographic area covered by this program is Shasta County, a HAZMAT response vehicle is maintained to provide emergency hazardous waste cleanup in a seven county area: Modoc, Siskiyou, Trinity, Tehama, Plumas, Lassen, and Shasta counties.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: Shasta County
THIS ACTIVITY STARTED: 01/01/1968 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water modeling, ground water monitoring, pertinent reports available, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Tom Hodges, Emergency Services Deputy Director
PHONE: (916) 225-5721 This summary information was LAST VERIFIED on: 12/31/1987

Shasta County; Environmental Health Department

Street address of Organization: 1855 Placer Street; Redding, CA 96001

PROGRAM: Regulation of On Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program conducts percolation tests to determine the suitability of the leach field for treating wastes, checks for setback before issuing building permits, and ensures that there is good separation from water supply wells.

GEOGRAPHIC COVERAGE: Shasta County
THIS ACTIVITY STARTED: 01/01/1982 and CONTINUING as of: 01/05/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Russ Mull, Director of Environmental Health
PHONE: (916) 225-5787 This summary information was LAST VERIFIED on: 01/05/1988

PROGRAM: Small Water Supply Systems Monitoring Program - Shasta County

Community water systems consisting of less than 200 service connections are routinely inspected to insure compliance with appropriate codes. They are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Shasta County
THIS ACTIVITY STARTED: 01/01/1982 and CONTINUING as of: 01/05/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Russ Mull, Director of Environmental Health
PHONE: (916) 225-5787 This summary information was LAST VERIFIED on: 01/05/1988

PROGRAM: Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.

Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 5 years, whereas the underground tank and the monitoring records are inspected every 3 years.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: Shasta County
THIS ACTIVITY STARTED: 01/01/1984 and CONTINUING as of: 01/05/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water modeling, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Russ Mull, Director of Environmental Health
PHONE: (916) 225-5787 This summary information was LAST VERIFIED on: 01/05/1988

CONTINUED FROM: **Shasta County; Environmental Health Department**

PROGRAM: Water Well Permitting - Shasta County

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells. Regulations are enforced through a permit program.

Water Well Driller Permits are on file at the County Environmental Health Department office. Water Well Driller Reports are forwarded by the driller to the California Department of Water Resources, Northern District in Red Bluff.

After 1990, all counties will be required to adopt a well permitting ordinance, either a State model ordinance or their own.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California); Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: Shasta County
THIS ACTIVITY STARTED: 01/01/1967 and CONTINUING as of: 01/05/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, site inspection, technical support, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Russ Mull, Director of Environmental Health
PHONE: (916) 225-5787 This summary information was LAST VERIFIED on: 01/05/1988

Shasta County; Public Works Department

Street address of Organization: 1855 Placer Street; Redding, CA 96001

PROGRAM: Sanitary Landfill Permitting and Monitoring Program - Shasta County

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located in the vicinity of two landfills in this county. The samples are obtained from the first encountered ground water and are tested monthly for pH, and specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness.

The results of the monitoring program are maintained by the Regional Water Quality Control Board in the 'Waste Discharger Monitoring Files' as well as by this county office.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: Shasta County
THIS ACTIVITY STARTED: 01/01/1980 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: enforcement, ground water monitoring, planning, site inspection, site investigation, landfill, well, ph, conductance, COD, chlorine, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Richard Curry, Public Works Director
PHONE: (916) 225-5661 This summary information was LAST VERIFIED on: 12/31/1987

Sierra County; Environmental Health Department

Mailing address of Organization: P.O. Box 7; Loyalton, CA 96118

PROGRAM: Regulation of On-Site Sewage Disposal Systems, Sierra County

Ground water is protected from fecal contaminants of individual sewage disposal systems by regulating the placement and construction of septic tanks and leach fields. Leach fields must have adequate separation from the water table and from water supply wells. Soil profile tests are performed to determine if a shallow water table will interfere with the sewage disposal system. Percolation tests are performed to determine the suitability of the soil to treat wastes.

GEOGRAPHIC COVERAGE: Sierra County
THIS ACTIVITY STARTED: 05/01/1974 and CONTINUING as of: 11/05/1987 (dates may be approximate).
KEYWORDS: enforcement, permitting, planning, site inspection, sewage, aquifer protection, septic tanks, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Elizabeth Morgan, Sanitarian
PHONE: (916) 993-4565 This summary information was LAST VERIFIED on: 11/05/1987

PROGRAM: Small Water Supply Systems Monitoring Program, Sierra County

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

CONTINUED FROM: **Sierra County; Environmental Health Department**
PROGRAM: Small Water Supply Systems Monitoring Program, Sierra County

The results of the water analyses are stored at both the Sierra County Department of Environmental Health and at the Department of Health Services regional office.

GEOGRAPHIC COVERAGE: Sierra County
THIS ACTIVITY STARTED: 05/01/1974 and CONTINUING as of: 11/05/1987 (dates may be approximate).
KEYWORDS: ground water monitoring, fecal coliform, chlorine, wells, minerals, organics, water supply.
FOR DETAILS, CONTACT: Elizabeth Morgan, Sanitarian
PHONE: (916) 993-4565 This summary information was LAST VERIFIED on: 11/05/1987

PROGRAM: Water Well Permitting

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, the abandonment and destruction of old wells.
Regulations are enforced through a permit program.

GEOGRAPHIC COVERAGE: Sierra County
THIS ACTIVITY STARTED: 05/01/1974 and CONTINUING as of: 11/05/1987 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, site inspection, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Elizabeth Morgan, Sanitarian
PHONE: (916) 993-4565 This summary information was LAST VERIFIED on: 11/05/1987

Sierra Valley Ground Water Management District

Mailing address of Organization: P.O. Box 328; Loyalton, CA 96118

PROGRAM: Management of the Sierra Valley Ground Water Basin

The objective of the ground water management program is to maintain ground water quality and quantity in the Sierra Valley basin. This is achieved through regulating developments that impact ground water, regulating water wells and metering ground water extractions. A ground water evaluation is prepared every year by the hydrologist. Projects proposing to withdraw more than 100 gpm of ground water are required to submit an extensive hydrogeologic report prior to obtaining approval.

GEOGRAPHIC COVERAGE: Sierra Valley
THIS ACTIVITY STARTED: 06/01/1981 and CONTINUING as of: 10/26/1987 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water modeling, ground water monitoring, permitting, pertinent reports available, site inspection, site investigation, technical support, metering, regulating, management, water wells.
FOR DETAILS, CONTACT: Carl Genasci, Chairman of the Board
PHONE: (916) 993-4344 This summary information was LAST VERIFIED on: 10/26/1987

Siskiyou County; Environmental Health Department

Street address of Organization: 806 South Main Street; Yreka, CA 96097

PROGRAM: Hazardous Materials Spills Program

This program was instituted to comply with regulations of the State Office of Emergency Services. All individual businesses that handle hazardous materials must submit to the county an inventory of hazardous materials stored, as well as their plan for responding to an accidental release of these materials.
The initial response to a hazardous material spill includes the containment and cleanup of the material. Removal of more than 55 gallons of hazardous material is performed by a professional removal firm. After this initial response, additional cleanup (if necessary) continues. Monitoring wells may be installed for further study.
Response to a hazardous material spill can include use of the HAZMAT response vehicle based in Redding and operated by the Shasta County Department of Emergency Services.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: Siskiyou County
THIS ACTIVITY STARTED: 01/01/1987 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, pertinent reports available, site inspection, site investigation, technical support, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Terry Baker, Director of Environmental Health
PHONE: (916) 842-4196 This summary information was LAST VERIFIED on: 12/31/1987

CONTINUED FROM: **Siskiyou County; Environmental Health Department**

PROGRAM: Regulation of On Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program conducts percolation tests to determine the suitability of the leach field for treating wastes, checks for setback before issuing building permits, and ensures that there is good separation from water supply wells.

GEOGRAPHIC COVERAGE: Siskiyou County
THIS ACTIVITY STARTED: 01/01/1983 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Terry Baker, Director of Environmental Health
PHONE: (916) 842-4196 This summary information was LAST VERIFIED on: 12/31/1987

PROGRAM: Sanitary Landfill Permitting and Monitoring Program - Siskiyou County

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located in the vicinity of the landfill. The samples are obtained from the first encountered ground water and are tested monthly for pH, and specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness.

The results of the monitoring program are maintained by the Regional Water Quality Control Board in the 'Waste Discharger Monitoring Files' as well as by this county office.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: Siskiyou County
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, landfill, well, ph, conductance, COD, chlorine, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Terry Baker, Director of Environmental Health
PHONE: (916) 842-4196 This summary information was LAST VERIFIED on: 12/31/1987

PROGRAM: Small Water Supply Systems Monitoring - Siskiyou County

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Siskiyou County
THIS ACTIVITY STARTED: 01/01/1983 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Terry Baker, Director of Environmental Health
PHONE: (916) 842-4196 This summary information was LAST VERIFIED on: 12/31/1987

PROGRAM: Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.

Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 5 years, whereas the underground tank and the monitoring records are inspected every 3 years.

As of September 1987 there are six clean-up sites that are active; 100 tanks are ready for closure. A list of consultants that are used to assist in the deployment of this program is kept on file.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: Siskiyou County
THIS ACTIVITY STARTED: 01/01/1987 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Terry Baker, Director of Environmental Health
PHONE: (916) 842-4196 This summary information was LAST VERIFIED on: 12/31/1987

PROJECT: Siskiyou County Nitrate Monitoring of Groundwater

Densely populated areas of Siskiyou County are monitored for nitrates in the groundwater. Areas chosen for study are in older subdivisions and are close to existing or planned water supply wells. Soil types and depth to groundwater are considered when choosing study areas.

These studies are used to determine the suitability of an area for further development and assist in long range planning.

As of September 1987 there are four areas being monitored:
- Pines area, south of Yreka
- Community of McDoel
- near Weed (Carrick addition)
- community of Greenview

GEOGRAPHIC COVERAGE: Siskiyou County
PART OF A PROGRAM titled: Small Water Supply Systems Monitoring - Siskiyou County
THIS ACTIVITY STARTED: 01/01/1970 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, planning, site investigation, nitrates, water supply wells.
FOR DETAILS, CONTACT: Terry Baker, Director of Environmental Health
PHONE: (916) 842-4196 This summary information was LAST VERIFIED on: 12/31/1987

Solano County Advisory Committee; C/O Fairfield Public Works Department

Street address of Organization: 1000 Webster Street; Fairfield, CA 94533

STUDY: Solano County Water Requirement Projections From 1990 to Ultimate Development

This study was undertaken by the Solano County Advisory Committee. The committee is comprised of representatives from the major water users and suppliers of Solano County. In addition to Ron Hurlbut, members of the committee include:
- Bryce Bledsoe Solano Irrigation District
- Mike Hardes Reclamation District 2068
- Ed Cofelt Maine Prairie Irrigation District
- Paul Weise Solano County Public Works Department

Groundwater currently supplies approximately 25 percent of the water use in the county and there is a 2000 acre-foot annual overdraft. The purpose of this study was to assess the current sources of water in the county, determine the long term water needs and reduce the overdraft.

GEOGRAPHIC COVERAGE: Solano County
THIS ACTIVITY STARTED: 01/01/1987 and ENDED: 09/01/1987 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, pertinent reports available, project planning, overdraft.
FOR DETAILS, CONTACT: Ron Hurlbut, Public Works Director
PHONE: (707) 428-7485 This summary information was LAST VERIFIED on: 05/18/1988

Solano County; Health Department; Division of Environmental Health

Street address of Organization: 601 Texas Street; Fairfield, CA 94533

PROGRAM: Hazardous Materials Spills Program

The county has prepared an area-wide emergency response plan to hazardous materials spills as outlined by the Department of Emergency Services. The emergency response plan outlines the responsibilities of the agencies involved. Events are coordinated with the appropriate incident commander, resources necessary to handle the spill are gathered, the spill is isolated and the site is remediated. Appropriate outside contractors are called in to do the necessary cleanup.

All individual businesses that handle hazardous materials must submit to the county their own plan for responding to an accidental release of these materials as well as an annual inventory of their hazardous materials.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: Solano County
THIS ACTIVITY STARTED: 07/01/1985 and CONTINUING as of: 05/12/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, planning, site inspection, site investigation, technical support, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Clifford Covey, Environmental Health Supervisor
PHONE: (707) 429-6401 This summary information was LAST VERIFIED on: 05/12/1988

CONTINUED FROM: **Solano County; Health Department; Division of Environmental Health**

PROGRAM: Regulation of On Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program requires percolation tests to determine the suitability of the leach field for treating wastes, checks for setback before issuing building permits, and ensures that there is adequate separation from water supply wells. Permits are required prior to installation of a septic system and prior to property subdivisions or lot splits.

GEOGRAPHIC COVERAGE: Solano County
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 05/12/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, planning, site inspection, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Monte Cook, Environmental Health Officer
PHONE: (707) 429-6401 This summary information was LAST VERIFIED on: 05/12/1988

PROGRAM: Sanitary Landfill Permitting and Monitoring Program - Solano County

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located in the vicinity of four active landfills in the county. The samples are obtained from the first encountered ground water and are tested monthly for specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness, pH, henol, total kjeldahl nitrogen, settleable solids, and EPA method 601 (organics).

The results of the monitoring program are maintained by the Regional Water Quality Control Board in the 'Waste Discharger Monitoring Files' as well as by this county office.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: Solano County
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 05/12/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, landfill, well, ph, conductance, COD, chlorine, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT, EPA 601.
FOR DETAILS, CONTACT: Clifford Covey, Environmental Health Supervisor
PHONE: (707) 429-6401 This summary information was LAST VERIFIED on: 05/12/1988

PROGRAM: Small Water Supply Systems Monitoring Program - Solano County

Approximately 101 community water systems consisting of less than 200 service connections each are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Solano County
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 05/12/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Ron Scheufler, Environmental Health Specialist
PHONE: (707) 429-6401 This summary information was LAST VERIFIED on: 05/12/1988

PROGRAM: Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring systems installed at the tank locations.

Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 1 year, whereas the underground tank and the monitoring records are inspected every 3 years.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: Solano County
THIS ACTIVITY STARTED: 07/01/1985 and CONTINUING as of: 05/12/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, site inspection, site investigation, technical support, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Clifford Covey, Environmental Health Supervisor
PHONE: (707) 429-6401 This summary information was LAST VERIFIED on: 05/12/1988

Solano Irrigation District

Street address of Organization: 508 Elmira Road; Vacaville, CA 95688

PROGRAM: Irrigation Well Monitoring Program

The 32 irrigation wells in the vicinity of Dixon, supply 12000 to 13000 acre-feet of water to supplement surface supplies, mostly at the beginning and end of the growing season. Annually, one of the wells is sampled at random and is tested for minerals and organics per Title 22. The wells are sampled in such a manner because of the possibility of coming on line as domestic water supply wells in the future. The wells are primarily in the Dixon area, with a few as far west as Vacaville.

References: Title 22, Chapter 15, Section 64401,

GEOGRAPHIC COVERAGE: Solano County in the vicinity of the City of Dixon
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 06/03/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, irrigation wells, organics, minerals, wells, Title 22.
FOR DETAILS, CONTACT: Darrell Rosenkild, Director of Water Operations
PHONE: (707) 448-6847 This summary information was LAST VERIFIED on: 06/03/1988

PROGRAM: Large Water Supply System Monitoring - City of Dixon

This large community water system, consisting of two wells and approximately 400 service connections, is regularly sampled at random distribution points for total coliform concentration. The individual supply wells are sampled every 6 months for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: City of Dixon
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 06/03/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Darrell Rosenkild, Director of Water Operations
PHONE: (707) 448-6847 This summary information was LAST VERIFIED on: 06/03/1988

Soquel Creek Water District; Santa Cruz County

Mailing address of Organization: P.O. Box 158; Soquel, CA 95073

PROGRAM: Soquel Creek Water District Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every year for minerals and organic compounds. Samples were tested one time for pesticides to determine the background concentrations in these wells. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at the County Department of Environmental Health, the Department of Health Services regional office and the Water District office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Coastal Santa Cruz County
THIS ACTIVITY STARTED: 01/01/1963 and CONTINUING as of: 05/12/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Robert Johnson, General Manager
PHONE: (408) 475-8500 This summary information was LAST VERIFIED on: 05/12/1988

PROGRAM: Soquel Creek Water District Groundwater Monitoring Program for Seawater Intrusion

The purpose of this program is to provide monitoring data which allow the Water District to best manage and protect the groundwater basin from seawater intrusion. To protect the groundwater, the sole source of water supply in the district, 9 sites within the Purisma and Aromas Red Sands Formations are monitored.

Each site has a multiple-depth monitoring well which is sampled to obtain water quality and water level data at various depths. TDS, temperature, electroconductivity and chloride concentration are determined at each site.

Additional monitoring wells throughout the district provide further water quality and water level data used to analyze the effects of pumping on the basin.

Every 3-4 years, a report analyzing all of the data from this program is written by a consultant for the Water District.

CONTINUED FROM: **Soquel Creek Water District; Santa Cruz County**
PROGRAM: Soquel Creek Water District Groundwater Monitoring Program for Seawater Intrusion

GEOGRAPHIC COVERAGE: Coastal Santa Cruz County
THIS ACTIVITY STARTED: 02/01/1983 and CONTINUING as of: 05/12/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, planning, seawater intrusion, multiple-depth wells, basin management, TDS, temperature, electroconductivity, chloride, effects of pumping, sole source aquifer.
FOR DETAILS, CONTACT: Robert Johnson, General Manager
PHONE: (408) 475-8500 This summary information was LAST VERIFIED on: 05/12/1988

South San Bernardino Water District

Street address of Organization: 882 South Tippecanoe; San Bernardino, CA 92408

PROGRAM: South San Bernardino Water District--Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Samples are taken weekly for nitrates and monthly for Trichloroethylene (TCE), Tetrachloroethylene (PCE), and Dibromochloropropane (DBCP). Individual community supply wells are sampled every 3 years for minerals and organic compounds, and as needed for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.
The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: 1 sq. mile in southern section of the City of San Bernardino
THIS ACTIVITY STARTED: 01/01/1974 and CONTINUING as of: 09/06/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Steven Steele, General Manager
PHONE: (714) 796-0910 This summary information was LAST VERIFIED on: 09/06/1988

Southern California Edison Company

Mailing address of Organization: P.O. Box 527; Avalon, CA 90704

PROGRAM: Southern California Edison Company Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services. Depth to ground water table is also monitored.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Santa Catalina Island
THIS ACTIVITY STARTED: 01/01/1980 and CONTINUING as of: 04/18/1990 (dates may be approximate).
KEYWORDS: administrative support, ground water modeling, ground water monitoring, planning, site inspection, site investigation, technical support, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Robert Anderson, District Superintendent
PHONE: (213) 510-1315 This summary information was LAST VERIFIED on: 04/18/1990

PROGRAM: Southern California Edison Company Desalinization Facility

Two wells located 100 feet below the ocean floor supply water for desalinization, providing supplemental fresh water for municipal use on Catalina Island.
The desalinization facility operates on the principal of reverse osmosis and is designed for certain feedwater conditions such as mineral content, hardness, acidity, temperature, etc. The water is sampled and analyzed for total dissolved solids (TDS), temperature, minerals, organic and inorganic compounds.

GEOGRAPHIC COVERAGE: Santa Catalina Island
THIS ACTIVITY STARTED: 12/01/1988 and CONTINUING as of: 04/19/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water modeling, ground water monitoring, pertinent reports available, planning, site inspection, site investigation, technical support, desalinization, osmosis, supply wells, organics, minerals, wells, total dissolved solids.
FOR DETAILS, CONTACT: Keith Lefever, District Manager
PHONE: (213) 510-0932 This summary information was LAST VERIFIED on: 04/19/1990

Southern California Water Company

Street address of Organization: 3625 West 6th St.; Los Angeles, CA 90020

PROGRAM: Southern California Water Company Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals, every 2 years for organic compounds, and every 4 years for radioactivity. Other constituents are tested for as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 01/01/1929 and CONTINUING as of: 04/10/1990 (dates may be approximate).
KEYWORDS: ground water monitoring, site inspection, site investigation, technical support, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Frank Kostas, Sanitary Engineer
PHONE: (213) 251-3631 This summary information was LAST VERIFIED on: 04/10/1990

Stanislaus County; Environmental Health Department

Street address of Organization: 1716 Morgan Road; Modesto, CA 95351

PROGRAM: Stanislaus County Regulation of On-Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program conducts percolation tests to determine the suitability of the leach field for treating wastes, checks for setback before issuing building permits, and ensures that there is good separation from water supply wells.

GEOGRAPHIC COVERAGE: Stanislaus County
THIS ACTIVITY STARTED: 01/01/1950 and CONTINUING as of: 09/16/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, planning, site inspection, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Keith Munroe, Senior Environmental Health Specialist
PHONE: (209) 525-4154 This summary information was LAST VERIFIED on: 09/16/1988

PROGRAM: Stanislaus County Small Water Supply Systems Monitoring Program

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Stanislaus County
THIS ACTIVITY STARTED: 01/01/1969 and CONTINUING as of: 09/16/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Brian Kumimoto, Senior Environmental Health Specialist
PHONE: (209) 525-4154 This summary information was LAST VERIFIED on: 09/16/1988

PROGRAM: Stanislaus County Water Well Permitting

The siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells are regulated through a permit program. After 1990, all counties will be required to adopt a well permitting ordinance, either a State model ordinance or their own.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California); Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: Stanislaus County
THIS ACTIVITY STARTED: 01/01/1974 and CONTINUING as of: 09/16/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Brian Kumimoto, Senior Environmental Health Specialist
PHONE: (209) 525-4154 This summary information was LAST VERIFIED on: 09/16/1988

Stanislaus County; Environmental Resources Department

Street address of Organization: 1716 Morgan Road; Modesto, CA 95351

PROGRAM: Stanislaus County Hazardous Waste Management Plans

A plan has been developed for the management of all hazardous wastes produced by industries, homes, and other sources in their jurisdiction. This hazardous waste management plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste facilities. The existing facilities that can be expanded are identified, as are sites that would be suitable for the placement of future facilities.

Reference: AB2948 (1986, Tanner)

GEOGRAPHIC COVERAGE: Stanislaus County
THIS ACTIVITY STARTED: 07/01/1987 and CONTINUING as of: 09/19/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, permitting, pertinent reports available, planning, site investigation, technical support, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: Ted Garcia, Hazardous Materials Program Manager
PHONE: (209) 525-4150 This summary information was LAST VERIFIED on: 09/19/1988

PROGRAM: Stanislaus County Hazardous Materials Spills

The county prepares an area-wide emergency response plan to hazardous materials spills as outlined by the Office of Emergency Services. The emergency response plan outlines the responsibilities of the agencies involved. Events are coordinated with the appropriate incident commander, resources necessary to handle the spill are gathered, the spill is isolated and the media is informed. Appropriate people are called in to assess the extent of needed cleanup procedures.

All individual businesses that handle hazardous materials must submit to the county their own plan for responding to an accidental release of these materials as well as an annual inventory of their hazardous materials. This information is on file at the governing agency and is available to the public.

The city may assume the responsibility of preparing an emergency response plan within its jurisdiction by enacting an ordinance. If the city assumes this responsibility, it must coordinate its activities with the county.

References: AB2185 (1985, Waters); AB3777 (1986, La Follette); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.; Proposition 65.

GEOGRAPHIC COVERAGE: Stanislaus County
THIS ACTIVITY STARTED: 09/01/1986 and CONTINUING as of: 09/19/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, pertinent reports available, planning, site inspection, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Ted Garcia, Hazardous Materials Program Manager
PHONE: (209) 525-4150 This summary information was LAST VERIFIED on: 09/19/1988

PROGRAM: Stanislaus County Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.

Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 5 years, whereas the underground tank and the monitoring records are inspected every year.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: Stanislaus County
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 09/19/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, planning, site inspection, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Ted Garcia, Hazardous Materials Program Manager
PHONE: (209) 525-4150 This summary information was LAST VERIFIED on: 09/19/1988

Stanislaus County; Public Works Department

Street address of Organization: 1100 H Street; Modesto, CA 95354

PROGRAM: Stanislaus County Sanitary Landfill Ground Water Monitoring Program

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located in the vicinity of the landfill. The samples are obtained from the first encountered ground water and are tested monthly for pH, and specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness.

CONTINUED FROM: **Stanislaus County; Public Works Department**
PROGRAM: Stanislaus County Sanitary Landfill Ground Water Monitoring Program

The results of the monitoring program are maintained by the Regional Water Quality Control Board in the 'Waste Discharger Monitoring Files' as well as by the county office.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: Stanislaus County
THIS ACTIVITY STARTED: 01/01/1980 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water monitoring, planning, site inspection, technical support, landfill, well, ph, conductance, COD, chloride, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Jerry Irons, Public Services Manager
PHONE: (209) 525-6552 This summary information was LAST VERIFIED on: 08/18/1988

Stockton East Water District

Mailing address of Organization: P.O. Box 5157; Stockton, CA 95205

PROGRAM: Stockton East Water District Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and for radioactivity every 4 years. Other constituents are tested for occasionally as requested by the Department of Health Services.
The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: 115,000 Acres in Eastern San Joaquin County
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Edward Steffani, General Manager
PHONE: (209) 948-0333 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Eastern San Joaquin County Ground Water Study

The purpose of this study was to determine the extent of ground water overdraft and the impact of supplimental water importation.

GEOGRAPHIC COVERAGE: 115,000 Acres in Eastern San Joaquin County
THIS ACTIVITY STARTED: 01/01/1982 and ENDED: 01/01/1985 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, overdraft, supplemental water importation, model.
FOR DETAILS, CONTACT: Edward Steffani, General Manager
PHONE: (209) 948-0333 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Stockton East Ground Water Quality Study

The objectives of this study were to determine the long term potential for agricultural chemical contaminates in the Stockton East ground water basin and to develop alternatives for managing potential ground water degradation.
The finances for this study were provided by the State Water Resources Control Board federal Phase 2 205(j) funds.

GEOGRAPHIC COVERAGE: 115,000 Acres in Eastern San Joaquin County
THIS ACTIVITY STARTED: 04/01/1986 and ENDED: 04/01/1988 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, ground water management, pertinent reports available, studies extent of ground water pollution, federal phase 2 205(j) funds, water quality, agricultural contaminants.
FOR DETAILS, CONTACT: Jeannette Thomas, Water Quality Supervisor
PHONE: (209) 948-0333 This summary information was LAST VERIFIED on: 08/18/1988

Stratford Public Utility District

Mailing address of Organization: P.O. Box 85; Stratford, CA 93266

PROGRAM: Stratford Small Water Supply Systems Monitoring

The community water system (consisting of less than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: 300 Acres in the Center of Kings County
THIS ACTIVITY STARTED: 10/11/1950 and CONTINUING as of: 11/29/1989 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water monitoring, pertinent reports available, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Joe Neves, Manager
PHONE: (209) 947-3037 This summary information was LAST VERIFIED on: 11/29/1989

STUDY: Stratford Subsurface Drainage System Evaluation

Operation of the subsurface drainage is evaluated by monitoring changes in ground water levels and water quality during spring, summer, and fall. Water samples are collected weekly on 34 observation wells and tested for pH, specific conductance, nitrate, sodium adsorption ratio (SAR), total hardness, chloride, and boron.

GEOGRAPHIC COVERAGE: 300 Acres in the Center of Kings County
THIS ACTIVITY STARTED: 05/01/1983 and ENDED: 10/01/1983 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, subsurface, ground water levels, drainage, observation wells.
FOR DETAILS, CONTACT: Joe Neves, Manager
PHONE: (209) 947-3037 This summary information was LAST VERIFIED on: 11/29/1989

Strathmore Public Utility District

Mailing address of Organization: P.O. Box 425; Strathmore, CA 93267

PROGRAM: Strathmore Public Utility District Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: 1 square mile between Lindsay and Porterville cities
THIS ACTIVITY STARTED: 01/19/1923 and CONTINUING as of: 12/29/1989 (dates may be approximate).
KEYWORDS: enforcement, ground water monitoring, pertinent reports available, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Ted Iles, District Manager
PHONE: (209) 568-1613 This summary information was LAST VERIFIED on: 12/29/1989

Suburban Water Systems

Street address of Organization: 16340 East Maple Grove; La Puente, CA 91744

PROGRAM: Suburban Water Systems Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Upper San Gabriel Valley and Central Basin Areas
THIS ACTIVITY STARTED: 04/01/1985 and CONTINUING as of: 04/24/1990 (dates may be approximate).

CONTINUED FROM: **Suburban Water Systems**
PROGRAM: Suburban Water Systems Large Water Supply Systems Monitoring

KEYWORDS: administrative support, allocates funds, ground water cleanup, ground water monitoring, pertinent reports available, planning, site inspection, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Gene Shafer, Operation Administrator
PHONE: (818) 918-1231 This summary information was LAST VERIFIED on: 04/24/1990

Sunnyslope County Water District

Street address of Organization: 3416 Airline Highway; Hollister, CA 95023

PROGRAM: Sunnyslope County Water District Large Water Supply Systems Monitoring

The community water system (consisting of more than 3,000 service connections) is regularly sampled at random distribution points for total coliform concentration. Individual community supply wells are sampled every 2 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: 5 square miles of Hollister city
THIS ACTIVITY STARTED: 12/17/1954 and CONTINUING as of: 01/22/1990 (dates may be approximate).
KEYWORDS: enforcement, ground water monitoring, water supply wells, organics, minerals, wells, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Brian Yamaoka, General Manager
PHONE: (408) 637-4670 This summary information was LAST VERIFIED on: 01/22/1990

PROGRAM: Sunnyslope County Water District Regulation of On-Site Sewage Disposal Systems

The installation and maintenance of individual waste disposal systems (consisting of septic tanks and leach fields) are regulated by a permit program. Various parameters, setbacks, ground water levels, lot size, and the proximity of water supply wells are checked before issuing building permits. Percolation tests are conducted to determine the suitability of the leach field to accept waste loads.

GEOGRAPHIC COVERAGE: 5 square miles of Hollister city
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 01/24/1990 (dates may be approximate).
KEYWORDS: enforcement, permitting, planning, site inspection, site investigation, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Brian Yamaoka, General Manager
PHONE: (408) 637-4670 This summary information was LAST VERIFIED on: 01/24/1990

Sutter County; Agriculture Commission

Street address of Organization: 142 Garden Highway; Yuba City, CA 95991

PROGRAM: Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.
Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 5 years, whereas the underground tank and the monitoring records are inspected every 3 years.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: Sutter County
THIS ACTIVITY STARTED: 01/01/1982 and CONTINUING as of: 01/27/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, site inspection, site investigation, technical support, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Lou Gascke, Assistant Agriculture Commissioner
PHONE: (916) 741-7500 This summary information was LAST VERIFIED on: 01/27/1988

Sutter County; Health Department; Environmental Health Division

Street address of Organization: 1521 Butte House Road; Yuba City, CA 95991

PROGRAM: Regulation of On Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program conducts soil mantle inspections to determine the suitability of a leach field for treating wastes, checks for setback before issuing building permits, and ensures that there is adequate separation from water supply wells. Percolation tests are performed if needed.

GEOGRAPHIC COVERAGE: Sutter County
THIS ACTIVITY STARTED: 01/01/1961 and CONTINUING as of: 02/12/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, planning, site inspection, site investigation, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Roger Davies, Environmental Health Director
PHONE: (916) 741-7219 This summary information was LAST VERIFIED on: 02/12/1988

PROGRAM: Small Water Supply Systems Monitoring Program - Sutter County

There are 25 small community water systems consisting of less than 200 service connections that are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services. In addition, 99 non-community systems are tested for nitrates and fluoride and 13 state small systems (less than 15 connections) are tested for nitrates and arsenic.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Sutter County
THIS ACTIVITY STARTED: 01/01/1971 and CONTINUING as of: 02/12/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803, nitrates, fluoride, arsenic.
FOR DETAILS, CONTACT: Roger Davies, Environmental Health Director
PHONE: (916) 741-7219 This summary information was LAST VERIFIED on: 02/12/1988

PROGRAM: Water Well Permitting - Sutter County

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells. Regulations are enforced through a permit program.

Water Well Driller Reports are on file at the County Environmental Health Department office and copies are forwarded to the California Department of Water Resources, Central District in Sacramento.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California).

After 1990, all counties will be required to adopt a well permitting ordinance, either a State model ordinance or their own.

References: Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801. Sutter County Code Ordinance No. 933.

GEOGRAPHIC COVERAGE: Sutter County
THIS ACTIVITY STARTED: 01/05/1984 and CONTINUING as of: 02/16/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, site inspection, site investigation, technical support, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Roger Davies, Environmental Health Director
PHONE: (916) 741-7219 This summary information was LAST VERIFIED on: 02/16/1988

Sutter County; Office of Emergency Services

Mailing address of Organization: P.O. Box 1555; Yuba City, CA 95991

PROGRAM: Hazardous Materials Emergency Response Program

The county has prepared an area-wide emergency response plan to hazardous materials spills as outlined by the Office of Emergency Services. The emergency response plan outlines the responsibilities of the agencies involved. Events are coordinated with the appropriate incident commander, resources necessary to handle the spill are gathered, the spill is isolated and the media is informed. Appropriate people are called in to assess the extent of needed cleanup procedures.

All individual businesses that handle hazardous materials must submit to the county their own plan for responding to an accidental release of these materials as well as an annual inventory of their hazardous materials.

CONTINUED FROM: **Sutter County; Office of Emergency Services**
PROGRAM: Hazardous Materials Emergency Response Program

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: Sutter County except Yuba City
THIS ACTIVITY STARTED: 01/01/1976 and CONTINUING as of: 02/24/1988 (dates may be approximate).
KEYWORDS: enforcement, planning, site inspection, hazardous material spills, emergency response plan, inventory, AB2185, containment.
FOR DETAILS, CONTACT: Cynthia Allen, Emergency Services Analyst
PHONE: (916) 741-7370 This summary information was LAST VERIFIED on: 02/24/1988

Sweetwater Authority

Mailing address of Organization: P.O. Box 2328; Chula Vista, CA 92012-2328

PROGRAM: Sweetwater Authority Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled twice a year for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Southwest Corner of San Diego County
THIS ACTIVITY STARTED: 09/01/1977 and CONTINUING as of: 03/02/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, ground water modeling, ground water monitoring, pertinent reports available, planning, site inspection, site investigation, technical support, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Gary Butterfield, General Manager
PHONE: (619) 420-1413 This summary information was LAST VERIFIED on: 03/02/1990

STUDY: Middle Sweetwater River System Ground Water Study

The ground water basin and surrounding area is mapped and otherwise characterized to determine the occurrence, direction of movement, and areal extent of ground water. Geologic maps, well information, and analysis of the hydraulic properties of aquifers are incorporated in the study. Ground water recharge and discharge areas are identified and used in a water balance analysis. Uses of ground water in the study areas are inventoried. Some analyses of ground water quality are also included.

GEOGRAPHIC COVERAGE: Southwest Corner of San Diego County
THIS ACTIVITY STARTED: 04/01/1988 and may END: 01/01/1991 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies sources of pollution, geohydrologic, geology, ground water hydrology, hydraulic properties, discharge, recharge, ground water quality, aquifers,.
FOR DETAILS, CONTACT: Gary Butterfield, General Manager
PHONE: (619) 420-1413 This summary information was LAST VERIFIED on: 03/02/1990

Tehama County; Department of Agriculture

Street address of Organization: 1760 Walnut Street; Red Bluff, CA 96080

PROGRAM: Underground Storage Tank Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.

Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 5 years, whereas the underground tank and the monitoring records are inspected every 3 years.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: Tehama County
THIS ACTIVITY STARTED: 06/01/1984 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Bill Williams, Underground Storage Tank Technician
PHONE: (916) 527-4504 This summary information was LAST VERIFIED on: 12/31/1987

Tehama County; Environmental Health Department

Street address of Organization: Courthouse Room 36; Red Bluff, CA 96080

PROGRAM: Hazardous Materials Spills Program

This program was instituted to comply with regulations of the State Office of Emergency Services. All individual businesses that handle hazardous materials must submit to the county an inventory of hazardous materials stored, as well as their plan for responding to an accidental release of these materials.

The initial response to a hazardous material spill includes the containment and cleanup of the material. Removal of more than 55 gallons of hazardous material is performed by a professional removal firm. After this initial response, additional cleanup (if necessary) continues. Monitoring wells may be installed for further study.

Response to a hazardous material spill may include use of the HAZMAT response vehicle based in Redding and operated by the Shasta County Department of Emergency Services.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: Tehama County
THIS ACTIVITY STARTED: 01/01/1987 and CONTINUING as of: 01/04/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, pertinent reports available, site inspection, site investigation, technical support, hazardous materials spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Walt Kruse, Environmental Health Director
PHONE: (916) 527-8020 This summary information was LAST VERIFIED on: 01/04/1988

PROGRAM: Regulation of On Site Sewage Disposal and Treatment Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program conducts on-site soils evaluations to determine the suitability of the leach field for treating wastes, checks for setback before issuing construction permits, and ensures that there is proper separation from water supply wells.

GEOGRAPHIC COVERAGE: Tehama County
THIS ACTIVITY STARTED: 12/01/1985 and CONTINUING as of: 01/04/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Walt Kruse, Environmental Health Director
PHONE: (916) 527-8020 This summary information was LAST VERIFIED on: 01/04/1988

PROGRAM: Small Water Supply Systems Monitoring Program - Tehama County

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Tehama County
THIS ACTIVITY STARTED: 07/01/1984 and CONTINUING as of: 01/04/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Walt Kruse, Environmental Health Director
PHONE: (916) 527-8020 This summary information was LAST VERIFIED on: 01/04/1988

PROGRAM: Water Well Permitting - Tehama County

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells. Regulations are enforced through a permit program.

Water Well Driller Reports are on file at the County Environmental Health Division office. A list of wells drilled is forwarded to the California Department of Water Resources, Northern District in Red Bluff.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California), Tehama County Code Chapter 15.56.

After 1990, all counties will be required to adopt a well permitting ordinance, either a State model ordinance or their own.

References: Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

CONTINUED FROM: **Tehama County; Environmental Health Department**
PROGRAM: Water Well Permitting - Tehama County

GEOGRAPHIC COVERAGE: Tehama County
THIS ACTIVITY STARTED: 10/01/1985 and CONTINUING as of: 01/04/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, planning, site inspection, site investigation, technical support, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Walt Kruse, Environmental Health Director
PHONE: (916) 527-8020 This summary information was LAST VERIFIED on: 01/04/1988

STUDY: Antelope Groundwater Study (Tehama County)

This study was undertaken in cooperation with the Department of Water Resources in Red Bluff. The hydrogeologic properties of the soils and aquifers in the Antelope development area adjacent to Red Bluff were evaluated in order to determine if changes should be made in the annular seal requirements of new wells.

It was determined that the groundwater quality was at present satisfactory, but the annular seal requirements of new wells should be upgraded to preserve future groundwater quality.

GEOGRAPHIC COVERAGE: Antelope, Tehama County
PART OF A PROGRAM titled: Water Well Permitting - Tehama County
THIS ACTIVITY STARTED: 01/01/1985 and ENDED: 06/01/1987 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, wells, annular seal.
FOR DETAILS, CONTACT: Walt Kruse, Environmental Health Director
PHONE: (916) 527-8020 This summary information was LAST VERIFIED on: 01/04/1988

STUDY: Antelope Pollution Study (Tehama County)

This study was undertaken in cooperation with the Regional Water Quality Control Board in Redding. Groundwater quality in the Antelope development area near Red Bluff was evaluated to determine if it had been degraded by previously installed on-site sewage disposal systems. Hydrogeologic properties of the soils were studied to determine the suitability of using leach fields in further development of the area.

GEOGRAPHIC COVERAGE: Antelope, Tehama County
PART OF A PROGRAM titled: Regulation of On Site Sewage Disposal and Treatment Systems
THIS ACTIVITY STARTED: 04/01/1986 and ENDED: 05/01/1987 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, leach fields, septic tanks, wells.
FOR DETAILS, CONTACT: Walt Kruse, Environmental Health Director
PHONE: (916) 527-8020 This summary information was LAST VERIFIED on: 01/04/1988

Templeton Community Services District

Street address of Organization: 98 Main Street; Templeton, CA 93465
Mailing address of Organization: P.O. Box 780; Templeton, CA 93465

PROGRAM: Templeton Community Services District Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and for radioactivity every 4 years. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Templeton Community
THIS ACTIVITY STARTED: 12/01/1976 and CONTINUING as of: 08/01/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: William Miller, General Manager
PHONE: (805) 434-1078 This summary information was LAST VERIFIED on: 08/01/1988

Terra Bella Irrigation District

Street address of Organization: 24790 Avenue 95; Terra Bella, CA 93270

PROGRAM: Terra Bella Irrigation District Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Terra Bella
THIS ACTIVITY STARTED: 01/01/1965 and CONTINUING as of: 12/25/1989 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Courtland Smith, District Manager
PHONE: (209) 535-4414 This summary information was LAST VERIFIED on: 12/25/1989

Thermalito Irrigation District

Street address of Organization: 410 Grand Avenue; Oroville, CA 95965

PROGRAM: Large Water Supply System Monitoring - Thermalito Irrigation District

The primary function of this Irrigation District is providing a domestic water supply within its service area. This water system, consisting of approximately 2,000 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Thermalito Irrigation District
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Ed Thomson,
PHONE: (916) 533-8421 This summary information was LAST VERIFIED on: 12/31/1987

Three Valleys Municipal Water District

Mailing address of Organization: P. O. Box 1300; Claremont, CA 91711

STUDY: Three Valleys Municipal Water District Long-Range 1990 Project Needs Report

The district conducts investigations as part of its long-range plan. These include:

1) Evaluate the use of unused spreading basins (presently owned and operated by the Los Angeles County Public Works Department) for ground water recharge in areas below check dams. Imported water from the Metropolitan Water District of Southern California would be used to recharge the basins during the winter for later use.
2) Evaluate the possibility of extracting water from basins with high nitrate concentrations for treatment and re-spreading. This water could then be extracted for use during the summer months.

GEOGRAPHIC COVERAGE: East San Gabriel Valley
THIS ACTIVITY STARTED: 11/28/1989 and ENDED: 07/03/1990 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, ground water management, ground water usage, pertinent reports available, project planning, studies extent of ground water pollution, long-range plan, spreading basin, imported water, ground water, nitrate,.
FOR DETAILS, CONTACT: Richard Hansen, General Manager and Chief Engineer
PHONE: (714) 621-5568 This summary information was LAST VERIFIED on: 07/23/1990

Thunderbird County Water District

Street address of Organization: 24737 Standing Rock; Apple Valley, CA 92307
Mailing address of Organization: P.O. Box 1105; Apple Valley, CA 92307

PROGRAM: Thunderbird County Water District--Small Water Supply Systems Monitoring Program

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

CONTINUED FROM: **Thunderbird County Water District**
PROGRAM: Thunderbird County Water District--Small Water Supply Systems Monitoring Program

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: 1 1/2 square miles in area of Apple Valley
THIS ACTIVITY STARTED: 10/01/1967 and CONTINUING as of: 09/16/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Howard W. Burns, General Manager
PHONE: (619) 247-7407 This summary information was LAST VERIFIED on: 09/16/1988

PROGRAM: Thunderbird County Water District--Water Well Permitting

The siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells are regulated through a permit program. After 1990, all counties will be required to adopt a well permitting ordinance, either a State model ordinance or their own.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California); Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: 1 1/2 square miles in area of Apple Valley
THIS ACTIVITY STARTED: 10/01/1967 and CONTINUING as of: 09/16/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Howard W. Burns, General Manager
PHONE: (619) 247-7407 This summary information was LAST VERIFIED on: 09/16/1988

Tipton Community Services District

Mailing address of Organization: P.O. Box 266; Tipton, CA 93272

PROGRAM: Tipton Community Services District Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Unincorporated Town of Tipton
THIS ACTIVITY STARTED: 01/01/1961 and CONTINUING as of: 12/26/1989 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Johnnie Price, Maintenance Director
PHONE: (209) 752-4182 This summary information was LAST VERIFIED on: 12/26/1989

Tranquillity Irrigation District

Mailing address of Organization: P.O. Box 487; Tranquility, CA 93668

PROGRAM: Tranquillity Irrigation District Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Town of Tranquillity
THIS ACTIVITY STARTED: 01/01/1940 and CONTINUING as of: 09/12/1989 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Sarge Green, District Manager
PHONE: (209) 698-7225 This summary information was LAST VERIFIED on: 09/12/1989

Tres Pinos County Water District

Mailing address of Organization: P.O. Box 529; Tres Pinos, CA 95075

PROGRAM: Tres Pinos County Water District Small Water Supply Systems Monitoring

The community water system (consisting of less than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Unincorporated Town of Tres Pinos
THIS ACTIVITY STARTED: 02/03/1962 and CONTINUING as of: 11/07/1989 (dates may be approximate).
KEYWORDS: enforcement, ground water monitoring, permitting, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Norma Price, General Manager
PHONE: (408) 628-3582 This summary information was LAST VERIFIED on: 11/07/1989

Trinity County; Environmental Health Department

Mailing address of Organization: P.O. Box 1257; Weaverville, CA 96093

PROGRAM: Hazardous Materials Spills Program

This program was instituted to comply with regulations of the State Office of Emergency Services. All individual businesses that handle hazardous materials must submit to the county an inventory of hazardous materials stored, as well as their plan for responding to an accidental release of these materials.

The initial response to a hazardous material spill includes the containment and cleanup of the material. Removal of more than 55 gallons of hazardous material is performed by a professional removal firm. After this initial response, additional cleanup (if necessary) continues. Monitoring wells may be installed for further study.

Response to a hazardous material spill may include use of the HAZMAT response vehicle based in Redding and operated by the Shasta County Emergency Services Department.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: Trinity County
THIS ACTIVITY STARTED: 01/01/1987 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, pertinent reports available, site inspection, site investigation, technical support, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Cheryl Hawkins, Lead Sanitarian
PHONE: (916) 623-1358 This summary information was LAST VERIFIED on: 12/31/1987

PROGRAM: Regulation of On Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program conducts percolation tests to determine the suitability of the leach field for treating wastes, checks for setback before issuing building permits, and ensures that there is good separation from water supply wells.

GEOGRAPHIC COVERAGE: Trinity County
THIS ACTIVITY STARTED: 01/01/1965 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, planning, site inspection, site investigation, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Cheryl Hawkins, Lead Sanitarian
PHONE: (916) 623-1358 This summary information was LAST VERIFIED on: 12/31/1987

PROGRAM: Sanitary Landfill Permitting and Monitoring Program - Trinity County

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located in the vicinity of the landfill. The samples are obtained from the first encountered ground water and are tested monthly for pH, and specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness.

The results of the monitoring program are maintained by the Regional Water Quality Control Board in the 'Waste Discharger Monitoring Files' as well as by this county office.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

CONTINUED FROM: **Trinity County; Environmental Health Department**
PROGRAM: Sanitary Landfill Permitting and Monitoring Program - Trinity County

GEOGRAPHIC COVERAGE: Trinity County
THIS ACTIVITY STARTED: 01/01/1977 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, landfill, well, ph, conductance, COD, chlorine, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Cheryl Hawkins, Lead Sanitarian
PHONE: (916) 623-1358 This summary information was LAST VERIFIED on: 12/31/1987

PROGRAM: Small Water Supply Systems Monitoring Program - Trinity County

The water supplies of 25 community water systems, consisting of less than 200 service connections each, are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.
Each small water system is sourced by a separate, perched aquifer of limited extent.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Trinity County
THIS ACTIVITY STARTED: 01/01/1961 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Cheryl Hawkins, Lead Sanitarian
PHONE: (916) 623-1358 This summary information was LAST VERIFIED on: 12/31/1987

PROGRAM: Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.
Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 5 years, whereas the underground tank and the monitoring records are inspected every 3 years.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: Trinity County
THIS ACTIVITY STARTED: 09/01/1987 and CONTINUING as of: 12/31/1987 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Cheryl Hawkins, Lead Sanitarian
PHONE: (916) 623-1358 This summary information was LAST VERIFIED on: 12/31/1987

Truckee-Tahoe Sanitation Agency

Street address of Organization: P.O. Drawer B; Truckee, CA 95734

PROGRAM: Ground Water Recharge with Treatment Plant Effluent

Wastewater from the tertiary sewage treatment plant is disposed of in leach fields. This provides a source of ground water recharge for the Martis Valley Ground Water Basin.

GEOGRAPHIC COVERAGE: Martis Valley
THIS ACTIVITY STARTED: 02/01/1978 and CONTINUING as of: 11/05/1987 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water monitoring, pertinent reports available, planning, site inspection, sewage, recharge, leach fields.
FOR DETAILS, CONTACT: Craig Woods, Manager
PHONE: (916) 587-2525 This summary information was LAST VERIFIED on: 11/05/1987

Tulare County; Department of Health Services; Environmental Health Division
Street address of Organization: County Civic Center; Visalia, CA 93291

PROGRAM: County of Tulare (DHS) Hazardous Materials Spills Emergency Response

The responsibilities of public agencies to react to a spill of hazardous materials are delineated in an area-wide emergency response plan, prepared as outlined by the California Office of Emergency Services. The following activities are coordinated by the appropriate incident commander:
- Resources necessary to handle the spill are gathered
- The spill is isolated
- The media are informed
- An assessment is made of the extent of any needed cleanup procedures

All individual businesses that handle hazardous materials must submit to the county their own plan for responding to an accidental release of these materials as well as an annual inventory of their hazardous materials. This information is on file at the governing agency and is available to the public.

References: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: Tulare County
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 12/21/1989 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Larry Dwoskin, Environmental Health Specialist
PHONE: (209) 733-6441 This summary information was LAST VERIFIED on: 12/21/1989

PROGRAM: County of Tulare (DHS) Hazardous Waste Management Planning

The management of all hazardous wastes produced by industries, businesses, homes, and other sources within a county's jurisdiction is guided by a 25 year hazardous waste management plan. The plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste facilities. Existing facilities that can be expanded are identified, as are sites that would be suitable for the placement of future facilities.

References: AB2948 (1986, Tanner)

GEOGRAPHIC COVERAGE: Tulare County
THIS ACTIVITY STARTED: 01/01/1985 and CONTINUING as of: 12/21/1989 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, pertinent reports available, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: Larry Dwoskin, Environmental Health Specialist
PHONE: (209) 733-6441 This summary information was LAST VERIFIED on: 12/21/1989

PROGRAM: County of Tulare (DHS) Underground Storage Tanks Regulation

The design, construction, closure and abandonment of storage tanks are regulated by a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank, drainage system, and monitoring system. The permit is valid for 5 years and cannot be renewed unless the underground tank has been inspected within the prior 3 years. More frequent testing is usually required since any monitoring system must be capable of determining the containment ability of the underground storage tank and detecting any active or future unauthorized releases.

References: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16; 1988 Uniform Fire Code, Articles 79 & 80.

GEOGRAPHIC COVERAGE: Tulare County
THIS ACTIVITY STARTED: 09/01/1985 and CONTINUING as of: 12/21/1989 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Larry Dwoskin, Environmental Specialist
PHONE: (209) 733-6441 This summary information was LAST VERIFIED on: 12/21/1989

PROGRAM: County of Tulare (DHS) Sanitary Landfill Ground Water Monitoring

Monitoring wells located in the vicinity of the sanitary landfill are occasionally sampled for any indication of ground water pollution. Samples are collected from the first encountered ground water. Occasionally, the wells are sampled and tested for pH and specific conductance. Infrequently, the wells are sampled and tested for chemical oxygen demand (COD), chloride, iron, nitrate, total dissolved solids (TDS), and total hardness; depth to ground water is also noted. Regular sampling is planned for the future.

CONTINUED FROM: **Tulare County; Department of Health Services; Environmental Health Division**
PROGRAM: County of Tulare (DHS) Sanitary Landfill Ground Water Monitoring

References: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: Tulare County
THIS ACTIVITY STARTED: 01/01/1985 and CONTINUING as of: 12/21/1989 (dates may be approximate).
KEYWORDS: ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, landfill, well, ph, conductance, COD, chloride, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Larry Dwoskin, Environmental Specialist
PHONE: (209) 733-6441 This summary information was LAST VERIFIED on: 12/21/1989

PROGRAM: County of Tulare (DHS) Small Water Supply Systems Monitoring

The county is responsible for monitoring a number of small water supply systems (consisting of less than 200 service connections) as requested by their owner/operators. The water supply systems are regularly sampled at distribution points for coliform concentration. Water districts, community, and non-community supply wells are required to be sampled per Title 22.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Tulare County
THIS ACTIVITY STARTED: 01/01/1950 and CONTINUING as of: 12/21/1989 (dates may be approximate).
KEYWORDS: enforcement, ground water monitoring, permitting, pertinent reports available, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: J.W. Johnson, Environmental Health Specialist
PHONE: (209) 733-6441 This summary information was LAST VERIFIED on: 12/21/1989

PROGRAM: County of Tulare (DHS) Water Well Permitting

The siting, drilling, and construction of new water wells, the deepening and reperforation of existing wells, and the abandonment and destruction of old wells are regulated through a permit program. All counties will be required to adopt a well permitting ordinance in 1990, either the State of California's model ordinance or their own.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California); Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: Unincorporated Areas of Tulare County
THIS ACTIVITY STARTED: 01/01/1974 and CONTINUING as of: 12/21/1989 (dates may be approximate).
KEYWORDS: enforcement, permitting, site inspection, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: J.W. Johnson, Environmental Health Specialist
PHONE: (209) 733-6441 This summary information was LAST VERIFIED on: 12/21/1989

PROGRAM: County of Tulare (DHS) Regulation of On-Site Sewage Disposal Systems

The installation of individual waste disposal systems (consisting of septic tanks and leach fields) are regulated by a permit program. Various parameters, setbacks, ground water levels, lot size, and the proximity of water supply wells are checked before issuing building permits. Percolation tests are conducted when necessary to determine the suitability of the leach field to accept waste loads.

GEOGRAPHIC COVERAGE: Tulare County
THIS ACTIVITY STARTED: 01/01/1974 and CONTINUING as of: 12/21/1989 (dates may be approximate).
KEYWORDS: enforcement, permitting, planning, site inspection, site investigation, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Mark Bairstow, Environmental Specialist
PHONE: (209) 733-6441 This summary information was LAST VERIFIED on: 12/21/1989

STUDY: County of Tulare (DHS) Water Quality Sampling For Organic Compounds

Water supply systems representing all major watersheds within and adjacent to Tulare County were sampled for organic compounds. Six (two percent) were found to be contaminated with industrial solvents and pesticides.

GEOGRAPHIC COVERAGE: Tulare County
THIS ACTIVITY STARTED: 01/01/1985 and ENDED: 12/31/1988 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water usage, pertinent reports available, project planning, studies extent of ground water pollution, studies sources of pollution, water supply systems, organics, industrial solvents, pesticides.

CONTINUED FROM: **Tulare County; Department of Health Services; Environmental Health Division**
STUDY: County of Tulare (DHS) Water Quality Sampling For Organic Compounds

FOR DETAILS, CONTACT: Jim Waters, Environmental Specialist
PHONE: (209) 733-6441 This summary information was LAST VERIFIED on: 12/21/1989

Tuolumne County; Health Department; Environmental Health Division

Street address of Organization: A.N. Francisco Building; Sonora, CA 95370
Mailing address of Organization: 2 South Green Street; Sonora, CA 95370

PROGRAM: Tuolumne County -- Hazardous Waste Management Plans

Each county or Council of Government develops a plan for the management of all hazardous wastes produced by industries, homes, and other sources in their jurisdiction. The hazardous waste management plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste facilities. The existing facilities that can be expanded are identified, as are sites that would be suitable for the placement of future facilities.

Reference: AB2948 (1986, Tanner)

GEOGRAPHIC COVERAGE: Tuolumne County
THIS ACTIVITY STARTED: 01/01/1985 and CONTINUING as of: 01/06/1988 (dates may be approximate).
KEYWORDS: administrative support, planning, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: Ken Perkins, Director of Environmental Health
PHONE: (209) 533-5990 This summary information was LAST VERIFIED on: 01/06/1988

PROGRAM: Tuolumne County -- Hazardous Materials Spills

The county prepares an area-wide emergency response plan to hazardous materials spills as outlined by the Office of Emergency Services. The emergency response plan outlines the responsibilities of the agencies involved. Events are coordinated with the appropriate incident commander, resources necessary to handle the spill are gathered, the spill is isolated and the media is informed. Appropriate people are called in to assess the extent of needed cleanup procedures.

All individual businesses that handle hazardous materials must submit to the county or city their own plan for responding to an accidental release of these materials as well as an annual inventory of their hazardous materials. This information is on file at the governing agency and is available to the public.

The city may assume the responsibility of preparing an emergency response plan within its jurisdiction by enacting an ordinance. If the city assumes this responsibility, it must coordinate its activities with the county.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: Tuolumne County
THIS ACTIVITY STARTED: 01/01/1985 and CONTINUING as of: 01/06/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, planning, technical support, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Ken Perkins, Director of Environmental Health
PHONE: (209) 533-5990 This summary information was LAST VERIFIED on: 01/06/1988

PROGRAM: Tuolumne County -- Regulation of On-Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program conducts percolation tests to determine the suitability of the leach field for treating wastes, checks for setback before issuing building permits, and ensures that there is good separation from water supply wells.

GEOGRAPHIC COVERAGE: Tuolumne County
THIS ACTIVITY STARTED: 01/01/1983 and CONTINUING as of: 01/06/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, permitting, planning, site inspection, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Ken Perkins, Director of Environmental Health
PHONE: (209) 533-5990 This summary information was LAST VERIFIED on: 01/06/1988

PROGRAM: Tuolumne County Sanitary Landfill Ground Water Monitoring Program

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located in the vicinity of the landfill. The samples are obtained from the first encountered ground water and are tested monthly for pH, and specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness.

The results of the monitoring program are maintained by the Regional Water Quality Control Board in the 'Waste Discharger Monitoring Files' as well as by the county office.

CONTINUED FROM: **Tuolumne County; Health Department; Environmental Health Division**
PROGRAM: Tuolumne County Sanitary Landfill Ground Water Monitoring Program

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: Tuolumne County
THIS ACTIVITY STARTED: 01/01/1983 and CONTINUING as of: 01/06/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, landfill, well, ph, conductance, COD, chloride, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Ken Perkins, Director of Environmental Health
PHONE: (209) 533-5990 This summary information was LAST VERIFIED on: 01/06/1988

PROGRAM: Tuolumne County Solid Waste Management Program

The Tuolumne County Health Department conducts the Solid Waste Management Program in its role as the local enforcement agency for the Waste Management Board. The Department serves as the contract administrator for the 2 privately operated landfills and transfer stations in the county. As well as logistical and materials studies, the Department conducts a solid waste enforcement program which requires cleanup and abatement of problem sites. Groundwater is continuously monitored for minerals, nutrients and heavy metals as required by the Central Valley Regional Water Quality Control Board.

The Solid Waste Management Program also includes the permitting, regulation and monitoring of solid waste collectors. In addition, the Department plans for future solid waste disposal facilities, including identification of potential sites, as a part of this program.

GEOGRAPHIC COVERAGE: Tuolumne County
THIS ACTIVITY STARTED: 05/01/1979 and CONTINUING as of: 06/09/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, waste management, enforcement agency, landfills, cleanup, regulation, planning, future disposal sites.
FOR DETAILS, CONTACT: Ken Perkins, Director of Environmental Health
PHONE: (209) 533-5990 This summary information was LAST VERIFIED on: 06/09/1988

PROGRAM: Tuolumne County--Small Water Supply Systems Monitoring Program

Community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Tuolumne County (unincorporated area and City of Sonora)
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 01/06/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Ken Perkins, Director of Environmental Health
PHONE: (209) 533-5990 This summary information was LAST VERIFIED on: 01/06/1988

PROGRAM: Tuolumne County--Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.

Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 5 years, whereas the underground tank and the monitoring records are inspected every 3 years.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: Tuolumne County
THIS ACTIVITY STARTED: 01/01/1985 and CONTINUING as of: 01/06/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, planning, site inspection, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Ken Perkins, Director of Environmental Health
PHONE: (209) 533-5990 This summary information was LAST VERIFIED on: 01/06/1988

PROGRAM: Tuolumne County--Water Well Permitting

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating existing wells, the abandonment and destruction of old wells. Regulations are enforced through a permit program.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California).

After 1990, all counties will be required to adopt a well permitting ordinance, either a State model ordinance or their own.

References: Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: Tuolumne County
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 01/06/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, permitting, site inspection, technical support, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Ken Perkins, Director of Environmental Health
PHONE: (209) 533-5990 This summary information was LAST VERIFIED on: 01/06/1988

STUDY: Study on Siting of a Class III Sanitary Landfill in Tuolumne County

The purpose of this geotechnical study is to determine the feasibility of siting a Class III sanitary landfill on a 91-acre site owned by the county of Tuolumne. The existing county landfill can only be used through 1993, so an additional landfill must be constructed by 1992. The final siting decision will be made by July 31, 1988. This siting process is a part of the county's overall Solid Waste Management Program.

GEOGRAPHIC COVERAGE: Tuolumne County
PART OF A PROGRAM titled: Tuolumne County Solid Waste Management Program
THIS ACTIVITY STARTED: 01/01/1983 and ENDED: 07/31/1988 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, Class III landfill, site conditions, ground water movement, feasibility, background water quality.
FOR DETAILS, CONTACT: Ken Perkins, Director of Environmental Health
PHONE: (209) 533-5990 This summary information was LAST VERIFIED on: 04/19/1988

STUDY: Study on the Use of Ash as Daily and Intermediate Cover at the Tuolumne County Landfill

The purpose of this study was to determine if ash could be effectively used as daily and intermediate cover at landfills in Tuolumne County.

The ash results from the process of incinerating wood wastes to produce energy. This waste ash is available to the county free of charge. Since the quantity of soil present in the foothills of the Sierras is minimal, the county sought an alternative cover material for landfills which would be both economical and effective.

The study had two objectives:

1) to determine if the ash available from each of two sources was non-hazardous waste or designated waste
2) to determine if the alkaline nature of the ash might aid in binding metals found in the landfill leachate, thus promoting attenuation of the metals before they reached the groundwater

GEOGRAPHIC COVERAGE: Tuolumne County
PART OF A PROGRAM titled: Tuolumne County Solid Waste Management Program
THIS ACTIVITY STARTED: 01/01/1987 and ENDED: 05/01/1988 (dates may be approximate).
KEYWORDS: pertinent reports available, project planning, studies ground water pollutant transport, studies sources of pollution, waste ash, landfill cover, waste classification, leachate, binding metals.
FOR DETAILS, CONTACT: Ken Perkins, Director of Environmental Health
PHONE: (209) 533-5990 This summary information was LAST VERIFIED on: 06/09/1988

Turlock Irrigation District

Mailing address of Organization: P.O. Box 949; Turlock, CA 95381

PROGRAM: Turlock Irrigation District Water Quality and Capacity Monitoring Program

A number of parameters are measured indicative of ground water quality and usage in the Turlock Area. Wells are tested for pH, carbonates, bicarbonates, chlorides, sulfur, calcium, magnesium, sodium, boron, TDS, hardness, specific conductivity, and percent sodium of cations. The pumping capacity of each well is measured in gallons per minute, and an inventory is made of the total amount of water pumped per month at each well for Turlock Irrigation District.

GEOGRAPHIC COVERAGE: Approximately 195,000 Acres in the Turlock Area
THIS ACTIVITY STARTED: 01/01/1983 and CONTINUING as of: 10/11/1988 (dates may be approximate).

CONTINUED FROM: **Turlock Irrigation District**
PROGRAM: Turlock Irrigation District Water Quality and Capacity Monitoring Program

KEYWORDS: ground water monitoring, planning, site inspection, site investigation, pumping capacity, ph, carbonates, chlorides, sulfates, calcium, magnesium, TDS, sodium, boron, specific conductivity, hardness, % sodium of cations.
FOR DETAILS, CONTACT: Mike Karvian, Water Distribution Division Manager
PHONE: (209) 632-3861 This summary information was LAST VERIFIED on: 10/11/1988

U.S. Army (Commander); Headquarters 7th Infantry Division (Light) + Fort

Street address of Organization: ATTN: AFZW-DE-P; Fort Ord, CA 93941-5777

PROGRAM: Fort Ord Hazardous Waste Management Planning

The management of all hazardous wastes produced on the three military bases is guided by a hazardous waste management plan. The plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste facilities. Existing facilities that can be expanded are identified, as are sites that would be suitable for new facilities.

References: AB2948 (1986, Tanner)

GEOGRAPHIC COVERAGE: Fort Ord, Presidio Monterey and Fort Hunter Liggett
THIS ACTIVITY STARTED: 01/01/1985 and CONTINUING as of: 02/15/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: Jim Willison, Hazardous Waste Manager
PHONE: (408) 242-4505 This summary information was LAST VERIFIED on: 02/15/1990

PROGRAM: Fort Ord Large Water Supply Systems Monitoring

The community water system (consisting of more than 1000 service connections) is regularly sampled at preselected distribution points for total coliform concentration, chlorine residuals, fluoride, volatile organic and total trihalomethanes. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Fort Ord, Presidio Monterey and Fort Hunter Liggett
THIS ACTIVITY STARTED: 01/01/1939 and CONTINUING as of: 02/15/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, enforcement, ground water monitoring, pertinent reports available, site inspection, site investigation, technical support, water supply wells, organics, minerals, fluoride, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Charles Nix, Environmental Engineer
PHONE: (408) 242-2820 This summary information was LAST VERIFIED on: 02/15/1990

PROGRAM: Fort Ord Sanitary Landfill Ground Water Monitoring

Ground water beneath a closed 40 acre landfill is monitored in collaboration with the U.S. Environmental Protection Agency and the California Department of Health Services. Testing is for pollutants commonly found in leachate from solid waste sites.

GEOGRAPHIC COVERAGE: Fort Ord, Presidio Monterey and Fort Hunter Liggett
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 02/15/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, ground water monitoring, pertinent reports available, planning, site inspection, site investigation, technical support, landfill, testing, pollution.
FOR DETAILS, CONTACT: Jonathan Bauer, Environmental Specialist
PHONE: (408) 242-2828 This summary information was LAST VERIFIED on: 02/15/1990

STUDY: Fort Ord Final Report on Permit Application for Three Water Supply Systems

Pursuant to a water supply permit application, studies were conducted to identify potential water quality concerns. The history of the water supply system, current conditions, geographic location, and sanitary conditions were considered. Recommendations were made from general engineering data on well operation and control of the water system.

GEOGRAPHIC COVERAGE: Fort Ord, Presidio Monterey and Fort Hunter Liggett
THIS ACTIVITY STARTED: 10/01/1986 and ENDED: 04/01/1988 (dates may be approximate).

CONTINUED FROM: **U.S. Army (Commander); Headquarters 7th Infantry Division (Light) + Fort**
STUDY: Fort Ord Final Report on Permit Application for Three Water Supply Systems

KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, history of water system,environmental conditions, engineering data, well operation, water control.
FOR DETAILS, CONTACT: Charles Nix, Environmental Engineer
PHONE: (408) 242-2820 This summary information was LAST VERIFIED on: 02/15/1990

STUDY: Fort Ord Geohydrologic Studies

Three ground water basins and surrounding areas were mapped and otherwise characterized to determine the occurrence of ground water in the Salinas and Seaside Basin as a potential water supply. Ground water recharge and discharge areas were identified. Uses of ground water in the study areas were inventoried. Geologic maps were formulated from well information. Hydraulic properties of underlying aquifers were determined. Analyses of ground water quality and considerations for mitigating sea water intrusion were also included in the study.

GEOGRAPHIC COVERAGE: Fort Ord, Presidio Monterey and Fort Hunter Liggett
THIS ACTIVITY STARTED: 04/01/1984 and ENDED: 07/01/1986 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, hydrogeology, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, geohydrologic, geology, ground water hydrology, hydraulic properties, discharge, recharge, ground water quality, aquifers, sea water intrusion.
FOR DETAILS, CONTACT: Charles Nix, Environmental Engineer
PHONE: (408) 242-2820 This summary information was LAST VERIFIED on: 02/15/1990

U.S. Bureau of Reclamation; High Plains Ground Water Recharge Program

Mailing address of Organization: P.O. Box 427; Boulder City, NV 89005

PROJECT: Chino Basin Ground Water Storage Program

The project injects state water from the State Water Project into the Chino Basin ground water aquifer during off-peak water use times. It is then pumped out during on-peak water use times.
Although the basin contains no known sources of ground water pollution, the project will monitor ground water in the area to assure ground water quality problems do not occur.

GEOGRAPHIC COVERAGE: Chino Groundwater Basin Area
THIS ACTIVITY STARTED: 11/01/1985 and may END: 11/01/1992 (dates may be approximate).
KEYWORDS: demonstration project, ground water modeling, ground water monitoring, planning, site investigation, conjunctive use, recharge.
FOR DETAILS, CONTACT: Robert Barton, Chief, Hydrology Branch, Project Coordinator
PHONE: (702) 293-8585 This summary information was LAST VERIFIED on: 03/01/1988

PROJECT: Seasonal Storage of Ground Water in the Irvine Ground Water Basin

The project takes tertiary-treated sewage effluent and uses it to recharge the Irvine Basin, thereby storing it until needed for irrigation at peak demand. The Bureau must insure that domestic water supplies are not polluted by the sewage effluent recharge since the Irvine Basin is part of a larger basin system covering Orange County which is being used as a source of domestic water. The Irvine Basin itself is no longer used as a source of domestic water; it was previously overdrafted, but water levels are now normal.
One or two of these recharge projects will be built in each state as demonstration projects.

GEOGRAPHIC COVERAGE: Irvine Basin
THIS ACTIVITY STARTED: 11/01/1985 and may END: 11/01/1992 (dates may be approximate).
KEYWORDS: demonstration project, ground water modeling, ground water monitoring, planning, site investigation, tertiary, sewage effluent, recharge, irrigation, conjunctive use, domestic water supplies.
FOR DETAILS, CONTACT: Robert Barton, Chief, Hydrology Branch, Project Coordinator
PHONE: (702) 293-8585 This summary information was LAST VERIFIED on: 03/01/1988

U.S. Bureau of Reclamation; Lower Colorado River Region; Division of Water and Land Operations - Water Management Branch

Mailing address of Organization: P.O. Box 427; Boulder City, NV 89005

PROGRAM: Unmeasured Return Flow

The program objective is to determine an equitable way to account for unmeasured return flow to the Colorado River from any diversion, such as agriculture, municipal or domestic uses. The Supreme Court in 1964, in the Case Arizona versus California, directed that the Federal Government account for water use along the Colorado River. This includes diversion, consumptive use and return flows. This program assists in carrying out that legislative directive.

CONTINUED FROM: **U.S. Bureau of Reclamation; Lower Colorado River Region; Division of Water and Land Operations - Water Management Branch**
PROGRAM: Unmeasured Return Flow

GEOGRAPHIC COVERAGE: Both sides of Colorado R. flood plain from Davis Dam to Mex.
THIS ACTIVITY STARTED: 06/13/1969 and CONTINUING as of: 02/23/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water modeling, ground water monitoring, planning, site inspection, site investigation, technical support, return flow, agriculture, municipal, domestic, diversion, consumptive use.
FOR DETAILS, CONTACT: Jeff Addiego, Hydraulic Engineer
PHONE: (702) 293-8525 This summary information was LAST VERIFIED on: 02/23/1988

U.S. Bureau of Reclamation; Lower Colorado River Region; Planning Division

Mailing address of Organization: P.O. Box 427; Boulder City, NV 89005

PROGRAM: Palo Verde Irrigation District

This program identifies, and if possible, controls salt inflow from ground water into the Colorado River. High total dissolved solids in ground water in the southern part of the Palo Verde Valley could be flushed by the action of irrigation-applied water into the Colorado River.

GEOGRAPHIC COVERAGE: Palo Verde Valley
THIS ACTIVITY STARTED: 01/01/1976 and CONTINUING as of: 03/01/1988 (dates may be approximate).
KEYWORDS: ground water modeling, ground water monitoring, planning, site investigation, salt inflow, TDS, irrigation.
FOR DETAILS, CONTACT: Arthur Tuma, Team Leader
PHONE: (702) 293-8561 This summary information was LAST VERIFIED on: 03/01/1988

PROJECT: Lower Colorado Water Supply Project

The project is to develop an annual water supply of up to 10,000 acre feet for existing non-contract water users along the Colorado River in California. The non-contract users are water users who are currently pumping Colorado River Water without a legal contract or in excess of their present perfected right. The present perfected rights of the non-contract users were established in the 1930's. The project would assure the existing water supplies of the non-contract users who live in the area.

The Bureau will drill 2-5 wells, each with a capacity of 2000 acre feet/year, along the All-American Canal on the east side of the Sand Hills Area. Ground water will then be pumped into the canal from the Sand Hill Area wells, and (through an exchange with the Coachella Valley Water District (CVWD) or the Imperial Irrigation District (IID)), canal water would be provided to the non-contract users. The Bureau can trade ground water along the canal for Colorado River water, since the IID and the CVWD have rights to certain Colorado River waters.

GEOGRAPHIC COVERAGE: All-American Canal Area in Southern California
THIS ACTIVITY STARTED: 10/03/1980 and ENDED: 08/28/1986 (dates may be approximate).
KEYWORDS: demonstration project, ground water modeling, ground water monitoring, planning, site investigation, water supply wells, colorado river, perfected rights, coachella valley water district, imperial irrigation.
FOR DETAILS, CONTACT: John Redlinger, Team Leader
PHONE: (702) 293-8592 This summary information was LAST VERIFIED on: 02/23/1988

STUDY: San Bernardino Ground Water Study

The objective of the study is to develop a program for the long-range management of the San Bernardino Valley Ground-water Basin and the upper Santa Ana River watershed, in which it lies, and to formulate a physical project to implement the program. The program would integrate ground-water recharge using local and imported water with extraction of ground water so as to (1) optimize local water production in the basin, and (2) prevent problems caused by high water and pockets of ground-water pollution of the City of San Bernardino.

Physical facilities would consist of well fields to extract excess ground water, recharge basins for infiltration into ground-water basins, a pipeline from water-surplus basins in the center of the watershed to the Chino Basin to the west or other areas of use.

Briefly stated, the problems identified include the following:

1. The watershed sporadically loses large quantities of water to the ocean during periods of high river flow.
2. High water table in the San Bernardino area is causing damage to public and private buildings and aggravates the risk of seismic disturbance in the event of an earthquake.
3. There is a technical "overdraft" situation in the San Bernardino Ground-Water Basin despite a surplus of water in the lower elevation areas.
4. The ground-water basin in the Yucaipa area is overdrafted.
5. The Chino Basin has unused storage capacity for water, and is at the same time losing water from its lower-elevation areas.
6. Pockets of ground water contaminated with toxic wastes are causing shutdown of wells.
7. Institutional barriers prevent exchanges of water which would provide fuller utilization of the local supply.

GEOGRAPHIC COVERAGE: Upper Santa Ana River Basin
THIS ACTIVITY STARTED: 10/01/1986 and ENDED: 10/01/1990 (dates may be approximate).

CONTINUED FROM: **U.S. Bureau of Reclamation; Lower Colorado River Region; Planning Division**
STUDY: San Bernardino Ground Water Study

KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, ground water management, ground water usage, project planning, studies extent of ground water pollution, studies ground water pollutant transport, recharge, extraction, high water, well fields, infiltration, seismic, overdraft, surplus, toxic waste.
FOR DETAILS, CONTACT: Martin Einert, Team Leader
PHONE: (702) 293-8510 This summary information was LAST VERIFIED on: 02/23/1988

U.S. Bureau of Reclamation; Lower Colorado River Region; Yuma Projects Office

Mailing address of Organization: P.O. Box 12487; Yuma, AZ 85365

PROGRAM: All-American Canal Relocation

The program recovers water leaking out of the unlined All-American Canal which otherwise would be lost, due to leakage into California ground water which Mexico pumps out in the Mexicali Valley (just the other side of the border). The All-American Canal is an irrigation canal delivering water to agricultural areas in Imperial Valley and the Coachella Valley. It carries about 15,000 cubic feet of water per second, which is more than the Colorado River carries through some areas. The canal originates at the Imperial Dam, on the Colorado River near Yuma, Arizona. Both ground water quality and ground water levels are monitored.

GEOGRAPHIC COVERAGE: All-American Canal Area in Southern California
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 02/04/1988 (dates may be approximate).
KEYWORDS: ground water modeling, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, canal, seepage, pumping, irrigation, agricultural, level, depth.
FOR DETAILS, CONTACT: Earl Burnett, Chief, Geology and Ground-Water Branch
PHONE: (602) 726-2568 This summary information was LAST VERIFIED on: 02/04/1988

U.S. Bureau of Reclamation; Mid-Pacific Region

Street address of Organization: 2800 Cottage Way; Sacramento, CA 95825

PROJECT: Kesterson Program

The purpose of the Kesterson Program is to identify cost-effective alternatives for cleanup and future use of the Kesterson Reservoir and the San Luis Drain (SLD) to protect public health and the environment. Alternatives must meet requirements established by the State Water Resources Control Board for the control of pollution and abatement of the nuisance that has resulted from operation of the Kesterson Reservoir. Selenium is the element of primary concern because of its potential threat to public health when found in ground water and the food chain. Most of the selenium within the Reservoir came from subsurface agricultural drainage water carried via the SLD; however drainage water deliveries to the reservoir ceased as of June 1986.

There are 3 phases to the program: 1) Monitoring, hazing of waterfowl, providing supplemental water to other wetlands and reducing public exposure, 2) Curtailment of agricultural waste water discharges into Kesterson Reservoir, 3) Cleanup of Kesterson Reservoir and the SLD.

GEOGRAPHIC COVERAGE: Kesterson Reservoir and vicinity
THIS ACTIVITY STARTED: 02/05/1985 and may END: 02/05/1992 (dates may be approximate).
KEYWORDS: ground water cleanup, ground water modeling, ground water monitoring, pertinent reports available, planning, site investigation, drainage, agriculture, Kesterson reservoir, San Luis drain, public health, selenium, waterfowl, wetlands, waste water discharge.
FOR DETAILS, CONTACT: Susan Hoffman, Kesterson Program Manager
PHONE: (916) 978-5046 This summary information was LAST VERIFIED on: 02/17/1988

PROJECT: Sacramento Seepage and Drainage Study, Colusa Drainage Investigation

The project will determine whether the water seeping up through the soil along the Sacramento River is a seepage problem or a high ground water problem, or both, and will find a solution for the problem based on its nature.

It also will assist the Department of Water Resources in their overall Sacramento Valley Seepage and Drainage Studies and the Zone of Benefit 2 (an area along the Sacramento River similar to a municipal utility district) in finding solutions to their flooding and drainage problems along the Sacramento River near Princeton. Baseline data will be collected for potential future studies. Ground water levels are monitored to evaluate what levels are normal during each specific river stage. Water Quality is also monitored.

GEOGRAPHIC COVERAGE: Zone of Benefit 2 (in Colusa County)
THIS ACTIVITY STARTED: 10/01/1985 and ENDED: 09/01/1986 (dates may be approximate).
KEYWORDS: ground water modeling, ground water monitoring, pertinent reports available, site investigation, seepage, drainage, level, depth.
FOR DETAILS, CONTACT: Dave Gore, Team Leader/Study Manager
PHONE: (916) 978-4966 This summary information was LAST VERIFIED on: 02/04/1988

CONTINUED FROM: **U.S. Bureau of Reclamation; Mid-Pacific Region**

STUDY: Sacramento River Water Marketing EIS

The Sacramento River Water Marketing EIS assesses the environmental impact of selling water (1 million acre feet of water from the Central Valley Project) to users in the Sacramento River area, the potential for use of ground water instead of selling surface water, and any additional costs incurred in doing so. The project will also assess the opportunities and economic feasibility of supplying ground water to 10 bird refuges in the Sacramento River area, where ground water is used for agriculture.

GEOGRAPHIC COVERAGE: Sacramento River Basin
THIS ACTIVITY STARTED: 01/06/1985 and ENDED: 01/02/1988 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, project planning, studies extent of ground water pollution, studies sources of pollution, water marketing, environmental impact, cvp, economic feasibility, bird refuges, agriculture.
FOR DETAILS, CONTACT: Bill Payne, Environmental Specialist
PHONE: (916) 978-5488 This summary information was LAST VERIFIED on: 03/01/1988

U.S. Bureau of Reclamation; Mid-Pacific Region; Planning Branch

Street address of Organization: 2800 Cottage Way; Sacramento, CA 95825

PROJECT: Ground Water Recharge Demonstration Program

The legislation creating this program, (PL 98-434, H.R. 71, Sept. 1984), authorizes the Bureau of Reclamation to conduct an investigation of, and establish demonstration projects for, ground water recharge of aquifers in the high plains and other Reclamation Act states. Water originating in the drainage basin of the Great Lakes is not included in the program.

There are 2 phases. During phase 1, the Bureau, in consultation with other agencies, (specifically the US Geological Survey), developed a detailed plan for conducting demonstration projects, the purpose of which is to determine whether various recharge technologies may be applied to the diverse geologic and hydrologic conditions represented. During phase 2, the project sponsors (Arcade Water District and Stockton East Water District) will design, construct and operate the demonstration projects.

GEOGRAPHIC COVERAGE: All Western United States
THIS ACTIVITY STARTED: 12/01/1985 and may END: 12/01/1992 (dates may be approximate).
KEYWORDS: allocates funds, demonstration project, ground water monitoring, pertinent reports available, planning, site investigation, recharge.
FOR DETAILS, CONTACT: John Turner, Chief, Planning Branch
PHONE: (916) 978-4961 This summary information was LAST VERIFIED on: 01/26/1988

U.S. Bureau of Reclamation; San Joaquin Valley Drainage Program MP-190; with USFWS, USGS, CDWR, and CDFG

Street address of Organization: 2800 Cottage Way; Sacramento, CA 95825

PROJECT: Hydrological Economic Model

This project will identify the relationships between:
1) farm and related community and regional economics
2) agronomic factors-i.e. crop yield and soil and water quality
3) ground water characteristics such as water quality and quantity (both shallow and deep ground waters)

GEOGRAPHIC COVERAGE: West side of San Joaquin Valley
THIS ACTIVITY STARTED: 07/01/1987 and ENDED: 09/01/1990 (dates may be approximate).
KEYWORDS: ground water modeling, planning, agriculture,economics.
FOR DETAILS, CONTACT: Dr. Nigel W.T. Quinn, Water Resource Systems Engineer
PHONE: (916) 978-4969 This summary information was LAST VERIFIED on: 09/09/1988

PROJECT: Options for Conjunctive Use of Surface and Ground Water for Control of Shallow Water Tables

The study examines the long term potential for using ground water pumping to manage shallow water tables in drainage problem areas of the western San Joaquin Valley. Feasibility will be evaluated using the U.S. Geological Survey's modular ground water model. The study will determine:
1. the radius of influence generated by extraction wells
2. the quantity of pumped water
3. the effect of pumping on groundwater quality

A feasible strategy will be one which produces a sustainable decrease in water table elevations over a large area withoutdegrading aquifer quality.

GEOGRAPHIC COVERAGE: West side of San Joaquin Valley
THIS ACTIVITY STARTED: 07/01/1987 and ENDED: 09/01/1990 (dates may be approximate).

CONTINUED FROM: **U.S. Bureau of Reclamation; San Joaquin Valley Drainage Program MP-190; with USFWS, USGS, CDWR, and CDFG**
PROJECT: Options for Conjunctive Use of Surface and Ground Water for Control of Shallow Water Tables

KEYWORDS: ground water modeling, planning, pumping, drainage, salts, management.
FOR DETAILS, CONTACT: Dr. Nigel W.T. Quinn, Water Resource Systems Engineer
PHONE: (916) 978-4969 This summary information was LAST VERIFIED on: 09/09/1988

PROJECT: San Joaquin Valley Drainage Program

The San Joaquin Drainage Program, established in mid-1984, is a cooperative effort of the U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, U.S. Geological Survey, California Department of Fish and Game, and the California Department of Water Resources. The purposes of the program are to investigate problems associated with the drainage of agricultural lands in the San Joaquin Valley and to develop solutions to those problems. Program objectives are consistent with these purposes and address the following key areas: (1) public health, (2) surface and ground water resources, (3) agricultural productivity, and (4) fish and wildlife resources.

GEOGRAPHIC COVERAGE: San Joaquin Valley
THIS ACTIVITY STARTED: 04/01/1984 and CONTINUING as of: 01/05/1988 (dates may be approximate).
KEYWORDS: allocates funds, demonstration project, ground water modeling, ground water monitoring, pertinent reports available, planning, site investigation, drainage, agriculture, public health, fish, wildlife.
FOR DETAILS, CONTACT: Edgar Imhoff, Program Manager
PHONE: (916) 978-4983 This summary information was LAST VERIFIED on: 01/05/1988

U.S. Department of Agriculture; Forest Service; Region 5

Street address of Organization: 2245 Morello Ave. - Pleasant Hill Engineering Cntr; Pleasant Hill, CA 94523

PROGRAM: Federal Facility Compliance Program

The purpose is to identify facilities that are not in compliance with various federal environmental statutes and regulations, and to bring them into compliance. An inventory of facilities in non-compliance includes areas in which hazardous materials have been released or deposited, landfills, abandoned mines, underground storage tanks, water systems exceeding maximum contaminant levels, wastewater treatment systems not meeting waste discharge requirements, facilities with asbestos/radon/PCB contamination, pesticide storage facilities in non-compliance, and fuel dispensing facilities not equipped with vapor recovery systems.
Initial funding for bringing these facilities up to standard became available in October 1988.

GEOGRAPHIC COVERAGE: National Forests in California
THIS ACTIVITY STARTED: 01/01/1985 and CONTINUING as of: 12/05/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, enforcement, ground water modeling, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, hazardous wastes, underground tanks, cleanup, mines.
FOR DETAILS, CONTACT: David McCauley, Program Manager
PHONE: (415) 825-9800 This summary information was LAST VERIFIED on: 12/05/1988

PROGRAM: Potable Water Supply Program

The purpose is to provide safe drinking water for public and administrative use in the National Forests. The program includes monitoring, testing, inventorying, sanitary surveys and operation and maintenance in accordance with the Safe Drinking Water Act and the National Interim Primary Drinking Water Regulations. Drinking waters are tested for bacteriological, primary and secondary inorganic contaminants, organic chemicals and radiological contaminants. If safe water quality cannot be achieved, the water is made unavailable for human consumption.

GEOGRAPHIC COVERAGE: National Forests in California
THIS ACTIVITY STARTED: 01/01/1977 and CONTINUING as of: 12/12/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, fecal coliform, chlorine, wells, minerals, radionuclides, organics, inorganics, water supply.
FOR DETAILS, CONTACT: David McCauley, Program Manager
PHONE: (415) 825-9800 This summary information was LAST VERIFIED on: 12/12/1988

PROGRAM: Underground Storage Tank Program

The purpose is to meet the requirements of the Management Plan Productivity Improvement Report on Vehicle services, as well as the California underground tank laws and regulations.
Underground tanks not equipped with a double containment feature are removed or replaced, while tanks remaining in service are tested for leaks, and leak detection monitoring systems are installed. Leaking tanks are removed and the site is cleaned. Information is stored at the State Water Resources Control Board in the 'Underground Tank Inventory' files.

CONTINUED FROM: **U.S. Department of Agriculture; Forest Service; Region 5**
PROGRAM: Underground Storage Tank Program

GEOGRAPHIC COVERAGE: National Forests in California
THIS ACTIVITY STARTED: 01/01/1984 and CONTINUING as of: 12/12/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water cleanup, enforcement, ground water modeling, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, underground tanks, hazardous materials spills, cleanup, leak detection, monitoring.
FOR DETAILS, CONTACT: David McCauley, Program Manager
PHONE: (415) 825-9800 This summary information was LAST VERIFIED on: 12/12/1988

U.S. Department of Agriculture; Soil Conservation Service

Street address of Organization: 2121 Second Street; Davis, CA 95616

PROGRAM: California State Soil Survey Program

The USDA Soil Conservation Service (SCS) conducts the State Soil Survey as part of the National Cooperative Soil Survey. The State Soil Survey is an on-going program to characterize the nature of the soils in California, through descriptions, soil classification (begun in 1950) and soil taxonomy (begun in 1965). Maps are generated that are used to assess land capability and identify proper conservation/development practices. They can also assist in determining septic tank feasibility, engineering feasibility, irrigation needs, potential for groundwater contamination as a result of the filtration ability of the soil, productive capacity, and feasibility of an area for waste disposal systems.

Surveys of California's soils are relatively complete. As of August, 1988, maps for approximately one-half of California have been digitized and entered into the State Soil Survey Computerized Database. Older surveys are updated prior to entry on the Database.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 01/01/1930 and CONTINUING as of: 10/12/1988 (dates may be approximate).
KEYWORDS: pertinent reports available, planning, technical support, soil surveys, mapping, soil description, soil classification, soil taxonomy, contamination, septic tanks, waste disposal, conservation, land use.
FOR DETAILS, CONTACT: Daniel Ernstrom, State Soil Correlator
PHONE: (916) 449-2872 This summary information was LAST VERIFIED on: 10/12/1988

STUDY: Soil Conservation Service South Fork Kings River Watershed Study

This study examined the drainage of irrigated land in the South Fork Kings River Watershed to determine methods to manage problems with salt and high water tables. The area studied included the towns of Lemoore, Hanford and Stratford. As a result of this study, a plan was developed for regional evaporation ponds which farmers could use to dispose of agricultural drain water.

A network of observation wells was used to gather data for site characterization and to examine groundwater trends. Physical measurements were taken monthly and surface and ground water quality was analyzed twice (spring and fall 1983).

Results of the study will be published in a report in December, 1988.

GEOGRAPHIC COVERAGE: South Fork Kings River Watershed/N. Central Kings County
THIS ACTIVITY STARTED: 01/01/1981 and ENDED: 12/31/1984 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies sources of pollution, agricultural drainage, irrigation, contamination, salts, evaporation ponds, quality, site characterization, trends.
FOR DETAILS, CONTACT: Lyle Steffen, State Geologist
PHONE: (916) 449-2817 This summary information was LAST VERIFIED on: 07/27/1988

STUDY: Soil Conservation Service Leland Freeborn Watershed Study

This study examined the drainage of irrigated land in the Leland Freeborn Watershed to determine methods to manage problems with salt and high water tables. The area studied included 24,000 acres in the Kern River trough, 8 miles NW of Button willow. As a result of this study, a plan was developed for a regional evaporation pond that farmers could use to dispose of agricultural drain water.

A network of observation wells was used to gather data for site characterization and to determine groundwater trends. Physical measurements were taken monthly and water quality was analyzed once.

Results of the study were published in report in January, 1985.

GEOGRAPHIC COVERAGE: Leland Freeborn Watershed/N. Kern County
THIS ACTIVITY STARTED: 01/01/1984 and ENDED: 12/31/1986 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies sources of pollution, agricultural drainage, irrigation, salt, water tables, evaporation pond, quality, trends, site characterization.
FOR DETAILS, CONTACT: Lyle Steffen, State Geologist
PHONE: (916) 449-2817 This summary information was LAST VERIFIED on: 07/27/1988

U.S. Department of the Interior, Sequoia and Kings Canyon National Parks

PROGRAM: Sequoia and Kings Canyon National Parks Hazardous Materials Spills Emergency Response

The responsibilities of public agencies to react to a spill of hazardous materials are delineated in an area-wide emergency response plan, prepared as outlined by the California Office of Emergency Services. The following activities are coordinated by the appropriate incident commander:
- Resources necessary to handle the spill are gathered
- The spill is isolated
- The media are informed
- An assessment is made of the extent of any needed cleanup procedures

The Sequoia and Kings Canyon National Parks must submit to the county their own plan for responding to an accidental release of hazardous materials as well as an annual inventory of these materials. This information is on file at the governing agency and is available to the public.

The parks may assume the responsibility of preparing an emergency response plan and administering this program within its jurisdiction. If the parks assume this responsibility, its response must be coordinated with the county's response program.

References: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.

GEOGRAPHIC COVERAGE: Sequoia & Kings Canyon Natl Parks, & Devils Postpile Natl Mon
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 01/26/1990 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, pertinent reports available, planning, site inspection, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Ken Bachmeyer, Chief of Park Maintenance
PHONE: (209) 565-3341 This summary information was LAST VERIFIED on: 01/26/1990

PROGRAM: Sequoia and Kings Canyon National Parks Hazardous Waste Management Planning

The management of all hazardous wastes produced by the park is guided by a hazardous waste management plan. The plan includes an analysis of the volume and types of hazardous wastes generated, a survey of the potential for recycling and reducing the volume of wastes generated, and an inventory of existing hazardous waste facilities. Existing facilities that can be expanded are identified, as are sites that would be suitable for the placement of future facilities.

References: AB2948 (1986, Tanner)

GEOGRAPHIC COVERAGE: Sequoia & Kings Canyon Natl Parks, & Devils Postpile Natl Mon
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 01/26/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, permitting, planning, site investigation, technical support, hazardous waste management, land use decisions, waste disposal.
FOR DETAILS, CONTACT: Ken Bachmeyer, Chief of Park Maintenance
PHONE: (209) 565-3341 This summary information was LAST VERIFIED on: 01/26/1990

PROGRAM: Sequoia and Kings Canyon National Parks Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Sequoia & Kings Canyon Natl Parks, & Devils Postpile Natl Mon
THIS ACTIVITY STARTED: 01/01/1980 and CONTINUING as of: 01/22/1990 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, pertinent reports available, site inspection, technical support, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Paul Schwarz, Environmental Health Technician
PHONE: (209) 565-3341 This summary information was LAST VERIFIED on: 01/22/1990

U.S. Environmental Protection Agency; Drinking Water Research Division

Street address of Organization: 26 West Martin Luther King Drive; Cincinnati, OH 45268

STUDY: Decision Support System for Drinking Water Research Using Microcomputers and Mainframes

The Environmental Protection Agency and the University of Michigan co-sponsored the creation of a data base to support their research activities. It also served to demonstrate data management and analysis systems which allow easy access and manipulation of the data to a number of potential users.

One important product of this study is an extensive collection of drinking water quality data on major water supplies in the United States. It will be maintained on a computer and updated periodically.

GEOGRAPHIC COVERAGE: All of USA
THIS ACTIVITY STARTED: 08/01/1980 and ENDED: 08/01/1984 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, pertinent reports available, project planning, studies extent of ground water pollution, drinking water quality.
FOR DETAILS, CONTACT: Susan Campbell, Manager
PHONE: (513) 569-7426 This summary information was LAST VERIFIED on: 10/25/1988

U.S. Environmental Protection Agency; Headquarters - Toxics and Waste Management Division; Office of Drinking Water Branch - Office of Pesticide Programs Section

Street address of Organization: 401 M St., S.W.; Washington, DC 20460

STUDY: National Survey of Pesticides in Drinking Water

The study is designed to determine what pesticide contamination problems exist in the U.S. EPA designed the National Pesticide Survey to meet two major objectives:

1) to obtain sufficient information to characterize the degree of pesticide contamination in the drinking water wells of the nation; and
2) to determine how pesticide concentrations in drinking water wells correlate with patterns of pesticide usage and with ground water vulnerability.

The study is part of the Agricultural Chemicals in Ground Water Strategy currently being developed by EPA which will consider both pesticides and fertilizers.

GEOGRAPHIC COVERAGE: All of USA
THIS ACTIVITY STARTED: 01/01/1986 and ENDED: 10/01/1989 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, studies extent of ground water pollution, studies sources of pollution, pesticide, water supply well, fertilizer.
FOR DETAILS, CONTACT: Nancy J. Andrews, Groundwater Coordinator, Region 9
U.S. Environmental Protection Agency; Region 9 - Toxics and Waste Management Division
75 Hawthorne St.; San Francisco, CA 94105
PHONE: (415) 744-1822 This summary information was LAST VERIFIED on: 03/01/1988

U.S. Environmental Protection Agency; Headquarters; Office of Drinking Water

Street address of Organization: 401 M Street, S.W.; Washington, DC 20460

PROGRAM: Drinking Water Program

The general purpose of this program is to protect the nation's drinking water supply. (Note that the Safe Drinking Water Act was amended in 1986, but retains this general purpose). Under this program the Environmental Protection Agency (EPA) sets national drinking water standards and ensures that all public water supplies meet those standards. EPA delegates enforcement responsibility to the states and oversees program implementation. EPA administers grants to state agencies, holds 6 month evaluations and requires annual workplans. A vast majority of enforcement actions to protect drinking water are taken by the state. EPA may discover polluted ground water as a result of monitoring the public water supply; however, EPA only regulates water from the tap under this program.

GEOGRAPHIC COVERAGE: EPA Region 9
THIS ACTIVITY STARTED: 01/01/1974 and CONTINUING as of: 03/01/1988 (dates may be approximate).
KEYWORDS: allocates funds, enforcement, ground water monitoring, site inspection, technical support, drinking water, standards, public water supply.
FOR DETAILS, CONTACT: Ken Greenberg, California Project Officer
U.S. Environmental Protection Agency; Region 9 - Water Management Division
1235 Mission Street; San Francisco, CA 94103
PHONE: (415) 744-1905 This summary information was LAST VERIFIED on: 03/01/1988

U.S. Environmental Protection Agency; Headquarters; Office of Research and Development

Street address of Organization: 401 M St., S.W.; Washington, DC 20460

PROGRAM: EPA Office of Research and Development (ORD) Research Program

The program coordinates and allocates funds for research, a significant part of which pertains to ground water. More than 70% of EPA's research budget (320.5 million in fiscal year 1986) is spent through extramural contracts, grants and cooperative agreements with organizations outside of EPA's laboratories. The program allocates funds to and coordinates this research.

The Office of Research and Development (ORD) Headquarters (Washington, DC) and the various labs fund the research that directly relates to the identification of ground water problems, their magnitude, their control, their cleanup and the monitoring methods used. The majority of ground water research funding is allocated by the Ada, Oklahoma Laboratory Facility (traditional hydrogeology) and the Athens, Georgia Laboratory Facility (subsurface ground water modeling).

GEOGRAPHIC COVERAGE: Worldwide
THIS ACTIVITY STARTED: 01/01/1971 and CONTINUING as of: 01/04/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water modeling, ground water monitoring, pertinent reports available, planning, technical support, research.
FOR DETAILS, CONTACT: Staff
PHONE: (202) 382-7676 This summary information was LAST VERIFIED on: 01/04/1988

STUDY: In-situ Biodegradation Methodologies for Restoration of Contaminated Aquifers

The purpose of the study is to assess the effectiveness of a proposed method for the enhanced in-situ biodegradation of halogenated organic compounds. The study is primarily focused at promoting the enzymatic decomposition of trichloroethylene and related compounds in controlled experiments, performed at our test facility, which represents natural field conditions typical of a class of groundwater environments.

Our study directly pertains to the clean-up of polllutants in California's groundwater. The process we are demonstrating could be used for in-situ clean-up of the type of solvent spills which are pervasive in California.

GEOGRAPHIC COVERAGE: Moffett Naval Air Station, Mountain View
PART OF A PROGRAM titled: EPA Office of Research and Development (ORD) Research Program
THIS ACTIVITY STARTED: 05/01/1985 and ENDED: 04/03/1988 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, pertinent reports available, in-situ biodegradation, halogenated organic compound, enzyme, trichloroethylene, field testing, solvent spills.
FOR DETAILS, CONTACT: Lewis Semprini, Research Associate
Stanford University; Civil Engineering Department
PHONE: (415) 723-0861 This summary information was LAST VERIFIED on: 03/21/1988

U.S. Environmental Protection Agency; Region 9 - Office of Policy Analysis; Integrated Environmental Management Project

Street address of Organization: 75 Hawthorne St.; San Francisco, CA 94105

PROJECT: Integrated Environmental Management Project (IEMP)

The project analyses current and future risk due to use of contaminated ground water in Santa Clara. Methods to mediate risks due to ground water contamination are explored.

GEOGRAPHIC COVERAGE: Santa Clara Valley
THIS ACTIVITY STARTED: 01/01/1984 and ENDED: 09/30/1987 (dates may be approximate).
KEYWORDS: ground water modeling, pertinent reports available, planning, risk, contamination.
FOR DETAILS, CONTACT: Patricia Eklund, Director, Office of Ground Water
PHONE: (415) 744-2079 This summary information was LAST VERIFIED on: 03/02/1988

U.S. Environmental Protection Agency; Region 9 - Toxics and Waste Management Division; Superfund Programs Office

Street address of Organization: 75 Hawthorne St.; San Francisco, CA 94105

PROGRAM: Federal Superfund

The objective of the program is to investigate and clean up hazardous waste sites. There are three elements to the program.

1) Removal. (Emergency response.) This includes any investigation and cleanup that will take under one year and under $ 2 million.
2) Remedial. This includes all actions not included in 1. Removal. These will include long term investigation and clean up, generally of ground water.
3) Enforcement. Responsible parties are identified. This element usually consists of orders and judicial actions.

CONTINUED FROM: **U.S. Environmental Protection Agency; Region 9 - Toxics and Waste Management Division; Superfund Programs Office**
PROGRAM: Federal Superfund

EPA pays for "Removal" and "Remedial" for any site on the Superfund National Priorities List (NPL). A mathematical risk model is used to determine priorities and place sites on the NPL.
About 80% of the sites on the NPL are believed to have contaminated ground water.

GEOGRAPHIC COVERAGE: EPA Region 9
THIS ACTIVITY STARTED: 12/11/1980 and CONTINUING as of: 02/17/1988 (dates may be approximate).
KEYWORDS: allocates funds, ground water cleanup, enforcement, ground water modeling, ground water monitoring, site inspection, site investigation, technical support, hazardous waste, removal, remedial, emergency response, risk, superfund, priorities list.
FOR DETAILS, CONTACT: Jerry Clifford, Manager, Superfunds Program Office
PHONE: (415) 744-2355 This summary information was LAST VERIFIED on: 02/17/1988

U.S. Environmental Protection Agency; Region 9 - Toxics and Waste Management Division; Pesticides and Toxics Branch - Pesticides Section

Street address of Organization: 75 Hawthorne St.; San Francisco, CA 94105

PROGRAM: Pesticide Enforcement and Certification and Training Cooperative Agreement (Grant) Programs

The program has three main functions:
1) Overview the State Pesticide Regulatory Program.
2) Provide funds to the California Department of Food and Agriculture's Pesticide Enforcement Branch to carry out inspections, sampling, evaluation and enforcement as appropriate.
3) Provide funds to carry out certification and training of users (applicators) of restricted use materials (Pesticides).

GEOGRAPHIC COVERAGE: EPA Region 9
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 12/21/1987 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, enforcement, permitting, site inspection, site investigation, technical support, pesticides, sampling, certification, training.
FOR DETAILS, CONTACT: Sara Segal, California Project Officer
PHONE: (415) 744-1098 This summary information was LAST VERIFIED on: 12/21/1987

U.S. Environmental Protection Agency; Region 9 - Toxics and Waste Management Division; Pesticides and Toxics Branch

Street address of Organization: 75 Hawthorne St.; San Francisco, CA 94105

PROGRAM: Pesticides and Toxic Substances Program

The program has two parts:
1) TSCA, (Toxic Substances Control Act): This part cannot be delegated, hence, EPA directly implements the provisions of this Act. Use of PCB's, import/export of chemicals, and asbestos in schools are regulated. This program started in 1972.
2) FIFRA, (Federal Insecticide, Fungicide, and Rodenticide Act): EPA delegates to the state implementation of this Act in regard to enforcement. California's programs and regulations pertaining to use and disposal of pesticides are overviewed by the EPA. This program started in 1978.

EPA has authority to take enforcement action under each of these Acts.

GEOGRAPHIC COVERAGE: EPA Region 9
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 12/30/1987 (dates may be approximate).
KEYWORDS: allocates funds, enforcement, planning, site inspection, technical support, pesticides, toxic substances, toxic substance control act (tsca), federal insecticide, fungicide, and rodenticide act (fifra).
FOR DETAILS, CONTACT: Rich Vaille, Branch Chief
PHONE: (415) 744-2090 This summary information was LAST VERIFIED on: 12/30/1987

U.S. Environmental Protection Agency; Region 9 - Toxics and Waste Management Division; Waste Programs Branch - Alternative Technology Section

Street address of Organization: 75 Hawthorne St.; San Francisco, CA 94105

PROGRAM: Resources Conservation and Recovery Act

The program is responsible for regulating operating facilities that manage hazardous waste. Ground water monitoring is required at all facilities that treat, store or dispose of hazardous wastes in surface impoundments, landfills or land farms. If contamination is discovered action will be taken under RCRA to have the facility control or clean up the contaminated media.

CONTINUED FROM: **U.S. Environmental Protection Agency; Region 9 - Toxics and Waste Management Division; Waste Programs Branch - Alternative Technology Section**
PROGRAM: Resources Conservation and Recovery Act

GEOGRAPHIC COVERAGE: EPA Region 9
THIS ACTIVITY STARTED: 05/19/1980 and CONTINUING as of: 03/01/1988 (dates may be approximate).
KEYWORDS: allocates funds, enforcement, ground water modeling, ground water monitoring, permitting, site inspection, site investigation, technical support, RCRA, hazardous waste, landfills, impoundments, land farms.
FOR DETAILS, CONTACT: Barbara Walsh, Geological Services Team Leader
PHONE: (415) 744-2235 This summary information was LAST VERIFIED on: 03/01/1988

U.S. Environmental Protection Agency; Region 9 - Water Management Division; Office of Ground Water

Street address of Organization: 75 Hawthorne St.; San Francisco, CA 94105

PROGRAM: Clean Water Act Section 106 Ground Water Grant Program

This program provides grant money to the State Water Resources Control Board for the purpose of developing and implementing a Ground Water Quality Protection Strategy for the State of California. The program does provide funds to create reports such as the California Ground Water Quality Protection Strategy document. Although no collections of information or data are maintained by the program, the California Ground Water Program Information Directory was built using funds from this program.

GEOGRAPHIC COVERAGE: EPA Region 9
THIS ACTIVITY STARTED: 04/30/1985 and CONTINUING as of: 03/01/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water monitoring, pertinent reports available, planning, technical support, clean water act.
FOR DETAILS, CONTACT: Karen Harder, Project Officer
PHONE: (415) 744-1831 This summary information was LAST VERIFIED on: 03/01/1988

PROGRAM: Wellhead Protection Program

This purpose of this program is to assist states in protecting wells that supply public drinking water from surface and subsurface contamination. Individual states will determine the extent of the area around certain wells to be protected with funding and technical guidance from the U.S. Environmental Protection Agency.

GEOGRAPHIC COVERAGE: All of USA
THIS ACTIVITY STARTED: 06/19/1986 and CONTINUING as of: 03/15/1988 (dates may be approximate).
KEYWORDS: allocates funds, pertinent reports available, planning, technical support, wellhead protection, public drinking water, protection, supply wells.
FOR DETAILS, CONTACT: Karen Harder, Project Officer
PHONE: (415) 744-1831 This summary information was LAST VERIFIED on: 03/15/1988

PROJECT: Sole Source Aquifer Demonstration Program

The purpose of the Sole Source Aquifer Demonstration Program is to establish procedures for the development, implementation and assessment of demonstration programs designed to protect critical recharge areas of designated sole source aquifers. Any State, municipal or local government, or planning entity with jurisdiction over the critical protection areas may apply for the demonstration program.

Each participant is required to submit a report to the U. S. Environmental Protection Agency (EPA) on or before December 31, 1989, assessing the impact of the program on ground water quality and identifying those measures found to be most effective in protecting ground water resources. EPA will submit a report to Congress on or before September 30, 1990, summarizing the reports submitted by the participants and evaluating the results of the demonstration projects.

GEOGRAPHIC COVERAGE: All of USA
THIS ACTIVITY STARTED: 06/19/1986 and ENDED: 09/30/1990 (dates may be approximate).
KEYWORDS: allocates funds, demonstration project, pertinent reports available, sole source aquifer, recharge, protection area.
FOR DETAILS, CONTACT: Hannibal Joma, Hydrogeologist
PHONE: (415) 744-2004 This summary information was LAST VERIFIED on: 03/15/1988

U.S. Environmental Protection Agency; Region 9 - Water Management Division; Water Quality Planning and Standards Branch

Street address of Organization: 75 Hawthorne St.; San Francisco, CA 94105

PROGRAM: 205j(1)

Under this program, EPA awards federal funds (available through section 205j of the Clean Water Act) to the states; applicants may apply to the state for these funds for any projects that control or abate water pollution in surface or ground water. The state can accept proposals and disburse funds for projects pertaining to surface or ground water at their discretion.

GEOGRAPHIC COVERAGE: EPA Region 9
THIS ACTIVITY STARTED: 10/01/1982 and CONTINUING as of: 12/18/1987 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water modeling, ground water monitoring, pertinent reports available, planning, site investigation, technical support, 205j(1).
FOR DETAILS, CONTACT: Jovita Pajarillo, 205j(1) Project Manager
PHONE: (415) 744-2011 This summary information was LAST VERIFIED on: 12/18/1987

U.S. Environmental Protection Agency; Region 9 - Water Management Division; Water Supply Branch - Water Supply Section

Street address of Organization: 75 Hawthorne St.; San Francisco, CA 94105

PROGRAM: Health Effects Program

This regional program is conducted as an extension of a nationwide program at the Washington D.C. Headquarters of the U.S. Environmental Protection Agency (EPA). EPA Headquarters writes health advisory documents and detailed health criteria documents for specific contaminants as part of their research effort.

The regional program has four primary functions: 1) to determine health risk and effects on those using a water source based on interpretation of available advisory/criteria documents; 2) to determine health risk and effects (given that health advisory/criteria document do not exist for a certain contaminant) via research into toxicological publications, chemical databases, etc.; 3) 'Risk Assessment'- to determine risks associated with a specific level of contamination in a drinking water source; and 4) 'Risk Management'- to determine the feasibility and cost of cleaning a drinking water source to a standard which produces an acceptable level of risk.

EPA performs these services as a result of inquiries from the public, government agencies, etc. Health advisory and criteria documents are available through the Standards Setting Program in the Sanitary Engineering Branch of the California Department of Health Services (DHS); further information on this DHS program is available in CGWID under the title given.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 01/01/1979 and CONTINUING as of: 06/27/1988 (dates may be approximate).
KEYWORDS: pertinent reports available, planning, technical support, health effects, contaminants, health risk, advisory/criteria documents, risk assessment, risk management.
FOR DETAILS, CONTACT: Mel Okawa, Environmental Scientist
PHONE: (415) 744-2235 This summary information was LAST VERIFIED on: 06/27/1988

U.S. Environmental Protection Agency; Region 9 - Water Management Division; Water Supply Branch - Underground Injection Control Section

Street address of Organization: 75 Hawthorne St.; San Francisco, CA 94105

PROGRAM: Underground Injection Control Program (EPA)

The purpose of the program is to prevent the pollution of underground sources of drinking water (any aquifer with less than 10,000 ppm total dissolved solids) by injection wells. This goal is accomplished through permitting, compliance, and enforcement. Program oversight is principally by EPA except for Class II injection wells associated with oil and gas production where the program is delegated to the California Department of Conservation, Division of Oil and Gas (CDOG). The California Department of Health Services is also developing a hazardous waste injection well program based on legislation passed in 1985.

Approximately 10,000 injection wells currently fall under the program administered by EPA; approximately 11,000 injection wells currently fall under the program administered by CDOG.

GEOGRAPHIC COVERAGE: EPA Region 9
THIS ACTIVITY STARTED: 06/01/1984 and CONTINUING as of: 03/01/1988 (dates may be approximate).
KEYWORDS: allocates funds, ground water cleanup, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, technical support, underground injection control, UIC, TDS, drinking water, Class II, oil, gas, hazardous waste.
FOR DETAILS, CONTACT: Nate Lau, Chief, UIC Section
PHONE: (415) 744-1835 This summary information was LAST VERIFIED on: 03/01/1988

U.S. Geological Survey

Street address of Organization: 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123

STUDY: Desconso Area Water Resources Study

The ground water basin and surrounding area is mapped and otherwise characterized to determine the occurrence, direction of movement, and areal extent of ground water. Infiltration rates, well information, analysis of the hydraulic properties of aquifers, and other factors influencing water quality conditions at the point of recharge and extraction are incorporated in the study. Ground water recharge and discharge areas are identified and used in a water balance analysis. Uses of ground water in the study areas are inventoried.

GEOGRAPHIC COVERAGE: South Central of San Diego County
THIS ACTIVITY STARTED: 10/01/1987 and ENDED: 09/30/1988 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, resources, hydraulic properties, infiltration rates, discharge, recharge, ground water quality, aquifers,.
FOR DETAILS, CONTACT: Lowell F. Duell, Hydrologist
PHONE: (619) 557-6700 This summary information was LAST VERIFIED on: 02/27/1990

STUDY: Ground Water Quality in the Bunker Hill Basin, San Bernardino Valley

PROBLEM: A basin-wide assessment of ground water quality is needed in order to identify water quality problems that may affect the use and management of ground water in the Bunker Hill basin in San Bernardino Valley. Current and previous land use has caused increased nitrate-nitrogen concentrations in some areas and localized contamination of municipal wells by trichlorethylene (TCE) and tetrachloroethylene (PCE). Due to a decrease in agricultural water use, an increase in artificial recharge, and above-average natural recharge, ground water levels are increasing in the former swampland of the basin. Rising ground water levels may hasten or actually cause movement of chemicals that are now in the unsaturated zone.

OBJECTIVE: (1) Identify water quality conditions affecting the current and future use of ground water; (2) where possible, identify the effects of current artificial-recharge and pumping practices on ground water quality in order to allow future basin-management practices to mitigate and avoid water quality problems; and (3) Design a network of observation wells to monitor ground water quality in suspected areas of contamination.

APPROACH: (1) Collection, collation, and review of ground water quality data; (2) Identification of TCE and PCE contamination and other water quality problems; (3) Categorize the basin's historic and existing land use; (4) Design and sample an initial network; (5) Statistical analysis of water quality data by land-use catagory using analysis of variance and the Krukal-Wallis test; and (6) Redesign the monitoring network, suggest a sampling frequency, and suggest location and construction for new wells in areas of contamination.

GEOGRAPHIC COVERAGE: Bunker Hill Basin, San Bernardino Valley
THIS ACTIVITY STARTED: 10/01/1985 and ENDED: 09/30/1987 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, land use, nitrate-nitrogen, TCE, PCE, agriculture, artificial/natural recharge, swampland, unsaturated, pump, observation well, monitor, statistics.
FOR DETAILS, CONTACT: Lowell F. Duell, Hydrologist
PHONE: (619) 557-6700 This summary information was LAST VERIFIED on: 03/01/1990

U.S. Geological Survey; NAWDEX

Street address of Organization: 12201 Sunrise Valley Drive; Reston, VA 22092
Mailing address of Organization: 12201 Sunrise Valley Dr - Mailstop 421; Reston, VA 22092

PROGRAM: National Water Data Exchange (NAWDEX) Program

National Water Data Exchange, NAWDEX, is a data exchange service available to any organization or individual through many of the U.S.G.S. NAWDEX assistance centers. This data exchange assists interested individuals in locating and identifying water data through the use of two main computerized directories: the Master Water Data Index and the Water Data Sources Directory.

The Master Water Data Index identifies, by location, 470,000 sites for which water data is available. The second computerized directory, the Water Data Sources Directory, provides the names contact persons, addresses, telephone numbers and a list of the types of data and services available for over 2,000 organizations.

GEOGRAPHIC COVERAGE: The United States and Puerto Rico
THIS ACTIVITY STARTED: 01/01/1976 and CONTINUING as of: 10/07/1988 (dates may be approximate).
KEYWORDS: administrative support, pertinent reports available, technical support, master water data index, water data sources directory, NAWDEX.
FOR DETAILS, CONTACT: Owen Williams, Deputy Program Manager
PHONE: (703) 648-5684 This summary information was LAST VERIFIED on: 10/07/1988

U.S. Geological Survey; Water Resources Division

Street address of Organization: 425 National Center; Reston, VA 22092

PROGRAM: Water Resources Scientific Information Center

The Water Resource Scientific Information Center (WRSIC) acquires, abstracts and indexes the major water-resources related literature of the world, and makes information available to the water-resources community and the public.

A component of the Water Resources Division of the U.S. Geological Survey, the Center maintains a searchable computerized bibliographic data base, and publishes a monthly journal of abstracts. Through its services, the Center is able to provide reliable scientific and technical information about the most recent water-resources developments, as well as long-term trends and changes.

WRSIC's products and services are readily accessible to government agencies, scientists, engineers, researchers, teachers, students, planners, water-resources professionals, and the interested public.

GEOGRAPHIC COVERAGE: All of USA
THIS ACTIVITY STARTED: 01/01/1966 and CONTINUING as of: 11/01/1988 (dates may be approximate).
KEYWORDS: administrative support, pertinent reports available, technical support, water-resource data, bibliographic data.
FOR DETAILS, CONTACT: Raymond Jensen, Program Chief
PHONE: (703) 648-6820 This summary information was LAST VERIFIED on: 11/01/1988

U.S. Geological Survey; Water Resources Division; Western Region

Street address of Organization: 345 Middlefield Road; Menlo Park, CA 94025

PROGRAM: Technical Coordination and Support of Water Resources Division Geothermal Studies

Problem: Geothermal studies in the U.S. Geological Survey's Water Resources Division (WRD) are part of a nationwide research and mapping program within the USGS. These studies require planning, coordination, technical surveillance, and logistical support.

Objective: To provide planning, technical surveillance, coordination and logistical support services to WRD geothermal investigations.

The Western Region of the WRD is concentrating its efforts in the Long Valley Caldera and Lassen Volcanic National Park because other divisions within the USGS are currently conducting studies of a comparable nature in the other identified geothermal fields in California. Coordination of a new research program at Yellowstone National Park began in May 1988.

GEOGRAPHIC COVERAGE: Long Valley Caldera, Lassen Volcanic and Yellowstone Parks
THIS ACTIVITY STARTED: 07/01/1972 and CONTINUING as of: 06/27/1988 (dates may be approximate).
KEYWORDS: administrative support, pertinent reports available, planning, technical support, geothermal research, mapping, logistical support.
FOR DETAILS, CONTACT: Michael L. Sorey, Project Chief
PHONE: (415) 329-4420 This summary information was LAST VERIFIED on: 06/27/1988

STUDY: Application of the Unsaturated Flow Theory to the Phenomena of Infiltration and Drainage

PROBLEM: Surface runoff and various ground water processes are often significantly influenced by water flow in the unsaturated zone. For many situations of hydrologic interest, inadequate knowledge prevents these influences from being taken properly into account in water resources analyses.

OBJECTIVE: To: (1) critically test current theories of fluid flow through unsaturated porous media, in particular, those of infiltration and drainage; (2) utilize these theories for developing experimental techniques which will enhance unsaturated zone considerations in the analyses of ground water, runoff, and other hydrologic problems; (3) study, in the field, unsaturated zones of various environments, especially deep unsaturated zones, aiming to measure their natural water rates and to explain these rates in terms of soil, plant and atmospheric conditions; and (4) utilize the results of such studies in connection with assessment of possible movement of wastes, including radioactive wastes, toward ground water.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 11/01/1962 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, infiltration, drainage, unsaturated zone, runoff, radioactive wastes.
FOR DETAILS, CONTACT: Jacob Rubin, Project Chief
PHONE: (415) 323-8111 This summary information was LAST VERIFIED on: 08/18/1988

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region

STUDY: Bonsall Ground Water Study

PROBLEM: In response to increasing demand for water and expected shortages of imported water, the Rainbow Irrigation District has decided to exercise rights to local ground water in the Bonsall Basin of the San Luis Rey River Valley. Irrigation return and several wet winters have produced year-round flow in the San Luis Rey River. This is a significant change in the hydrologic system which may necessitate changes in river infiltration and boundary conditions of the existing ground water flow model prior to its current use as a management tool. Additionally, irrigation return of poor quality and streamflow of variable quality pose constraints on ground water management.

OBJECTIVE: 1.) Determine present ground water levels, storage, movement, and quality; 2.) determine present streamflow characteristics, and surface water quality; 3.) compare and contrast present and historic hydrologic regimes; 4.) estimate effects of ground water pumpage in wet periods using digital models; and 5.) determine distribution of ground water pumpage that will maximize yield while satisfying water quality standards.

APPROACH: 1.) Data collection will address objectives 1,2 and 3, providing basic data for further analyses; 2.) river/recharge effects will address objective 3 in more detail, and will provide data necessary to evaluate changes in streamflow infiltration and ground water recharge; 3.) existing digital models will be recalibrated to address objective 4; and 4.) optimization modeling will address objective 5.

GEOGRAPHIC COVERAGE: Bonsall Basin of the San Luis Rey River Valley
THIS ACTIVITY STARTED: 10/01/1983 and ENDED: 09/30/1986 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, demand, shortages, irrigation return, infiltration, level, storage, pump, model, yield, recharge, infiltration.
FOR DETAILS, CONTACT: John A. Izbicki, Project Chief
U.S. Geological Survey
5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (415) 323-8111 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Chemical and Isotope Studies of Thermal Waters of the Western United States

PROBLEM: Reconnaissance, and chemical and isotope sampling, of thermal springs in the western United States has not generally provided information of sufficient detail to permit the geothermal potential of most individual areas to be determined with any certainty. This is especially true in the Cascades, where the chemical geothermometers indicate much lower temperatures of water-rock equilibrium than the sulfate-isotope geothermometer and the geologic setting seem to require. This discrepancy could be due to simple mixing of thermal and fresh water or rapid equilibration of water with the surrounding country rock as the fluids rise to the surface; alternatively, the sulfate-isotopic composition could be an artifact reflecting the original source.

OBJECTIVE: The origin of the dissolved constituents, water, and gases discharging in the hot springs will be investigated and their relationship to the fumaroles and cold mineral springs ascertained. Recharge areas for the thermal springs will be determined as well as the amount of mixing of thermal and nonthermal waters. With this information, individual systems can be better understood and the geothermal potential of the individual thermal reservoirs estimated with greater accuracy.

GEOGRAPHIC COVERAGE: Geothermal areas of the Cascades and Sierras
THIS ACTIVITY STARTED: 10/01/1978 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, geothermal, chemical and isotope sampling, equilibrium, sulfate, hot springs, recharge.
FOR DETAILS, CONTACT: Robert H. Mariner, Project Chief
PHONE: (415) 323-8111 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Chemistry of Hydrosolic Metals and Related Constituents of Natural Water

PROBLEM: Hydrosolic metals are elements that form hydroxides with low solubilities. They may form colloidal suspensions (hydrosols). Some of these elements are toxic and they may interfere in various ways in the practical utilization of water. Understanding the occurrence and behavior of these elements in water is complicated by effects of pH, oxidation and reduction, formation of complex ions and coprecipitation and kinetics. Research results from this project have been utilized extensively world-wide for such purposes as education and training of hydrologist and geochemists and design and operation of water wells, water treatment and waste disposal processes, mineral prospecting, and improvement of pharmaceutical products.

OBJECTIVE: Define dilute-solution chemistry of elements of interest in the detail that is sufficient to apply findings to natural water systems. The final reports should be useful in predicting the fate of hydrosolic metals and associated substances, either in natural or polluted systems, as guides for designing optimal data collection programs and aids in the interpretation of water analyses and related hydrologic data.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 08/01/1956 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, hydrosolic metals, hydroxides, colloidal suspensions, ph, redox, ions, kinetics, wells, treatment waste disposal, mineral prospecting, drugs.
FOR DETAILS, CONTACT: John D. Hem, Project Chief
PHONE: (415) 323-8111 This summary information was LAST VERIFIED on: 08/18/1988

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region**

STUDY: Factors Determining Solute Transport in the Unsaturated Zone

PROBLEM: Quality of ground and surface waters often is significantly influenced by chemical and solute dispersion processes of the unsaturated zone. Frequently, it is impossible to predict these influences, because the effects of certain relevant, unsaturated zone factors (e.g. changes in water content or in the nature of solid surfaces) are imperfectly understood and because the current transport modelling methods may not be well adapted to the situations encountered in practice. As a result, it may be impossible to assess properly the availability of a given water resource, and to predict the impact of certain human activities and of management upon such availability.
OBJECTIVES: Develop and test experimentally theories and mathematical models of reacting-solute transport, so as to enhance the usefulness of such theories and models in assessing the impact of the unsaturated zone's solute transport on water resources and environmental quality. Include in the study chemical reactions involving radioactive nuclides as well as reactions of certain solutes found in industrial and agricultural effluents. In addition, develop mathematical models aimed at managing subsurface water quality.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 11/01/1967 and CONTINUING as of: 06/15/1988 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, studies ground water pollutant transport, solute transport, unsaturated zone, dispersion processes, experimental techniques, reacting solute, chemical, radionuclides, radioactive waste.
FOR DETAILS, CONTACT: Ronald V. James, Project Chief
PHONE: (415) 329-4521 This summary information was LAST VERIFIED on: 06/15/1988

STUDY: Fate of Organic Chemicals in Subsurface Environments

PROBLEM: Release of various synthetic organic compounds to the environment has caused soil and ground water pollution in many places. The processes which control the persistence and movement of these materials are not well understood. A better understanding is necessary to aid in construction of models to predict movement and fate of pollutants in the subsurface and for design of control and abatement techniques.
OBJECTIVE: To determine the transformation pathways of selected organic compounds using a combination of field observations and laboratory simulations of environmental conditions. To assess the relative importance of physical, chemical and biochemical processes in the transformation of these compounds under natural ambient conditions. To study relevant biotransformation processes occurring in the subsurface.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 07/01/1970 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: ground water cleanup, pertinent reports available, project planning, studies ground water pollutant transport, studies sources of pollution, synthetic organics, soil/water pollution, fate of pollutants, abatement, field observations, lab simulations, biotransformation process.
FOR DETAILS, CONTACT: Edward M. Godsy, Project Chief
PHONE: (415) 329-4504 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Geochemistry of Water in Fine-Grained Sediments

PROBLEM: The energy potential of geothermal waters from geopressured systems is enormous. Geochemical data are necessary for delineating favorable exploration areas, estimating the recoverable geothermal resources from a given reservoir, and identifying potential pollution, waste disposal, and corrosion problems.
OBJECTIVE: To study the chemistry, and controls on the chemistry, of water in geopressured geothermal systems. To provide basic data needed to identify potential pollution, waste disposal, and corrosion problems associated with extraction of energy from these systems. To carry out an assessment of geopressured geothermal resources in California.

GEOGRAPHIC COVERAGE: Counties with oil and/or gas production
THIS ACTIVITY STARTED: 07/01/1975 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, project planning, geothermal, fine-grained, geochemical, exploration area, waste disposal, corrosion, extraction of energy.
FOR DETAILS, CONTACT: Yousif K. Kharaka, Project Chief
PHONE: (415) 323-8111 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Hydrology, Heat Flow, and Geochemistry of the Hydrothermal System in Long Valley Caldera, Mono County, California

PROBLEM: To conduct coordinated geological, geochemical, hydrological, and geophysical surveys in the Long Valley Caldera, and to carry out related research in an effort to determine the hydrothermal resources of the region and their potential for development as sources of electrical energy, fresh water, water for desalination, and minerals. A substantial part of the effort must be devoted to research in order to improve available techniques and instruments or develop new ones, to improve our scientific capability in finding, analyzing, and developing the resource, and to prevent unacceptable environmental changes during development and use of the potentially valuable resources.

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region
STUDY: Hydrology, Heat Flow, and Geochemistry of the Hydrothermal System in Long Valley Caldera, Mono County, California

OBJECTIVE: 1.) To study the interrelation between the hydrologic systems and a geothermal heat source; 2.) to describe and interpret the role of ground water in dissipating heat; and 3.) to estimate the reservoir characteristics of the geothermal system, including boundary conditions and the distribution of hydrologic parameters such as porosity, permeability, pressure, physical state (gas or liquid) of the water, and its chemical characteristics.
Regulatory agencies will be advised as to effects of energy development on hot springs and surface waters in the caldera. Related studies may be conducted in Lassen County, California.

GEOGRAPHIC COVERAGE: Long Valley
THIS ACTIVITY STARTED: 07/01/1975 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, heat flow, geochemistry, electrical energy, desalination, minerals, geothermal, porosity, permeability, pressure, caldera.
FOR DETAILS, CONTACT: Michael L. Sorey, Project Chief
PHONE: (415) 323-8111 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Land Application of Wastewater and its Effect on Ground-Water Quality in the Livermore-Amador Valley

PROBLEM: Resources in the Livermore-Amador Valley include land, gravel, and water. The land is becoming urbanized; the gravel is being extracted; and water use is increasing. Paralleling rapid urbanization is an increase in the amount of wastewater produced. Most treated wastewater is discharged to ponds for percolation, evaporation and/or irrigation on the surface of alluvium, which is a major aquifer in the valley. Upon entering the aquifer, the treated wastewater mixes with ground water. The effect of the wastewater on ground water quality is a real concern to resource managers and planners. Ground water samples were collected and water levels measured in observation wells.
OBJECTIVE: To determine the effect of the land application of wastewater on ground-water quality in the Livermore-Amador Valley. The study was interpretive. It does not include a tabulation of existing data. An interpretive report was prepared, which included tables summarizing existing data.
Most of the data collected and analyzed during the study are on the U.S. Geological Survey's Water Data Storage and Retrieval System (WATSTORE).

GEOGRAPHIC COVERAGE: Livermore-Amador Valleys
THIS ACTIVITY STARTED: 10/01/1974 and ENDED: 03/01/1983 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, land application of wastewater, gravel, urbanization, treated wastewater, percolation, evaporation, irrigation, alluvium, observation wells, WATSTORE.
FOR DETAILS, CONTACT: Marc Sylvester, Project Chief
PHONE: (415) 329-4415 This summary information was LAST VERIFIED on: 05/12/1987

STUDY: Mathematical Modeling of Energy Transport in Multiphase Ground Water Systems

PROBLEM: Subsurface formations serve as conduits, barriers, and reservoirs for water and heat energy. Meteoric water percolates through openings in the rock and exchanges heat with its environment as it moves. The physics involved in the simultaneous transfer of mass and heat in porous or fractured rock under multiphase conditions needs further study so that it can be effectively applied to the utilization of ground water and geothermal energy.
OBJECTIVE: To: (1) predict temperature and pressure distributions in single-phase and multiphase ground water systems under natural and stressed conditions; (2) determine rates of water and heat movement in subsurface formations under natural and stressed conditions; and (3) test equations developed for physical realiability.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 02/01/1975 and CONTINUING as of: 08/14/1988 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, hydrogeology, pertinent reports available, studies ground water pollutant transport, porous/fractured rock, multiphase, geothermal, temperature, pressure, singlephase, heat movement.
FOR DETAILS, CONTACT: Allen F. Moench,
PHONE: (415) 354-3322 This summary information was LAST VERIFIED on: 08/14/1988

STUDY: Mechanics of Aquifer Systems - Field Research

PROBLEM: Land subsidence due to ground water overdraft significantly affects possibly 10,000 square miles, principally in five states. Surface fissuring and faulting are associated with the subsidence in several important areas. Costly engineering and environmental problems frequently result from these kinds of deformation. Monitoring of the vertical and horizontal deformations of aquifer systems resulting from observed changes in hydraulic stress allows the affected areas to serve as field laboratories for studying hydrogeologic processes. Basic hydraulic, mechanical, and geologic parameters of aquifer systems can be derived from such studies and can be used to model the systems' behavior.

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region
STUDY: Mechanics of Aquifer Systems - Field Research

OBJECTIVE: This project seeks to determine or refine the principles controlling vertical and horizontal deformation of aquifer systems resulting from changes in effective stress; to evaluate hydraulic and mechanical parameters of aquifer systems by analyzing measured deformation in response to measured stress changes in both the recoverable and nonrecoverable ranges of deformation; to test and enhance the applicability of laboratory tests (including new procedures developed in the project) in estimating aquifer-system deformation and the resulting subsidence and failures at land surface.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 07/01/1975 and ENDED: 09/01/1985 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, land subsidence, aquifer mechanics, overdraft, fissuring, faulting, deformations, hydraulic stress.
FOR DETAILS, CONTACT: Francis S. Riley, Project Chief
PHONE: (415) 323-8111 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Mineral-Fluid Reactions in Natural Systems

PROBLEM: With few exceptions, the reactions between fluids and minerals cannot be predicted. Consequently the chemical reactions among injected wastes and minerals are unknown. Neither increases nor decreases in permeability can be forecast confidently so injection system operations are temporally unpredictable.
OBJECTIVE: To collect data on the departures from equilibrium necessary to cause chemical reactions. Natural systems will be studied to provide essential data for future modeling. The phase assemblages to be studied include alkali zeolites (tertiary volcanics), laumontite facies (calcite, albite, laumontite, pumpellyite, prehnite, muscovite, quartz) and sandstones (chlorite, k-feldspar, albite, white mica and calcite). A laboratory study of the reactions of short chained fatty acids recently discovered to be the main part of the alkalinity in some oil field waters will also be conducted.

GEOGRAPHIC COVERAGE: Del Norte and Los Angeles Counties
THIS ACTIVITY STARTED: 04/01/1972 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, studies extent of ground water pollution, studies sources of pollution, mineral fluid reactions, injected wastes, equilibrium, chemical reactions, alkali zeolites, laumontie facies, sandstones, fatty acids, oil field water.
FOR DETAILS, CONTACT: Ivan Barnes, Project Chief
PHONE: (415) 323-8111 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Modeling Heat and Fluid Flow in Geothermal Systems

PROBLEM: Analysis of heat and fluid flow in geothermal systems is needed to test the adequacy of alternative conceptual models of the natural state of such systems and the effects of fluid production for energy development on related hydrologic features such as hot springs and geysers. In addition, because geothermal systems commonly occur in regions of active volcanism and seismicity, analysis of changes in such systems can provide precursory evidence of future eruptions and earthquakes.
OBJECTIVE: To elucidate the processes involved in the evolution of geothermal systems in areas of active volcanism with shallow magmatic heat sources and the implications for existence of viable geothermal reservoirs. To quantify the effects of geothermal energy development on naturally occurring thermal discharge features. To collect and analyze data on changes in the geothermal system in Long Valley Caldera caused by ongoing magmatic and tectonic processes to provide warnings of future eruptive activity.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 07/01/1972 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, project planning, studies ground water pollutant transport, studies sources of pollution, geothermal, heat and fluid flow, hot springs, geysers, volcanism, earthquakes, seismic, magmatic, tectonic.
FOR DETAILS, CONTACT: Michael L. Sorey, Project Chief
PHONE: (415) 323-8111 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Organic Substances in Water

PROBLEM: Organic compounds, both naturally occurring and those resulting from man's activities, degrade water quality. The wide-spread findings of pesticides, plasticizers and polynuclear aromatic hydrocarbons, in addition to the naturally occurring humic and fulvic acids, are well documented. More recently, low molecular weight chlorinated organic compounds have been found in treated sewage and drinking water supplies. Significantly, the complex study of organic substances in water has been greatly simplified by recent advances in analytical technology.
OBJECTIVE: Emphasis of this investigation will be on domestic sewage effluents, man's largest contribution of organics to the hydrologic environment. Specifically, studies will be conducted on: (1) separation, isolation and identification of organic substances from treated and untreated effluents; (2) identification or characterization of those substances in effluents which are refractory and persist in the hydrologic environment; (3) distribution and movement of effluent-derived organics in surface and ground water; and (4) the fate of organic matter following ultimate disposal.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 07/01/1961 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, organics, pesticides, plasticizers polynuclear aromatic hydrocarbons, humic/fulvic acids, chlorinated organics, treated sewage, drinking water.
FOR DETAILS, CONTACT: Donald F. Goerlitz, Project Chief
PHONE: (415) 323-8111 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Partitioning of Solutes between Solid and Aqueous Phases

PROBLEM: When solutes are introduced into a ground water system (e.g. by artificial recharge), or into surface waters (e.g. by surface runoff), physiochemical reactions may occur between the dissolved solutes and native solid materials. Detailed knowledge of the chemical reactions that occur at solid surfaces is required to assess the impact of such inputs on water quality. In addition, the geochemical cycling of some trace elements may be controlled by the distribution between solid and aqueous phases. A fundamental understanding of surface chemistry reactions is needed to incorporate a mathematical description of these processes into chemical equilibrium and solute transport models.

OBJECTIVE: 1. To study the adsorption behavior of inorganic and organic solutes on particulate materials which are important in natural systems, including aluminosilicate minerals, model colloids, e.g. hydrous oxides of aluminum, silicon, iron, or manganese, and solids of biogenic origin; 2. to derive stability constants for the partitioning of solutes between a particular solid surface and the aqueous phase and to understand the mechanisms of surface bonding from a theoretical perspective, including Electrical Double Layer Theory; and 3. to generate a surface stability constant data base which is compatible with existing computer models of chemical equilibrium and which could be used in the field evaluation of solute transport models.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 04/01/1970 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: pertinent reports available, studies ground water pollutant transport, partition, solutes, solid, aqueous phase, artificial recharge, runoff, reactions, trace elements, equilibrium, model, adsorption.
FOR DETAILS, CONTACT: James A. Davis, Project Chief
PHONE: (415) 329-4484 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Regional Aquifer System Analysis (RASA), Great Basin Region

PROBLEM: The Great Basin contains an extensive regional ground water system of about 200 valley-fill reservoirs which in some places are underlain and interconnected by permeable consolidated rock. This system has been included in a national program of Regional Aquifer Systems Analysis (RASA). The Great Basin area in Nevada and Utah is experiencing increasing demands for water. Demand in many areas has reached the point where careful management is needed to meet anticipated future needs. This study is needed to provide understanding of the system at a regional scale essential for wise management of the resource.

OBJECTIVE: The general objectives are: (1) to describe, both hydraulically and geochemically, the present ground water system and the original ground water system as it existed prior to development; (2) to analyze the changes which have led to the present condition of the system; (3) to tie together, in a regional analysis, the results of prior studies dealing with individual segments of the system; and (4) to provide predictive capabilities through which the effects of further ground water development can be estimated.

GEOGRAPHIC COVERAGE: Southeastern California
THIS ACTIVITY STARTED: 07/01/1980 and ENDED: 09/01/1984 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, great basin, rasa, geochemical, regional analysis, predictive, valley-fill reservoirs, permeable consolidated rock.
FOR DETAILS, CONTACT: James R. Harrill, Project Chief
PHONE: (415) 323-8111 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Subsidence and Related Aspects of Geothermal Systems

PROBLEM: Subsidence and ground movement frequently accompany intensive withdrawal of formation fluids. These effects have occurred and continue to occur in several foreign geothermal fields and could cause severe problems in domestic areas of geothermal production. Subsidence and horizontal ground movements as great as have occurred in New Zealand or Mexico would be prohibitive in many areas of the United States. To determine the stress-strain parameters of these areas, and relate them to the extraction and injection of geothermal fluids, is of major concern in the exploitation of geothermal fields.

OBJECTIVE: 1.) To monitor, in cooperation with other agencies, vertical and horizontal displacements and land surface changes caused by geothermal fluid extraction and injection, induced subsurface pressure gradients, and formation temperature changes, in order to differentiate displacements and changes caused by geothermal development from those related to tectonic and near-surface effects; 2.) to analyze and interpret pertinent geodetic, geophysical and geologic data as a background for this investigation and 3.) to obtain the stress-strain parameters, and from these to appraise the behavior and operation of geothermal reservoir systems and the accompanying ground water system.

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region
STUDY: Subsidence and Related Aspects of Geothermal Systems

GEOGRAPHIC COVERAGE: The Geysers Geothermal Area
THIS ACTIVITY STARTED: 08/01/1979 and ENDED: 06/01/1985 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, project planning, land subsidence, geothermal, intensive withdrawal, stress-strain, extraction, injection, monitor, tectonic.
FOR DETAILS, CONTACT: Francis S. Riley, Project Chief
PHONE: (415) 323-8111 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Trace Element Partitioning in Natural Waters Project

PROBLEM: Development of land, water, mineral and energy resources have led to air and water quality problems which are often caused by mobilization of trace and radioactive elements in the environment. Trace contaminants may originate from radioactive-waste disposal, coal and base metal mining wastes, oil-shale wastes, agricultural activities and improper land-use development,. Efforts to understand and model the trace element chemistry of natural waters are severely hampered by (1) inadequate sampling and analytical procedures, (2) inadequate or unevaluated thermodynamic and electrolyte data needed to calculate the form of dissolved chemical species and saturation states, and (3) inadequate testing of current models against laboratory measurements and well-documented field data.

OBJECTIVE: (1) Investigate methods of analyzing the species form of a trace element in a given water sample; (2) compile and critically evaluate equilibrium constants and related thermodynamic data used to make distribution of species calculations; (3) investigate the reliability of other parameters used in chemical models, especially activity coefficients, and (4) test current chemical models, especially carefully selected laboratory and field data to determine the range of conditions over which they can be considered reliable.

For a complete description, see "The Water Resources Research Program of the U.S. Geological Survey, Fiscal year 1983."

GEOGRAPHIC COVERAGE: Selected locations: U.S. and elsewhere
THIS ACTIVITY STARTED: 03/01/1975 and CONTINUING as of: 06/21/1988 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, trace element partitioning, development, mineral, energy, radioactive-waste disposal, coal, mining, oil-shale, agricultural.
FOR DETAILS, CONTACT: Darrell Kirk Nordstrom, Project Chief
PHONE: (415) 329-4539 This summary information was LAST VERIFIED on: 06/21/1988

U.S. Geological Survey; Water Resources Division; Western Region - Arizona District

Street address of Organization: 300 West Congress FB-44; Tucson, AZ 85701

STUDY: Comparison of Consumptive Use and Evapotranspiration in Palo Verde Valley, California

PROBLEM: A U.S. Geological Survey Task Force is measuring return flows to the Lower Colorado River. The task force needs a year-to-year comparison of the water-budget method and remote-sensing method of estimating consumptive use to see how well the comparison holds up through time.

OBJECTIVE: Compare estimates of consumptive use calculated using the water-budget method and remote-sensing method for Palo Verde Valley for calendar years 1981, 1982, 1983, and 1984.

GEOGRAPHIC COVERAGE: Palo Verde Valley
THIS ACTIVITY STARTED: 10/01/1985 and ENDED: 09/30/1987 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, studies ground water pollutant transport, consumptive use, evapotranspiration, cu, et, return flows, water-budget method, remote-sensing method.
FOR DETAILS, CONTACT: Sandra Owen-Joyce, Project Chief
PHONE: (602) 629-6222 This summary information was LAST VERIFIED on: 04/27/1987

STUDY: Consumptive Use: Lake Mead to Mexico

PROBLEM: An accounting system for consumptive use of water flowing between Hoover Dam and the international boundary with Mexico is needed in accordance with the Supreme Court Decree of 1964. Concerns exist over the current and projected costs of administering the provisions of the decree using the present method of determining consumptive use from diversions and return flows. Another aspect of the Decree that is presently of great concern is the quantification of ground water and surface water tributary inflow. An accounting system for water and consumptive use should be developed using satellite imagery and a water budget.

OBJECTIVE: (1) Estimate the amount of tributary inflow for use in a water budget between Hoover Dam and the international boundary and suggest ways of incorporating tributary inflow in the process of accounting for consumptive use. (2) Develop an accounting system for consumptive use among diverters, points of diversions, and states adjacent to international boundary with Mexico.

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - Arizona District
STUDY: Consumptive Use: Lake Mead to Mexico

GEOGRAPHIC COVERAGE: Lower Colorado River
THIS ACTIVITY STARTED: 10/01/1985 and ENDED: 09/30/1988 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, project planning, hoover dam, international boundary, mexico, consumptive use, diversions, return flows, satellite imagery, water budget.
FOR DETAILS, CONTACT: Sandra Owen-Joyce, Project Chief
PHONE: (602) 629-6222 This summary information was LAST VERIFIED on: 06/21/1988

STUDY: Ground Water Return Flow to the Lower Colorado River

PROBLEM: The states of Arizona, California, and Nevada are not receiving full credit for return flows to the Colorado River as set forth by Supreme Court decree in Arizona vs. California et al, dated March 9, 1964. The location and magnitude of all creditable ground water return flows to the mainstream should be determined on an annual basis.
OBJECTIVE: Identify the quantity of ground water returning to the Lower Colorado River and the area from which it comes. A procedure will be established and instruments installed so a program for continuous monitoring of the ground water return flow can be undertaken.

GEOGRAPHIC COVERAGE: Lower Colorado River
THIS ACTIVITY STARTED: 07/01/1971 and ENDED: 09/30/1983 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, return flows, instruments, continuous monitoring.
FOR DETAILS, CONTACT: Sandra Owen-Joyce, Project Chief
PHONE: (602) 629-6222 This summary information was LAST VERIFIED on: 04/27/1987

STUDY: Hydrology of Lower Colorado River Basin

PROBLEM: The continuing demand for water throughout the region has resulted in a need for general ground water information for long-range planning purposes.
OBJECTIVE: Compile existing data on ground water and chemical quality of water for presentation in atlas form.

GEOGRAPHIC COVERAGE: Lower Colorado River
THIS ACTIVITY STARTED: 07/01/1964 and ENDED: 10/01/1971 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, studies extent of ground water pollution, long-range planning, compile data, chemical quality, atlas.
FOR DETAILS, CONTACT: Thomas W. Anderson, Project Chief
PHONE: (602) 629-6266 This summary information was LAST VERIFIED on: 07/16/1987

U.S. Geological Survey; Water Resources Division; Western Region - California District

Street address of Organization: 2800 Cottage Way - Rm 2234; Sacramento, CA 95825

PROGRAM: Appraisal of Ground Water, Indian Wells Valley, California

PROBLEM: Ground water is the sole source of water in Indian Wells Valley. Since 1966, annual ground-water pumpage has exceeded estimates of mean annual recharge, and continued and increased stresses on the aquifer system of the valley are expected. In areas of greatest pumpage, water levels in the aquifer have declined about 20 feet since 1960. Previous investigations have indicated that water-level declines could result in degradation of the ground-water quality in the areas of heaviest pumpage.
OBJECTIVES: Define current ground-water conditions in the valley using water-level and water quality monitoring networks. Develop management tools (computer models) that can be used to simulate the response of the aquifer and the transport of solutes to projected pumpage increases and to different pumpage patterns.

GEOGRAPHIC COVERAGE: Indian Wells Valley
THIS ACTIVITY STARTED: 01/01/1965 and CONTINUING as of: 06/15/1988 (dates may be approximate).
KEYWORDS: allocates funds, ground water modeling, ground water monitoring, pertinent reports available, site inspection, site investigation, technical support, pumping, annual recharge, level, depth, solute transport, appraisal.
FOR DETAILS, CONTACT: Charles Berenbrock, Project Chief
U.S. Geological Survey
5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 557-6700 This summary information was LAST VERIFIED on: 06/15/1988

PROGRAM: Ground Water Appraisal, Santa Barbara County

PROBLEM: Evaluation of ground water resources in several ground water basins in Santa Barbara County is critical to the planning and optimum utilization of available ground water in these areas.
OBJECTIVE: To collect necessary data and evaluate ground water resources in the areas selected. Monitoring is done annually.

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District
PROGRAM: Ground Water Appraisal, Santa Barbara County

GEOGRAPHIC COVERAGE: Santa Barbara area
THIS ACTIVITY STARTED: 07/01/1963 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, planning, evaluate resources, appraisal.
FOR DETAILS, CONTACT: John A. Singer, Project Chief
U.S. Geological Survey; Water Resources Division
126 Figueroa Street; Santa Barbara, CA 93101
PHONE: (805) 962-8114 This summary information was LAST VERIFIED on: 08/18/1988

PROGRAM: Ground Water Stations

Problem: long-term water level records are needed 1) To evaluate the effects of climatic variations on the recharge to and discharge from the ground water systems; 2) To provide a database from which to measure the effects of development; 3) To assist in the prediction of future supplies; and 4) To provide data for management of the resource.

Objective: this program will 1) Collect water level data sufficient to provide a minimum long-term database so that the general response of the hydrologic system to natural climatic variations and induced stresses is known and potential problems can be defined early enough to allow proper planning and management; and 2) Provide a database against which the short-term records acquired in areal studies can be analyzed. this analysis must a) Provide an assessment of the ground water resource; b) Allow prediction of future conditions; c) Detect and define pollution and supply problems; and d) Provide the data base necessary for management of the resource.

The database referred to above is stored with a much larger collection of information know as "WATSTORE," which contains seven modules, including a ground water site inventory file and a water quality file.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 07/01/1900 and CONTINUING as of: 06/21/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, level, depth, climatic variations, development, supplies, prediction, management, assessment, WATSTORE.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 06/21/1988

PROGRAM: Ground Water Withdrawals

Problem: Estimates of ground water withdrawals in all the principal ground water basins in California are necessary for both hydrologic models and future appraisal studies.

Objective: The purpose of the project is to provide estimates of ground water withdrawals from (1) known sources of data as required to maintain a continuing program, and (2) new sources of data which have not been contacted to date.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 07/01/1966 and CONTINUING as of: 06/15/1988 (dates may be approximate).
KEYWORDS: pertinent reports available, technical support, withdrawals.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 06/15/1988

PROGRAM: Monitoring Ground Water Quality in the Suisun Bay Area

Problem: In 1975 the U.S. Army Corps of Engineers was proposing to deepen the main through-ship channel in the Suisun and Delta area between Martinez and Oakley. The depth of the channel would then be, in some places, as much as 30 feet below the present natural bay bottom. The dredging could possibly allow salt water which occurs in the bay to intrude into underlying permeable beds which now contain fresh water throughout much of the area.

Objective: The objectives of the project are twofold: 1.) to determine the present chloride concentration in the ground water that occurs adjacent to Suisun Bay; and 2.) to monitor this water for changes in chemical quality that might indicate or presage salt water intrusion.

GEOGRAPHIC COVERAGE: Suisun Bay Area
THIS ACTIVITY STARTED: 09/01/1970 and ENDED: 06/30/1975 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, site inspection, technical support, channel, dredge, salt water intrusion, bay, permeable beds, chloride.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

PROGRAM: Physical Chemistry of Stable Isotope Fractionation in Hydrologic Processes

Problem: Several light stable isotopes (hydrogen, carbon, nitrogen, oxygen, silicon, and sulfur) show variations in their isotope abundances and offer great promise for studying evaporation, ground water mixing, lake or reservoir circulation and stratification and associated hydrochemical phenomena. Fractionation of these isotopes is related to: (1) purely physical processes; (2) heterogeneous chemical equilibria; and (3) reaction kinetics. Many of these processes are not sufficiently understood or quantified to make the most effective use of stable isotope techniques in hydrologic research.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
PROGRAM: Physical Chemistry of Stable Isotope Fractionation in Hydrologic Processes

Objective: 1.) to develop refined theoretical and instrumental mass spectrometric techniques through experimental investigation; 2.) to test these in suitable field locations, such as intermontane ground water reservoirs, closed-lake basins, and suitable surface reservoir, lake, or estuarine systems; and 3.) to aid in more complete utilization of light stable isotope phenomena in hydrologic studies.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 11/01/1974 and CONTINUING as of: 06/21/1988 (dates may be approximate).
KEYWORDS: ground water modeling, ground water monitoring, pertinent reports available, site investigation, technical support, stable isotope practionation, mixing, chemical equilibria, reaction kinetics, mass spectrometry, intermontane, closed lake.
FOR DETAILS, CONTACT: Tyler B. Coplen, Project Chief
U.S. Geological Survey; National Center
12201 Sunrise Valley Drive; Reston, VA 22092
PHONE: (703) 648-5862 This summary information was LAST VERIFIED on: 06/21/1988

PROGRAM: Sole-Source Aquifer Studies

PROBLEM: Section 1424(e) of the Safe Drinking Water Act provides that, upon petition, the Administrator of the EPA must determine if the petitioned aquifer is a sole or principal source of drinking water. EPA lacks the in-house capability to conduct the hydrologic studies and to prepare the technical reports needed to determine a sole-source aquifer in a given area, and has asked the USGS to fill the role.
OBJECTIVE: To provide the scientific and technical information needed by EPA to determine if an aquifer or aquifer system is the sole or principal source of drinking water in a specified locality.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 02/01/1977 and ENDED: 09/30/1980 (dates may be approximate).
KEYWORDS: site investigation, sole source aquifers, safe drinking water act (sdwa).
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 05/13/1987

PROGRAM: Special Water Resources Studies

Problem: The U.S. Geological Survey (USGS) often needs to conduct interdisciplinary studies which do not fit into regular basic data programs. These studies are generally small, are non-continuous in nature, and do not fit into other current projects.
Objective: To conduct special water resources studies when requested by other federal and state agencies. Specialized studies will be conducted by experienced district hydrologists after the approval by the USGS Western Region. Data results will likely be routine in nature or minimally significant, thus reports will not be published.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 07/01/1973 and ENDED: 06/30/1975 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, ground water modeling, ground water monitoring, planning, site inspection, site investigation, technical support, special interdisciplinary study.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

PROGRAM: Water Resources of Indian Reservations

Problem: The approximately 40 Indian reservations in California are under the jurisdiction of the U.S. Bureau of Indian Affairs (BIA). The BIA sometimes requests the assistance of the U.S. Geological Survey to assess the water resources of selected reservations. This assistance may involve a reconnaissance-level hydrologic study or simply locating a well.
Objective: To provide the BIA with an appraisal of the water resources of each Indian Reservation as requested by the BIA. Inasmuch as the reservations are generally small (some having only tens of people), the work to be done on each reservation will be limited to low-level reconnaissance, qualitative hydrology, and well site selection. Areas beyond the reservation may be evaluated where present or future potential water needs are large.
Approach: If necessary, wells will be inventoried, water quality will be determined, and favorable sites for development will be identified. Limited geologic mapping will be done if maps are not already available. When warranted, shallow auguring will be done; if necessary, test holes will be drilled.

GEOGRAPHIC COVERAGE: California Indian Reservations
THIS ACTIVITY STARTED: 07/01/1982 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: ground water modeling, ground water monitoring, pertinent reports available, site inspection, site investigation, technical support, indian reservations, reconnaissance study, wells, development, geologic mapping, shallow auguring, bureau of indian affairs.
FOR DETAILS, CONTACT: Gregory C. Lines, Project Chief
U.S. Geological Survey
5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 08/18/1988

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**

PROGRAM: Water Use Information Program in California

PROBLEM: Presently the USGS's California District lacks the appropriate input into the National Water Use Information Program (NWUIP). Because California uses substantial quantities of surface water and a disproportionate share of the total quantity of ground water pumped in the United States, it is essential that the district participate in the National Water Use Data Information Program. For efficient planning and management, data on water use should be available. This information should meet the needs of local, regional, and national interests and should be in a storage and retrieval system that permits optimal interaction among all components of the hydrologic data bank.

OBJECTIVE: This project will make available the water-use information needed for optimum use and management of water resources. Water-use data will be collected, stored, and disseminated to complement data on quantity and quality of the water available. The system will be responsive to the needs of local users, state government, the U. S. Geological Survey, and other federal agencies.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 10/01/1977 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water modeling, planning, site inspection, site investigation, technical support, nwuip, water use, management, water resources.
FOR DETAILS, CONTACT: William E. Templin, Water Use Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 08/18/1988

PROJECT: Appraisal of Ground Water Resources in San Antonio Creek Ground Water Basin, Santa Barbara County, California

PROBLEM: Because Vandenberg Air Force Base (AFB) is situated at the seaward end of the San Antonio Creek basin, its water supply depends upon efficient management of upgradient users. Projected demands by the major users, including Vandenberg AFB, agricultural interests, and the town of Los Alamos, have increased the possibility of an overdraft on the ground water supply.

OBJECTIVE: To determine 1.) the correct perennial yield of the San Antonio ground water basin, the current yield of the basin, and whether or not the basin is in overdraft; 2.) the quantity of water that is available for additional withdrawal at Vandenberg AFB; 3.) the effect increased upstream agricultural expansion will have on the water supply at Vandenberg AFB; 4.) the effect will increased withdrawals have on water resources adjacent to Vandenberg AFB and on underflow from adjoining Santa Maria and Santa Ynez basins; 5.) the effect increased withdrawals will have on marshlands; and 6.) the effect increased withdrawals will have on sea water intrusion into the San Antonio Ground Water Basin.

GEOGRAPHIC COVERAGE: Santa Barbara County
THIS ACTIVITY STARTED: 04/01/1977 and ENDED: 09/01/1986 (dates may be approximate).
KEYWORDS: ground water modeling, ground water monitoring, pertinent reports available, site investigation, management, agriculture, vandenburg AFB, withdrawals, marshlands, sea water intrusion.
FOR DETAILS, CONTACT: Peter Martin, Project Chief
U.S. Geological Survey
5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 07/04/1987

PROJECT: Calibration of a Mathematical Model of the Antelope Valley Ground-Water Basin, California

PROBLEM: Antelope Valley, a 2,500 square mile closed basin, is an area of rapid population growth. An aqueduct bringing water from Northern California was completed in 1972, and continued urban development in predicted. In order to maintain an adequate water supply and to avoid a severe deterioration of ground water quality, proper drainage and careful management of the basin will be required.

OBJECTIVE: 1.) To develop a digital computer hydrologic model of the Antelope Valley ground water basin to aid in the rational management of the supply, storage, and use of water in that region; and 2.) to provide valuable information concerning the dynamic effects of the importation of California aqueduct water, reclamation of waste water, rainfall, runoff, and evaporation. These would be related to the recharge, storage, and yield capacities of the basin's aquifer system. The ground water model will be used to indicate effects in the basin of: (1) proposed pumpage, (2) recharge from imported water, and (3) recharge from wastewater percolation.

GEOGRAPHIC COVERAGE: Antelope Valley (Southern California)
THIS ACTIVITY STARTED: 07/01/1972 and ENDED: 09/30/1978 (dates may be approximate).
KEYWORDS: ground water modeling, pertinent reports available, site investigation, population growth, aqueduct, recharge, yield, drainage, pumpage, management, percolation, reclamation, wastewater, rainfall, runoff, evaporation.
FOR DETAILS, CONTACT: John R. Freckleton, Hydrologist
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PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 05/22/1987

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**

PROJECT: California's Central Valley Hydrologic Information and Technology Transfer Program

PROBLEM: The future of California's vast agricultural economy depends upon basic political and institutional changes in the way its water resources are managed and these changes can only be effected by popular consent. Currently, ground water management is a major issue in California. In 1978, the Governor appointed a special commission to review California Water Rights Law; the commission in turn focused a great deal of time and energy on recommendations for ground water management laws in California. Concurrent with the commission's recommendation, the State legislature passed and Governor Brown approved SB 1505 (Nejedly, 1978), which directed the State Department of Water Resources to identify ground water basin boundaries and basins having critical overdraft. From March through September of 1979, 25 workshops and 4 public hearings were held throughout the State to get local agency and individual ground water user input into the assigning of ground water basin boundaries. It was during these hearings and workshops that three very important facts were brought to light, specifically that the intelligent and sometimes politically powerful laymen were (1) unaware of basic hydrologic concepts, (2) unaware of state and federal studies documenting water resource problems, and (3) most importantly, reluctant to accept certain government agency (state, local, or federal) findings for fear that these agencies have ulterior motives attached to their findings. All government agencies have realized for some time that their effectiveness and viability in working with the public is dependent upon subjectively well-informed individuals in the public sector. In this regard, there is a growing need for technical information to be transferred to a broad array of individuals in such a way that greater awareness of resource problems and better capability in making proper management decisions is developed.

OBJECTIVE: The U.S. Geological Survey (USGS) is completing its Central Valley Aquifer Study (part of the Regional Aquifer System Analysis--RASA program) and has amassed a great deal of current ground water information and has developed or updated conceptual models of the aquifer systems of the Central Valley. The object of this project would be to transform this technical information from other agencies into language and format that the intelligent non-science public will accept, then to distribute such information on as wide a basis as possible throughout the Central Valley. This work is directly related to the Water Resources Division (WRD) mission as outlined in WRD Memorandum 77.71 and the Mission and Program statement, page A5.1, WRD Data Book, especially Item 4 which lists as part of the mission, "Disseminating the water data and the results of these investigations and research through reports, maps, computerized information, services, and other forms of public releases." This work is also directly supportive of Chief Hydrologic Unnumbered Memorandum of April 7, 1980, entitled, "Increased Effort on Technology Transfer" and August 25, 1980, entitled, "Proposals for Information Transfer Support."

GEOGRAPHIC COVERAGE: RWQCB Region Five
THIS ACTIVITY STARTED: 11/01/1980 and ENDED: 09/01/1982 (dates may be approximate).
KEYWORDS: demonstration project, pertinent reports available, agriculture, political, institutional, management, water rights, overdraft, rasa, technology transfer.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 06/19/1987

PROJECT: Digital Model of Carmel Valley Ground Water Basin

PROBLEM: Planning projections forecast continued urban growth for the Carmel Valley causing an increase in water use. Additional development of surface water sources may not be cost effective; increased water demand may therefore have to be met from ground water supplies. Ground water supplies, however, are limited, and there is the danger that an overdraft of the ground water basin may induce sea water intrusion from Carmel Bay. Careful management of the basin's ground water supplies will be required.

OBJECTIVE: Develop an effective predictive model and a better understanding of the hydraulics and geohydrology of the Carmel Valley Ground Water Basin.

GEOGRAPHIC COVERAGE: Carmel Valley Area
THIS ACTIVITY STARTED: 10/01/1978 and ENDED: 09/01/1980 (dates may be approximate).
KEYWORDS: ground water modeling, ground water monitoring, pertinent reports available, planning, site investigation, planning projections, urban growth, sea water intrusion, management, predictive model, hydraulics, geohydrology.
FOR DETAILS, CONTACT: Michael J. Johnson, Project Chief
PHONE: (702) 882-1388 This summary information was LAST VERIFIED on: 07/04/1987

PROJECT: Digital Model of Pajaro Valley Ground Water Subarea

PROBLEM: The economy of Pajaro Valley, the largest farming area in Santa Cruz County, is dependent upon reliable water supplies to meet irrigation needs. With increasing demand and an insufficient surface water supply, ground water use has increased and will continue to do so in the future. Ground water resources, however, are limited, and pumping has already caused depressed water levels and sea water intrusion near Monterey Bay. To minimize these problems in the future will require careful management of the basin's ground water supplies.

OBJECTIVE: To develop an effective predictive model and a better understanding of the hydraulics and geohydrology of the Pajaro Valley Ground Water Subarea.

GEOGRAPHIC COVERAGE: Pajaro Valley Area
THIS ACTIVITY STARTED: 03/01/1980 and ENDED: 03/01/1984 (dates may be approximate).

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District
PROJECT: Digital Model of Pajaro Valley Ground Water Subarea

KEYWORDS: ground water modeling, pertinent reports available, planning, irrigation, pumping, depressed water levels, sea water intrusion, management, predictive model, hydraulics, geohydrology.
FOR DETAILS, CONTACT: Michael V. Shulters, Project Chief
PHONE: (916) 978-4633 This summary information was LAST VERIFIED on: 07/04/1987

PROJECT: Fresno County Ground Water Model

PROBLEM: The study area contains a large and rapidly growing metropolitan development surrounded by extensively developed agricultural land. Ground water is used by the metropolitan area and agriculture. There is evidence of declines in ground water levels in the study area.
OBJECTIVE: Develop a valid concept of the unconfined aquifer system in the area and produce a calibrated model of that system that can be used to predict aquifer response to any given stress.

GEOGRAPHIC COVERAGE: City of Fresno and vicinity
THIS ACTIVITY STARTED: 10/01/1981 and ENDED: 12/31/1987 (dates may be approximate).
KEYWORDS: ground water modeling, pertinent reports available, agriculture, urban, metropolitan, growth, level, depth, unconfined aquifer.
FOR DETAILS, CONTACT: Hugh T. Mitten, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 07/04/1987

PROJECT: Geohydrology of Round Valley, Mendocino County, California

PROBLEM: Development on non-reservation land in Round Valley may require greatly expanded water use in the Valley. Developers may use ground water as a water supply. The Bureau of Indian affairs wishes to know whether or not pumping at the present or possibly increased future rates will adversely affect the water available to Indian lands.
OBJECTIVE: 1.) determine present ground water levels in Round Valley for comparison with previous records; 2.) collect water samples from selected wells and streams; 3.) estimate pumpage; 4.) determine stream-aquifer interrelations by measuring streams and augering 20-30 test wells; 5.) establish a water quality water level monitoring network; and 6.) prepare a report summarizing the findings of items 1-5.

GEOGRAPHIC COVERAGE: Round Valley
THIS ACTIVITY STARTED: 01/01/1973 and ENDED: 06/01/1975 (dates may be approximate).
KEYWORDS: pertinent reports available, site investigation, geohydrology, development, reservation land, bureau of indian affairs, level, depth, pumpage, stream-aquifer interrelations, auger.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 05/13/1987

PROJECT: Geothermal Data Collection, Imperial Valley, California

PROBLEM: Increased interest in development of geothermal resources has focused attention on the Imperial Valley Area of California. In a preliminary appraisal of the ground water in storage in the valley (USGS Circular 649), the authors concluded that, "although numerous reports have been prepared, they are based on paucity of data." Given the expected greatly-increased developmental activity, an adequate database is needed on which to formulate management decisions.
OBJECTIVE: The long-range objective of this project is to provide a database for a digital model of the geothermal system beneath the Imperial Valley. The short-term objectives are to 1.) insure that all data presently being generated are documented; 2.) insure that opportunities for collecting data are not lost by the failure to recognize what is important; 3.) collate all available geohydrologic and geothermal data; 4.) collect additional data, particularly from deep geothermal exploratory drilling; and 5.) coordinate research within the U.S. Geological Survey to facilitate (2) above.

GEOGRAPHIC COVERAGE: Imperial Valley
THIS ACTIVITY STARTED: 07/01/1972 and ENDED: 09/30/1976 (dates may be approximate).
KEYWORDS: ground water monitoring, planning, site investigation, geothermal resources, USGS circular 649, management, database, geohydrologic, exploratory drilling.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

PROJECT: Ground Water Investigations in Owens Valley, California

PROBLEM: The amount of the Owens Valley floor covered by phreatophytes has declined in the last decade. Since these plants provide attractive ground cover, forage for cattle and protection against soil erosion, their loss has caused public outcry. Increased ground water pumping by Los Angeles in the 1970's impacted the phreatophytes. The amount of water required to keep these plants alive, their sensitivity to changes in the water table or to the moisture content of the unsaturated zone is not known.
OBJECTIVE: To develop quantitative tools that can be used to evaluate alternative strategies for mitigating the impacts of ground water pumpage on phreatophytes. The primary quantitative tool will be a computer model. Measurements of evapotranspiration, soil moisture, water level fluctuations, and plant cover will be used to calibrate the model.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
PROJECT: Ground Water Investigations in Owens Valley, California

APPROACH: The project is arranged in four consecutive phases. Successful completion of each phase is required to progress to the next phase. The phases are: 1.) intensive site investigations to develop a one-dimensional model of soil moisture changes coupled with micro-climate and phreatophyte water use; 2.) a three-dimensional model of one of Owens Valley's hydro zones incorporating unsaturated and saturated flow; 3.) a valley-wide model simulating saturated and unsaturated flow as well as phreatophyte water use; and 4.) a valley-wide optimization model that could help develop pumping strategies with the least impact on the valley.

GEOGRAPHIC COVERAGE: Owens Valley Area
THIS ACTIVITY STARTED: 10/01/1982 and ENDED: 09/30/1987 (dates may be approximate).
KEYWORDS: ground water modeling, pertinent reports available, planning, site investigation, phreatophytes, soil erosion, pumping, unsaturated zone, soil moisture, evapotranspiration, water level fluctuations, 3-d model, optimization.
FOR DETAILS, CONTACT: Kenneth J. Hollett, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 07/04/1987

PROJECT: Ground Water Model - City of Modesto

PROBLEM: Declining water levels and deteriorating chemical quality of water has occurred in wells of the City of Modesto in Central California. The City management staff requested assistance in planning for best use of the available water resources in the area.
OBJECTIVE: To provide a digital model of the ground water system of the area in a form ultimately useable as a predictive tool by the city management staff.

GEOGRAPHIC COVERAGE: Modesto Area
THIS ACTIVITY STARTED: 07/01/1971 and ENDED: 09/01/1980 (dates may be approximate).
KEYWORDS: ground water modeling, pertinent reports available, planning, site investigation, decline, depth, level, deteriorate, predictive.
FOR DETAILS, CONTACT: Clark J. Londquist, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 07/04/1987

PROJECT: Ground Water Resources of the Santa Barbara Area

PROBLEM: The reduced efficiency of surface reservoirs due to siltation and the effects of continuing drought in California will place increasing pressure on the ground water supply in the Santa Barbara Basin. In light of anticipated acceleration of water-level declines due to increased ground water pumpage in the basin and the possibility of sea water intrusion into the fresh water aquifer, it has become necessary to develop and implement a ground water program capable of evaluating the effects of anticipated stresses on the ground water basin.
OBJECTIVE: To design a comprehensive program to regularly monitor water levels and quality of water in the ground water basin to observe the effects of increased pumping and the potential migration of sea water into the ground water reservoir. Dependent on results of the monitoring program and upon mutual agreement with the local sponsor, a computer model of the ground water basin may be constructed to evaluate long-term response of the basin to increased pumpage.

GEOGRAPHIC COVERAGE: Santa Barbara County
THIS ACTIVITY STARTED: 07/01/1977 and ENDED: 09/30/1986 (dates may be approximate).
KEYWORDS: ground water modeling, ground water monitoring, pertinent reports available, site investigation, siltation, drought declines, pumpage, sea water intrusion, level, depth, long-term response.
FOR DETAILS, CONTACT: Peter Martin, Project Chief
U.S. Geological Survey
5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 07/04/1987

PROJECT: Hydrologic Model Study, Santa Clara County, California

PROBLEM: The Santa Clara County Flood Control and Water Conservation District, the water agency charged with the responsibility of managing the water resources of a large part of the Santa Clara Valley, has requested the U.S. Geological Survey to: 1.) establish the relationship of ground water to surface water; and 2.) determine the capability of the Santa Clara Valley ground water basin to transmit water from the existing and potential recharge areas to heavily pumped areas; and 3.) to predict how changes in water management will affect the ground water basin.
OBJECTIVE: to construct and verify a digital, mathematical model of the hydrologic system of the Santa Clara Valley using data previously compiled and analyzed when preparing to construct an analog model.

GEOGRAPHIC COVERAGE: Santa Clara Co. Flood Control & Water Conservation District
THIS ACTIVITY STARTED: 09/01/1967 and ENDED: 03/30/1974 (dates may be approximate).
KEYWORDS: ground water modeling, pertinent reports available, flood control, water conservation, water management, recharge, pumped.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District

PROJECT: Inventory of Ground Water Quality Monitoring Stations in California

PROBLEM: To meet the ground water quality monitoring and surveillance requirements of federal and state law, the California State Water Resources Control Board needs a catalog of qualified active ground water quality monitoring stations operated by federal, state, and local water agencies in California. The catalog will facilitate design of ground water quality monitoring networks, the ultimate goal of this project.

OBJECTIVE: 1) Produce a catalog of qualified, active ground water quality monitoring stations in important ground water basins in California. The project is limited initially to producing a catalog that includes several, if not all, of 21 first-priority basins designated by the State Water Resources Control Board. The number of basins included will be limited by the funds available, and 2) design ground water quality monitoring networks that will establish background quality and define changes in water quality.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 10/01/1978 and ENDED: 12/01/1982 (dates may be approximate).
KEYWORDS: allocates funds, ground water monitoring, pertinent reports available, planning, site investigation, surveillance, catalog, monitoring stations, monitoring networks.
FOR DETAILS, CONTACT: Peter W. Anttila, Acting Project Chief
PHONE: (916) 978-4633 This summary information was LAST VERIFIED on: 07/04/1987

PROJECT: Irvine Ranch Water District Artificial Recharge Study

PROBLEM: The study area encompasses approximately 190 sq. mi. in Orange County, which has the highest percentage of annual population increase of any county in California. The study area includes El Toro Air Station, the University of California at Irvine, and the Irvine Ranch. The Irvine Ranch Water District distributes water in most of the study area and operates a waste treatment plant. Treated water from the plant is presently being disposed of by using it for irrigation purposes within the district. Planned urbanization of the agricultural areas where the wastewater is presently being used creates a potential wastewater disposal problem.

OBJECTIVE: The purpose of the study will be to determine 1.) the feasibility of surface recharge of the treated wastewater in the San Joaquin Hills, with eventual migration to the Pacific Ocean; 2.) the feasibility of recharging imported water to the ground water basin by percolation from spreading ponds in the adjacent hills; 3.) the possibility of the recharged water returning to surface water reservoirs by recharge through the adjacent permeable sandstone strata; and 4.) the degree of hydraulic continuity and flow pattern in the aquifer between the forebay area of the Santa Ana River and the Irvine area, insofar as the data permit.

GEOGRAPHIC COVERAGE: Irvine Basin
THIS ACTIVITY STARTED: 07/01/1970 and ENDED: 06/30/1973 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, planning, site investigation, waste treatment, irrigation, agriculture, urban, wastewater disposal, recharge, percolation, spreading ponds, sandstone, hydraulic continuity.
FOR DETAILS, CONTACT: John A. Singer, Project Chief
U.S. Geological Survey; Water Resources Division; 126 Figueroa Street; Santa Barbara, CA 93101
PHONE: (805) 962-8114 This summary information was LAST VERIFIED on: 07/04/1987

PROJECT: Madera Area Ground Water Flow Simulation Model

PROBLEM: A digital simulation model of the ground water system of Madera County is needed for testing responses to alternate management plans. Previous investigations and data currently available indicate that a calibrated model suitable for quantitative analysis cannot be developed without additional data. Data requirements for calibration of a model can be refined by attempting to construct a preliminary model using available data.

OBJECTIVE: To construct and calibrate a digital simulation model of the ground water system in Madera County for predicting hydrologic responses to water management plans.

This is a cooperative project between the Madera County Water and Flood Control District (MCWFCD) and the U.S. Geological Survey (USGS). 50% of the money to run the project and information (consisting solely of water level data) is provided by MCWFCD. The other 50% of the money and the staff work is provided by the USGS.

GEOGRAPHIC COVERAGE: City of Madera and vicinity
THIS ACTIVITY STARTED: 07/01/1971 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: ground water modeling, ground water monitoring, pertinent reports available, management plans, quantitative analysis.
FOR DETAILS, CONTACT: Clark J. Londquist, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 08/18/1988

PROJECT: Mojave River Analog Model Project

PROBLEM: Since its formation in 1959, the Mojave Water Agency has pursued a program designed to effectively manage all ground water and surface water supplies (both local and imported) within the Agency boundaries, particularly along the Mojave River and within the Mojave ground water basin. The Agency's plans for an effective program of water management include the integration of activities designed to utilize the ground water reservoirs for storage of water, for artificial recharge of ground water, and for reclamation of sewage and wastewater. The Agency also wants to know how far downstream given amounts of streamflow will move before percolation to the ground water occurs.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
PROJECT: Mojave River Analog Model Project

OBJECTIVE: The U.S. Geological Survey has been requested to participate in the Agency's program through the construction and operation of an analog model for the area of influence of the Mojave River which is of particular interest to the Agency. This area is influenced both by replenishment from the Mojave River and by pumping from the ground water basin.

GEOGRAPHIC COVERAGE: Mojave River Basin
THIS ACTIVITY STARTED: 07/01/1966 and ENDED: 10/17/1974 (dates may be approximate).
KEYWORDS: ground water modeling, ground water monitoring, pertinent reports available, planning, site investigation, management, reservoirs, artificial recharge, reclamation, sewage, wastewater, percolation, analog model, pumping.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

PROJECT: Salinas Ground Water Model

PROBLEM: U.S. Corps of Engineers, San Francisco District, initiated an investigation, prior to the start of this project, titled "Salinas-Monterey Bay Area Urban Water Resources and Wastewater Management Study." A major portion of this effort is oriented toward formulating and evaluating alternate plans for managing the water resources of the area with respect to water supply, water quality, and wastewater. One of the major problems in evaluating alternative management plans is the lack of adequate information concerning the ground water system. Ground water quality degradation due to salt water intrusion, return flows from urban and irrigated lands, and infiltration of degraded river water is of major concern.
OBJECTIVE: In order to assist in meeting the objectives of the Corps of Engineers' investigation as described in their Plan of Study dated December 1974, the U.S. Geological Survey has been asked to prepare this proposal for modeling the ground water system of the Salinas Valley. Digital ground water flow and quality models would be developed and calibrated for use in evaluating water management alternatives. Stressing of the models would be done by the U.S. Geological Survey with the alternative schemes provided by the Corps of Engineers.

GEOGRAPHIC COVERAGE: Salinas Valley-Monterey Bay area
THIS ACTIVITY STARTED: 06/01/1975 and ENDED: 09/30/1985 (dates may be approximate).
KEYWORDS: ground water modeling, pertinent reports available, alternative management plans, water supply, quality, wastewater, salt water intrusion, return flows, urban, agriculture, irrigation, infiltration.
FOR DETAILS, CONTACT: Eugene B. Yates, Project Chief
PHONE: (916) 978-4633 This summary information was LAST VERIFIED on: 07/04/1987

PROJECT: Salinity Reduction Demonstration Program, Lower Palo Verde Valley, California

PROBLEM: Control of salinity in the Colorado River is mandated by the Federal Water Pollution Control Act (PL 92-500), which prescribes salinity standards for the river. Over the period of this study surplus flows in the river will cause lower salinity levels. During this period an attempt will be made to flush out excess salt from the soils in agricultural lands in southern Palo Verde Valley and transport it to the Colorado River. The U.S. Geological Survey has been asked to describe the ground water system to be affected by the flushing activity and to analyze the water quality data obtained.
OBJECTIVE: To determine the effectiveness of application of excess water to the specific lands in lower Palo Verde Valley in reducing salinity of ground water. To demonstrate the basic principle that excessive application of irrigation water to selected test plots of land can displace or dilute salt concentrations in the ground water system, particularly the upper part of the shallow aquifer, within 40 feet of land surface.

GEOGRAPHIC COVERAGE: Palo Verde Irrigation District
THIS ACTIVITY STARTED: 08/01/1980 and ENDED: 09/01/1982 (dates may be approximate).
KEYWORDS: demonstration project, ground water monitoring, pertinent reports available, site investigation, salinity, water pollution control act, agriculture, flush, irrigation, shallow aquifer.
FOR DETAILS, CONTACT: Anthony Buono, Project Chief
U.S. Geological Survey; Denver Federal Center
mailing address: P.O. Box 25046; Lakewood, CO 80225
PHONE: (702) 295-5857 This summary information was LAST VERIFIED on: 05/15/1987

PROJECT: Salt Water Intrusion at Santa Barbara

PROBLEM: During dry summer months and throughout extended drought periods, the City of Santa Barbara depends heavily on ground water. Municipal supply wells are centered in the city less than one mile inland from the coast. During pumping periods, municipal pumpage has caused water levels in the main water-bearing zones to decline below sea level. Data from monitor wells indicate that salt water intrusion has already degraded the quality of water adjacent to the coast. Because of the close proximity of the municipal supply wells to the coast, there is a need to predict the movement of salt water in response to different municipal pumpage patterns.
OBJECTIVE: To determine the extent of salt water intrusion in a part (Storage Unit I) of the Santa Barbara ground water basin and to develop a model for simulating the movement of salt water into the fresh water aquifer.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
PROJECT: Salt Water Intrusion at Santa Barbara

APPROACH: A two-dimensional solute transport model will be used to simulate a cross-section or slice of the aquifer system. The slice model will extend from an offshore fault to the pumping center. Observation wells will be constructed along the trace of the slice model to monitor the inland movement of salt water intrusion during pumping periods. Data collected from the observation wells will be used to calibrate the model.

GEOGRAPHIC COVERAGE: Santa Barbara area
THIS ACTIVITY STARTED: 10/01/1985 and ENDED: 09/30/1989 (dates may be approximate).
KEYWORDS: ground water modeling, ground water monitoring, pertinent reports available, planning, site investigation, salt water intrusion, municipal supply wells, degraded quality, 2d solute transport model, observation wells.
FOR DETAILS, CONTACT: Peter Martin, Project Chief
U.S. Geological Survey
5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 08/18/1988

PROJECT: Tracing the Movement of Treated Wastewater and Determining its Effect on Aquifer Hydraulics and Water Quality in an Injection-Extraction System

PROBLEM: Increasing use of, and demand for, water resources has been accompanied by decreasing availability of acceptable sources and reserves. Salt water intrusion and man-made pollution result in decreased water quality in ground water systems. In California, an expected 2-million acre-foot-per-year deficit in water supply may be reduced by 30 percent through use of treated wastewater. Of particular interest is the use of treated wastewater for ground water recharge.
OBJECTIVE: Utilizing the injection-extraction system associated with the Palo Alto sewage treatment plant, the objectives of the USGS project, in cooperation with Santa Clara Valley Water District, are to (1) investigate the problem of aquifer clogging as a result of treated wastewater injection, and (2) monitor and assess the hydraulic changes, flow movement, and water quality changes induced by injection.

GEOGRAPHIC COVERAGE: Palo Alto Sewage Treatment Plant
THIS ACTIVITY STARTED: 10/01/1979 and ENDED: 09/01/1982 (dates may be approximate).
KEYWORDS: demonstration project, ground water modeling, ground water monitoring, pertinent reports available, planning, site investigation, salt water intrusion, pollution, deficit, treated wastewater, recharge, injection-extraction, aquifer clogging.
FOR DETAILS, CONTACT: Scott N. Hamlin, Acting Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 05/26/1987

PROJECT: Upper Santa Ana Canyon Geohydrologic Reconnaissance

PROBLEM: A brief water quality investigation conducted by Orange County Water District during 1969-70 indicated that the water deteriorates within a seven mile reach of the lower Santa Ana River between Prado Dam and the Santa Ana Valley Irrigation District intake. Water analyses from wells in the narrow alluvial aquifer of the area during the past 10-15 years similarly show degradation.
OBJECTIVE: 1.) to appraise the hydrologic conditions causing the increase in water salinity both in time and space between Prado Dam and the Santa Ana Valley Irrigation intake; and 2.) to establish a continuing water quality monitoring network in this area.

GEOGRAPHIC COVERAGE: Upper Santa Ana Canyon
THIS ACTIVITY STARTED: 12/01/1970 and ENDED: 09/30/1974 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, planning, site investigation, deterioration, irrigation, alluvial aquifer.
FOR DETAILS, CONTACT: George A. Irwin, Project Chief
U.S. Geological Survey
227 North Bronough Street, Suite 3015; Tallahassee, FL 32301
PHONE: (904) 681-7629 This summary information was LAST VERIFIED on: 07/04/1987

STUDY: A Water Resources Appraisal of the Mount Shasta Area in Northern California, 1985

PROBLEM: Mount Shasta has erupted with a frequency equivalent to Holocene eruptions of Mount St. Helens. Future events that could endanger people or property near Mount Shasta include mudflows and pyroclastic flows. After a volcanic event, additional damages may occur when water supplies are altered and channel capacities are rendered inadequate for typical streamflows. Communities that could be endangered by volcanic acitivity or mudflow include Weed, Mount Shasta, and McCloud. Recent mudflows, caused by rapid melting of glaciers and snow during summer months, pose additional hazards. Future floods, related to volcanic activity, could extend to the Klamath River or Shasta Lake.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: A Water Resources Appraisal of the Mount Shasta Area in Northern California, 1985

OBJECTIVE: Plans to deal with floodflows caused by volcanic and hydrologic events would save lives and property. Planners need information on the character and location of abnormal hydrologic events that might follow an eruption or mudflow. Baseline information includes a data collection network to determine changes in streamflow, water temperature, and chemistry of aquifers, springs, streams, and lakes that could be influenced by mudflows or volcanic activity. Other programs will assess flood and mudflow hazards, and document existing cultural and hydrologic features. For selected streams, data will be collected to evaluate magnitude, frequency, and other characteristics of floods and mudflows.

GEOGRAPHIC COVERAGE: Mount Shasta area
THIS ACTIVITY STARTED: 01/01/1981 and CONTINUING as of: 06/21/1988 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, appraisal, holocene eruptions, mudflows, pyroclastic flows, volcanic, glaciers, data collection network.
FOR DETAILS, CONTACT: James C. Blodgett, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 06/21/1988

STUDY: A Water Resources Data Network Evaluation for Monterey County, California

PROBLEM: Efficient water resources management requires planned data collection and data analysis to provide assessment of water quality and supply. Periodic evaluation of data collection programs is needed to insure that resource managers are provided data that adequately represents current conditions. The need for this study is due to increases in population, intensification of land use, and changes in agricultural practices. Hydrologic data collection programs may need to be modified when significant changes in resource utilization occur in order to make sure the right data are available for managers to use in making decisions.

OBJECTIVE: Assess and, if needed, propose modification of the existing hydrologic data collection network in Monterey County so that the network will provide Monterey County Flood Control and Water Conservation District the information needed to properly manage the development and utilization of water resources in the county. The modified data collection network will be designed to yield the most useful, relevant data obtainable for the funds available, and to address existing and potential problems in the county.

GEOGRAPHIC COVERAGE: Monterey County
THIS ACTIVITY STARTED: 10/01/1980 and ENDED: 09/30/1985 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies sources of pollution, data network, evaluation, collection, analysis, agriculture.
FOR DETAILS, CONTACT: William E. Templin, Water Use Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: An Assessment of Quality and Contaminant Transport in the Soils and Ground Water of the San Luis Project Service Area

PROBLEM: Current agricultural drainage and chemical application practices can lead to contamination of ground waters. Toxic levels of certain trace elements, pesticides, and nitrogen have been found in ground water associated with irrigated agriculture in many locations nationwide. Toxic concentrations of selenium and extremely high salinity levels have been found in the ground water on the west side of the San Joaquin Valley in California. Some organic and pesticide compounds have also been found.

OBJECTIVE: (1) To assess current ground water quality conditions with an emphasis on identifying contaminants; (2) To relate conditions to the principal land-use types in the study area; (3) To define the sources of contaminants identified in the assessment; and (4) To determine the processes that control the transport of the identified contaminants to and in the ground water system.

APPROACH: The approach is twofold. The first phase will involve extensive ground water sampling and a review of existing data bases to develop relations between contamination and the geohydrology and land use in the San Luis Drain service area. The second phase will involve study of the processes causing the ground water contamination and the extrapolation of the results to the entire San Joaquin Valley.

STATUS: This study was suspended, not ended, in 1985, due to funding constraints.

GEOGRAPHIC COVERAGE: West side of San Joaquin Valley
THIS ACTIVITY STARTED: 10/01/1983 and ENDED: 09/30/1985 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, assessment, agricultural drainage, toxic, trace elements, pesticides, nitrogen, irrigated agriculture, selenium, salinity, land use.
FOR DETAILS, CONTACT: James G. Setmire, Project Chief
U.S. Geological Survey
5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 05/18/1987

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District

STUDY: Appraisal of Ground Water Conditions in and near Beale Air Force Base

PROBLEM: Declining water levels in the wells that serve as a source of water for the base have caused concern on the part of base engineers about the future of the long-term water supply. The problem is to evaluate the ground water supply for future use.
OBJECTIVE: To examine source, occurrence, movement, discharge, and chemical quality of ground water in and near Beale AFB.

GEOGRAPHIC COVERAGE: Beale AFB-Marysville Area
THIS ACTIVITY STARTED: 12/01/1976 and ENDED: 04/30/1980 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, studies sources of pollution, appraisal, declining water levels, wells, long-term water supply, chemical quality.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 05/13/1987

STUDY: Aquifer Evaluation, Yucca Valley - Joshua Tree Area, California

PROBLEM: Recent studies in the Yucca Valley-Joshua Tree area have evaluated the ground water resources of the area; these have included delineating the various basin boundaries, determining the occurrence and movement of ground water, estimating the quantity of ground water in storage in each basin, and evaluating the adequacy of the local supply including its quality. All of the conclusions reached pertaining to the above were based on interpretations using the available data. Where data are lacking or are incomplete, the conclusions must be considered as best estimates.
OBJECTIVE: Subsurface lithologic data from available drillers' logs were too often generalized and not representative of entire basins. Most wells were drilled to only 50 to 100 feet below the water table. Therefore, to obtain more precise descriptions of the subsurface lithology, to determine the thickness of the water-bearing deposits, to investigate the possibility of deep aquifers, and to determine the quality of the deeper ground water, a number of deep, small diameter test holes should be drilled, particularly in the vicinity of the town of Yucca Valley where storage is being depleted faster than in the other basins.

GEOGRAPHIC COVERAGE: Yucca Valley-Joshua Tree area
THIS ACTIVITY STARTED: 07/01/1970 and ENDED: 09/30/1974 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, aquifer evaluation, basin boundaries, storage, lithologic data, drillers logs, deep aquifers, test holes.
FOR DETAILS, CONTACT: Robert E. Lewis, Project Chief
U.S. Geological Survey; Water Resources Division; 230 Collins Road; Boise, ID 83702
PHONE: (208) 334-1566 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Aquifer Response to Recharge and Pumping, San Bernardino Ground-Water Basin, California

PROBLEM: Up until the end of the late 1940's, the San Bernardino Valley had several artesian wells and considerable swamp land. During the most recent dry cycle extensive building and usage of the ground water supply occurred that resulted in the artesian water levels being drawn down to below the land surface. Scheduled to be added to the ground water supply is Northern California water from the state water project. Serious problems would occur if the large amounts of artificial recharge caused the artesian water levels to rise above the land surface thus causing extensive damage to the buildings, public works, and utilities in the City of San Bernardino.
OBJECTIVE: To determine the water level fluctuation in the confined area in response to artificial recharge in the forebay area so that excessive artesian heads will not be allowed to develop in this highly urbanized area.
APPROACH: Geologic and well data will be computerized and evaluated to determine water level effects of varied pumpage distribution and recharge. A two-dimensional mathematical model will be prepared, using the Galerkin finite element procedure. The model, when verified, will be used to test the effects of various management schemes.

GEOGRAPHIC COVERAGE: San Bernardino Valley
THIS ACTIVITY STARTED: 10/01/1972 and ENDED: 09/30/1987 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, pumping, artesian wells, swamp land, artificial recharge, 2d model, galerkin finite element.
FOR DETAILS, CONTACT: John R. Freckleton, Hydrologist
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 05/22/1987

STUDY: Aquifer Test, Stovepipe Wells, Death Valley National Monument, California

PROBLEM: The National Park Service would like to convert most of the present nonpotable water uses of the Stovepipe Wells Hotel facility to reverse-osmosis-treated water. Converting the water distribution system will decrease plumbing maintenance costs associated with the use of water with high mineral content; however, a 76-percent increase in ground water withdrawals will be required. Aquifer response to increased withdrawals is unknown.
OBJECTIVE: To determine the effects of increased ground water withdrawals on water levels.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Aquifer Test, Stovepipe Wells, Death Valley National Monument, California

APPROACH: Aquifer pumping and recovery test for well 15s/44e-3602 will be done and the results analyzed. Two observation wells will be drilled in order to measure water-level changes during the pumping and recovery tests. Transmissivity and storage coefficient values will be estimated. Distance-drawdown curves will be prepared to show the effect on water levels of the projected increased pumping rate.

GEOGRAPHIC COVERAGE: Stovepipe Wells in Death Valley National Monument
THIS ACTIVITY STARTED: 10/01/1985 and ENDED: 09/30/1986 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, aquifer test, reverse osmosis, treated water, nonpotable, minerals, pumping and recovery test, transmissivity, storage coefficient, distance-drawdown.
FOR DETAILS, CONTACT: Linda R. Woolfenden, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 05/15/1987

STUDY: Artificial Recharge into the Upper Coachella Valley Ground Water Basin, Riverside County, California

PROBLEM: Starting in 1973, the Desert Water Agency (DWA) and Coachella Valley County Water District (CVCWD) will be supplied Colorado River water to artificially recharge the upper Coachella Valley ground water basin. By 1990, over 60,000 acre-feet per year will be available. The DWA and CVCWD want to know the best way to recharge this water to the underground basin.
OBJECTIVE: 1.) to determine the existence of any restrictive layer that would severely impede percolation of artificial recharge; 2.) to determine infiltration rates for pit and river bed; 3.) to determine effect of quality of recharge water on native ground water and percolation rate; and 4.) to determine the best method to recharge water to basin.

GEOGRAPHIC COVERAGE: Upper Coachella Valley
THIS ACTIVITY STARTED: 07/01/1970 and ENDED: 07/01/1972 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, project planning, studies ground water pollutant transport, artificial recharge, colorado river water, restrictive layer, impede percolation, infiltration rates, pits, river bed.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Augmentation of Future Water Supplies by Artificial Recharge in the California State Water Project Service Area, Southern California

PROBLEM: As demand for water in California approaches available supply, it is becoming necessary to develop plans to avert shortages and assure adequate future supply. By the mid-1980's availability of water supplies from the Sacramento-San Joaquin Delta through the State Water Project (SWP) may not be sufficient to meet the demands of SWP contractors. For this reason, the California Department of Water Resources has been evaluating alternative sources of supply to arrive at a plan to make maximum use of existing resources so that the long-range water supply obligations of the SWP can be met. At certain times in the future, there may be extra water available from the Delta and sufficient power to deliver this water to southern California. What is needed is a suitable place to store the water in anticipation of alleviating future deficiencies.
OBJECTIVE: This program consists of two types of investigations: 1.) reconnaissance-level investigations of an entire basin, and 2) site-specific recharge capacity investigations. Reconnaissance-level studies have already been performed on 11 of the 14 basins previously determined to have a potential for artificial ground water recharge. Based on the results of these reconnaissance studies, a decision is then made as to the need for more detailed site-specific studies. The Coachella and Chino Studies will be typical of the two types of investigations. The Coachella study will be a reconnaissance-level investigation of the entire basin, while the Chino study will be a site-specific recharge capacity investigation.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 07/01/1979 and ENDED: 09/01/1983 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, artificial recharge, future supply, swp, supply obligations, reconnaissance.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Barstow Water Quality Model

PROBLEM: The chemical quality of water in the alluvial aquifer east of Barstow has been deteriorating in recent years. The City of Barstow sewage treatment ponds are located adjacent to and up-gradient from the area of degraded ground water quality and are considered to be one major source of the pollution. The degraded ground water has moved down-gradient sufficiently to pose a threat to the six major water supply wells at the Marine Corps supply base at Nebo, California. Should the pollution reduce the quality of the water pumped at Nebo below the U.S. Public Health Service standards, the base could be required to import water from non-contaminated areas at considerable additional cost.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**

STUDY: Data Appraisal and Work Plan for Water Resources Appraisal of Mono Basin, California

PROBLEM: The level of Mono Lake has declined significantly over the past 40 years (1941-1981). Most of this decline has been attributed to the diversion of water by the City of Los Angeles from streams flowing into Mono Lake. As a result of the decline in the lake level, a myriad of associated environmental problems have developed. The Bureau of Land Management (BLM) is a party to a general adjudication of Mono Basin's water resources. The Department of Interior Solicitor has requested the BLM to provide technical information on the geohydrology of the Mono Basin. In turn, the BLM has requested the U.S. Geological Survey to conduct a geohydrologic study of the area. The BLM is concerned about (1) the status of the present water resources conditions, (2) comparison between past and present water resources conditions, and (3) what effect the continued lowering of Mono Lake will have on the water resources of Mono Basin. Prior to developing a detailed study of the area, a work plan must be devised. Before costs of the study can be determined, an evaluation must be made of the adequacy of available data.

OBJECTIVE: (1) Evaluate the adequacy of geohydrologic data in Mono Basin, (2) describe, in general, the geohydrologic conditions based on a cursory inspection of the available data, and (3) develop a future study program that will define the geohydrologic characteristics and water regimen of the basin in more detail.

This information would aid BLM in answering questions regarding (1) the present water resources conditions in Mono Basin, (2) difference between past and present water resources conditions, and (3) future hydrologic effects on the basin caused by continual lowering of Mono Lake. Of particular importance is the flow of springs, ground water levels, and changes in vegetation supported by spring flow.

GEOGRAPHIC COVERAGE: Mono Basin
THIS ACTIVITY STARTED: 08/01/1981 and ENDED: 09/30/1982 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, data appraisal, decline, lake level, BLM, adjudication, springs, ground water levels.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Definition of Indices for Approximation of Evapotranspiration

PROBLEM: The lack of an accurate accounting or estimate of the evapotranspiration component in the water balance equation is a major deficiency in the mathematical modeling of hydrological characteristics of drainage basins. Knowledge of the interaction among several variables affecting evapotranspiration, such as precipitation, solar radiation, vegetation, permeability, moisture in associated soils, and depth to the water table is needed to make it possible to predict quantities of water evapotranspired and the residuals of runoff and accretion to ground water.

OBJECTIVE: (1) To determine the validity of calculations of evapotranspiration derived from measurements of vegetation characteristics and moisture characteristics of soils; (2) to determine the reliability of runoff estimates from soil-moisture depletion and plant cover data; and (3) to determine the relationship between evapotranspiration and changes in ground water levels.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 09/01/1973 and ENDED: 06/01/1978 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, evapotranspiration, et, drainage basin, precipitation, solar radiation, vegetation, permeability, soils, depth.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Delineation and Hydrologic Effects of a Gasoline Leak at Stovepipe Wells Hotel, Death Valley National Monument

PROBLEM: Gasoline was found in two observation wells near Stovepipe Wells during a routine well-sampling run in May 1979. The source has been identified as a leaking tank, now replaced, at a nearby gasoline station. The contamination may pose a threat to the supply well for the Stovepipe Wells Hotel.

OBJECTIVE: Determine the nature and extent of the gasoline contamination and to recommend possible remedial measures to the Park Service.

GEOGRAPHIC COVERAGE: Stovepipe Wells in Death Valley National Monument
THIS ACTIVITY STARTED: 10/01/1979 and ENDED: 09/01/1980 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, ground water management, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, gasoline leak, observation wells, underground tank, park service.
FOR DETAILS, CONTACT: Anthony Buono, Project Chief
U.S. Geological Survey; Denver Federal Center; P.O. Box 25046; Lakewood, CO 80225
PHONE: (702) 295-5857 This summary information was LAST VERIFIED on: 05/15/1987

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District
STUDY: Barstow Water Quality Model

OBJECTIVE: The purpose is to build a water quality model of the alluvial aquifer east of Barstow and to evaluate the feasibility of using tracer dilution techniques to determine the dispersion coefficient of the aquifer. The model will also be useful in evaluating the effectiveness of various management procedures designed to combat the source and spread of ground water pollution. In addition, the project will provide a valuable initial determination of the dispersion coefficient for this type of alluvial aquifer.

GEOGRAPHIC COVERAGE: Barstow area
THIS ACTIVITY STARTED: 07/01/1971 and ENDED: 01/01/1973 (dates may be approximate).
KEYWORDS: ground water cleanup, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, model, alluvial aquifer, deteriorate, sewage treatment ponds, public health standards, tracer dilution, dispersion coefficient, management.
FOR DETAILS, CONTACT: Stanley G. Robson, Project Chief
U.S. Geological Survey; Denver Federal Center; mailing address: P.O. Box 25046; Lakewood, CO 80225
PHONE: (303) 236-4886 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Central Valley Regional Aquifer Systems Analysis (RASA) II

PROBLEM: There are two problems being addressed in Phase 2 of the Regional Aquifer Systems Analysis: 1.) The salinity of the ground water in the alluvial aquifer system in the San Joaquin Valley has increased to approximately 60,000 mg/l total dissolved solids and the spatial distribution of dissolved solids is unknown. This distribution of dissolved solids must be determined in order to quantify the fresh ground water resources of the San Joaquin Valley. 2.) Selenium has been detected in the surface waters of the Kesterson Wildlife Refuge, focussing public attention on the quality of water in the San Luis Drain Service area. Ground water aquifers in the area may be contaminated. The present state of knowledge of the geology and hydrology is poorly defined, especially the extent of subsurface clay layers resulting in perched aquifers, the nature of the relationship between the perched aquifers and underlying aquifers, and the relationship between the San Joaquin River and the ground water system.
OBJECTIVE: 1.) To define the spatial distribution of total dissolved solids in the alluvial aquifer system in the San Joaquin Valley; and 2.) to define whether a perching layer exists, define ground water recharge/discharge to the underlying aquifer system, define the present water quality distribution in the underlying aquifer system and estimate ground water recharge/discharge to the San Joaquin River.
APPROACH: 1.) compile and analyze some of the 4000 geophysical logs available for the San Joaquin Valley; 2.) use Spontaneous Potential Logs along with available water quality data to estimate ground water salinity expressed as mg/l NaCl; 3.) compile and analyze existing data, develop preliminary ground water flow model; 4.) neutron log existing wells; 5.) collect quality of water samples from underlying aquifer system; and 6.) develop cross-section model along reach of San Joaquin River where piezometer nests are located.

GEOGRAPHIC COVERAGE: San Joaquin Valley
THIS ACTIVITY STARTED: 01/01/1985 and CONTINUING as of: 06/21/1988 (dates may be approximate).
KEYWORDS: ground water cleanup, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, rasa, salinity, alluvial, TDS, selenium, clay layers, perched aquifers, recharge, discharge, logs, piezometer, potential, neutron.
FOR DETAILS, CONTACT: Robert J. Gilliom, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 06/21/1988

STUDY: Concentration and Distribution of Nitrates in the Redlands Area of California

PROBLEM: In the 1930's and 1940's, the part of the Bunker Hill ground water basin lying between the Santa Ana River and the City of Redlands had nitrate concentrations less than 45 mg/l. Nitrate concentrations began to exceed 90 mg/l in some areas in the 1950's and presently some areas still have nitrate concentrations greater than 90 mg/l.
OBJECTIVE: The objective of the study is to: 1.) determine lateral and, where possible, vertical distribution of nitrates; 2.) determine causes for high nitrate concentrations in ground water; and 3.) prepare a report describing the study and results of the study.

GEOGRAPHIC COVERAGE: Bunker Hill Basin/Redlands area, San Bernardino Valley
THIS ACTIVITY STARTED: 07/01/1974 and ENDED: 10/27/1976 (dates may be approximate).
KEYWORDS: pertinent reports available, studies extent of ground water pollution, studies sources of pollution, nitrates.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District

STUDY: Development of an Economic Optimization Model for the San Bernardino Area

PROBLEM: In upper parts of the San Bernardino Valley, the ground water basin is used to store excess surface water for artificial recharge. At the same time in lower parts of the valley, ground water levels are near the land surface and are creating severe problems, including the flooding of basements, structural damage to foundations, and the potential for soil liquifaction during an earthquake. Current rates of ground water pumping for agriculture and municipal uses have not been sufficient to lower water levels in those areas with problems.
OBJECTIVE: The primary objective is to determine a pattern of municipal pumping which prevents high-water levels in critical areas, satisfies all water demands, and minimizes the total cost of ground water pumping. Secondary objectives include: (1) developing methods which will permit the variable effect of evapotranspiration to be included in the analysis, and (2) extending the scope of the solution so that the operating costs associated with surface and ground water use of the basin are minimized.

GEOGRAPHIC COVERAGE: Upper San Bernardino Valley
THIS ACTIVITY STARTED: 10/01/1984 and ENDED: 09/30/1986 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, economic optimization model, artificial recharge, flooding, foundations, soil liquefaction, earthquake, agriculture, municipal, pumping.
FOR DETAILS, CONTACT: Wesley R. Danskin, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 05/07/1987

STUDY: Documentation of Recharge to the Santa Maria Ground Water Basin, California

PROBLEM: The 1978-80 winter seasons were excessively wet and probably were responsible for the largest recharge ever to the Santa Maria Ground Water Basin within a similar time period. Some 100-foot water level rises have occurred in parts of the basin. A study that would (1) document these rises in water levels, (2) delineate the known recharge mound, (3) define the direction of ground water flow, and (4) determine the frequency of occurrence of the 1978-80 runoff, is needed.
OBJECTIVE: Document changes in aquifer system of Santa Maria basin during 1978-80. Specifically: (1) Calculate change in ground water storage during 1978, 1979 and 1980, (2) map the areal water-level changes for 1978, 1979 and 1980, (3) determine frequency of occurrence of events similar to 1978-80, and (4) estimate the effects of 1978-80 recharge on the dissolved-solids concentration of ground water.

GEOGRAPHIC COVERAGE: Santa Maria Valley
THIS ACTIVITY STARTED: 02/01/1982 and ENDED: 09/30/1983 (dates may be approximate).
KEYWORDS: ground water management, pertinent reports available, studies sources of pollution, recharge, runoff, storage, level changes, dissolved-solids.
FOR DETAILS, CONTACT: Gregory C. Lines, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Effects of Artificial Recharge at East Twin Creek Spreading Grounds, San Bernardino

PROBLEM: The San Bernardino Valley Municipal Water District plans to recharge imported water in the Waterman Canyon-East Twin Creek Spreading Grounds. Early in 1972, 46,000 acre-feet per year will be available for spreading. There is uncertainty about the capability of the system to accommodate the total allotment.
Objective: The study will evaluate the feasibility of recharging the entire allotment of imported water and will develop a monitoring network to determine the effects of the operation.

GEOGRAPHIC COVERAGE: Waterman Canyon-East Twin Creek area
THIS ACTIVITY STARTED: 01/01/1971 and ENDED: 06/01/1972 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, project planning, artificial recharge, spreading grounds, monitoring network.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Effects of Urban Storm Runoff in Receiving Soils and Ground Water in Fresno, California

PROBLEM: High concentrations of several trace metals and common pesticides were measured in urban runoff to a ground water recharge basin in an industrial part of Fresno during studies done under the National Urban Runoff Progam (NURP). There is concern that downward movement of these chemicals to a water table about 10 meters below the basin could contaminate the ground water.
OBJECTIVE: (1) To determine whether contamination of ground water near the recharge basin has occurred, and (2) to determine the likelihood of future ground water contamination by downward movement of contaminants present in recharge basin sediments.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Effects of Urban Storm Runoff in Receiving Soils and Ground Water in Fresno, California

APPROACH: Two monitoring wells will be installed near the industrial recharge basin. Chemical analyses of water samples from these wells will be compared to historical regional water quality data available from local agencies and to chemical analyses of water in the recharge basin. Subbottom sediments in the basin will be analyzed to establish concentrations to a depth of about 2 meters. Uncontaminated soil representative of the unsaturated zone beneath the basin (obtained from coring during installation of the monitoring wells) will be reequilibrated with contaminated water in a laboratory exercise designed to determine the soil's potential to absorb contaminants.

GEOGRAPHIC COVERAGE: Fresno Area
THIS ACTIVITY STARTED: 10/01/1985 and ENDED: 09/30/1990 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, ground water management, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, urban storm runoff, soils, trace metals, pesticides, recharge, industrial, nurp, monitoring wells.
FOR DETAILS, CONTACT: Roy A. Schroeder, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 557-6700 This summary information was LAST VERIFIED on: 06/21/1988

STUDY: Estimating Ground Water Recharge by Streamflow Recharge

PROBLEM: In California, ground water recharge occurs by two principal natural mechanisms: 1.) recharge due to streamflow and 2.) precipitation. Measurements indicate that recharge from the deep percolation of channel seepage is the most important natural source. Nevertheless, little previous work has addressed the problem of understanding streamflow recharge. Previous work in ground water recharge from streamflow infiltration and deep percolation has identified the important processes and the controlling water-level fluctuations in a well. Little work has involved the unsaturated zone or identified how much of the streamflow infiltrate actually reaches the water table.

OBJECTIVE: To conduct field investigations to quantify processes related to infiltration and deep percolation of streamflow through the unsaturated zone. Priority will be given to obtaining data that defines the quantity of infiltrate actually reaching the ground water table. The data will be used to develop a generalized mathematical formulation for predicting ground water recharge from hydrologic parameters that can be incorporated as a source form into available algorithms for simulating regional ground water flow in future modeling projects.

APPROACH: To quantify and mathematically describe the exchange of water between surface water and ground water systems through the unsaturated zone. Sites will be selected in different hydrologic environments throughout the State. Data collection will consist of implanting monitoring devices to monitor soil moisture and to estimate hydraulic conductivity. Samples will also be collected for lab analysis. In addition, wells will be drilled for lithology and continual monitoring of the aquifer's water table, while crest-stage gages will be installed between streamgaging stations at the test sites. Approximately five different geographic areas of the State are to be evaluated with each area to have from two to five test sites.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 10/01/1983 and ENDED: 09/30/1985 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, studies ground water pollutant transport, streamflow recharge, precipitation, deep percolation, channel seepage, infiltration, unsaturated, hydraulic conductivity, lithology.
FOR DETAILS, CONTACT: Michael J. Johnson, Project Chief
PHONE: (702) 882-1388 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Estimating Ground Water Recharge by Precipitation in Areas of Native Vegetation

PROBLEM: In many areas, there is no knowledge of whether recharge from precipitation occurs or not. It is usually estimated by a water budget method that considers evapotranspiration and the amount of precipitation. Conditions where recharge by precipitation can occur need to be defined, and a method, independent of evapotranspiration, which will estimate the quantity of recharge needs to be developed.

OBJECTIVE: (1) To accumulate a geographic database on recharge flux rates and to obtain data on deep percolation rates from environments that include representative combinations of vegetation, climate, and soil. (2) To analyze the data to develop a thorough understanding of the processes and controls of precipitation recharge. This data set will be used to regionalize and quantify the paramenters that control it.

The end product will be methods, guidelines and other aids that will allow estimates of ground water recharge to be made for appraisal-level ground water investigations.

APPROACH: Geochemical and hydrodynamic methodology will be used to determine if recharge takes place and, if so, at what rate. Transport models will be developed so that the data can be integrated and so that the critical processes can be defined and quantified. The sites in Southern California will be selected so that a wide range of environmental conditions that may affect recharge will be sampled. The modeling effort will be restricted to a limited number of sites that have the most extensive field data.

This study was terminated shortly after the conceptual phase due to the pressing need for studies of the (then) newly discovered contamination at Kesterson Resevoir.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Estimating Ground Water Recharge by Precipitation in Areas of Native Vegetation

GEOGRAPHIC COVERAGE: Southern California area
THIS ACTIVITY STARTED: 10/01/1983 and ENDED: 09/30/1985 (dates may be approximate).
KEYWORDS: pertinent reports available, project planning, studies ground water pollutant transport, recharge, precipitation, native vegetation, evapotranspiration, model, field data.
FOR DETAILS, CONTACT: John M. Neil, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Evaluation of Alternative Modeling Techniques in the Los Osos Ground Water Basin

PROBLEM: Increased percolation of discharge wastewater, potential sea water intrusion, and increased demand for potable water within a limited sole-source aquifer system prompts San Luis Obispo County to develop and implement plans to alleviate existing water quality problems and manage future water development. The County wants to have a calibrated ground water flow model designed by the U.S. Geological Survey (USGS) used to formulate various alternative plans.

OBJECTIVE: 1.) To develop a ground water flow model of Los Osos ground water basin; and 2.) to compare and evaluate alternatives for calibrating ground water models, which will provide a list of conditions to be considered in selection of calibration techniques.

APPROACH: To design a ground water model will require collection and evaluation of field data. Field work includes 1.) test-hole drilling and logging; 2.) installation of piezometers; 3.) electromagnetic profiling and resistivity soundings; 4.) aquifer tests; 5.) water-level monitoring; 6.) seepage runs on stream channels; and 7.) collection of pumpage data. Office work includes: 1.) literature review; 2.) interpretation of existing well-log information and water-level data; and 3.) construction and testing of a preliminary model. After construction of a preliminary model, a refined model will be designed to evaluate alternative management plans and modeling techniques.

GEOGRAPHIC COVERAGE: Los Osos Area
THIS ACTIVITY STARTED: 10/01/1984 and ENDED: 09/30/1987 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, project planning, studies ground water pollutant transport, evaluation, model, percolation, wastewater, sea water intrusion, sole source aquifer, piezometer, resistivity sounding, monitoring, seepage, well log.
FOR DETAILS, CONTACT: Eugene B. Yates, Project Chief
PHONE: (916) 978-4633 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Evaluation of Ground Water Degradation Resulting from Waste Disposal to Alluvium near Barstow, California

PROBLEM: The ground water in the Barstow area is the only source of water presently available to the Marine Corps. A chemically-degraded water zone (plume) caused by industrial dumping of phenolic compounds and effluent from the Barstow water quality treatment plant is moving toward the Marine Corps water supply field at an estimated rate of 2 feet per day.

OBJECTIVE: The objective of the study is to (1) describe in detail the local ground water and surface water hydrologic system (2) determine its interaction with the introduced waste materials and (3) identify and determine the distribution, concentration and movement characteristics of the contaminants.

GEOGRAPHIC COVERAGE: Barstow area
THIS ACTIVITY STARTED: 07/01/1970 and ENDED: 08/01/1973 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, degradation, waste disposal, alluvium, phenolic compounds, effluent, treatment plant, contaminants.
FOR DETAILS, CONTACT: Jerry L. Hughes, Project Chief
U.S. Geological Survey; Water Resources Division; 230 Collins Road; Boise, ID 83702
PHONE: (208) 334-1750 This summary information was LAST VERIFIED on: 05/12/1987

STUDY: Evaluation of Ground Water Resources in Borrego Valley, California, and Vicinity

PROBLEM: Borrego Valley depends on local ground water supplies for agricultural and residential development. In recent years agricultural development has declined as residential development has increased. A historical decline in ground water levels in parts of the valley led to concern about the adequacy of ground water supplies to support future development. Historical ground water level data have not been analyzed in detail to quantify water level declines. Historical water quality data have not been collected and analyzed to document water quality changes. Finally, land-use data have not been correlated with water level decline and water quality change data to document effects on the ground water system resulting from historical and present land-use practices.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Evaluation of Ground Water Resources in Borrego Valley, California, and Vicinity

OBJECTIVE: 1.) Since the last data collection was in 1968, the geohydrology information will be updated so as to define the present state of the ground water resource in the valley (Phase 1); 2.) a mathematical ground water model of the valley will be developed, constructed and utilized, based on the data collected during the Phase 1 study; and 3.) the mathematical model will be used to evaluate effects on ground water levels caused by different recharge and discharge (pumping) regimens, based on various basin management schemes to be developed by the cooperating agencies (Phase 3).

GEOGRAPHIC COVERAGE: Borrego Valley and Vicinity (about 200 sq. mi.)
THIS ACTIVITY STARTED: 07/01/1980 and ENDED: 09/30/1984 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, evaluation, agriculture, residential, decline, land-use data, recharge, discharge, pumping.
FOR DETAILS, CONTACT: Charles Berenbrock, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 557-6700 This summary information was LAST VERIFIED on: 05/26/1987

STUDY: Evaluation of Ground Water Quality in the Santa Ynez Valley, California

PROBLEM: The Santa Ynez Valley currently has the fastest growing population in Santa Barbara County. New individual and community wastewater disposal systems are being developed. Water supplies for all valley development are drawn from the ground water basin. Dissolved mineral concentrations are relatively high and ground water quality is considered fair. Urban and agricultural activities are affecting water quality.
OBJECTIVE: Evaluate historical, present, and probably future water quality in the ground water basins in the Santa Ynez Valley, including the relative influence of natural, agricultural, urban and industrial (point and non-point) discharges on deterioration of ground water quality. The total capacity of the ground water basins, estimated perennial yields, ground water movements, interbasin relationships, and areal and vertical distribution of water will be described.

GEOGRAPHIC COVERAGE: Santa Ynez Valley
THIS ACTIVITY STARTED: 07/01/1979 and ENDED: 09/01/1982 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies sources of pollution, wastewater disposal systems, dissolved mineral, urban, agriculture, industrial, yields.
FOR DETAILS, CONTACT: Scott N. Hamlin, Acting Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 05/26/1987

STUDY: Evaluation of the Hydrology of Consolidated Rock Terrains, with Reference to Lee Valley, San Diego County

PROBLEM: Rapid population growth in San Diego County is extending east of San Diego into the rural consolidated rock terrains of the Peninsular Range. The county planning department is responsible for issuing building permits for new developments, but they have little geohydrologic data to make decisions as to optimum water potential. Quantitative knowledge of fractured rock hydrology is minimal. Better data collection analytical techniques are needed. Lee Valley is an ideal area for studying water budget components, as well as other applied hydrologic research.
OBJECTIVE: To define the ground water hydraulics in the bedrock-residuum system in Lee Valley, concentrating specifically on:
1. the sources and quantities of ground water recharge and discharge;
2. the permeability and storage characteristics of the ground water system, both areally and with depth; and
3. the hydraulic connection between the shallow residuum and the deeper fractured bedrock.

APPROACH: To first establish a detailed data collection program. Continuous measuring recorders of precipitation, ground water levels, and one surface water gaging stations are in operation. Other methods to be used in the study are: 1.) geologic mapping, 2.) soil moisture studies, 3.) aquifer tests, 4.) geophysical well surveys, 5.) water chemistry, 6.) well inventory, and 7.) interaction of vegetation with hydrologic processes. New state-of-the-art techniques successful elsewhere will be considered for use in Lee Valley.

GEOGRAPHIC COVERAGE: Lee Valley
THIS ACTIVITY STARTED: 10/01/1983 and ENDED: 09/30/1988 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, consolidated rock terrains, population growth, developments, fractured rock hydrology, recharge, discharge, models, precipitation, levels, maps, soil.
FOR DETAILS, CONTACT: Charles A. Kaehler, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 557-6700 This summary information was LAST VERIFIED on: 08/15/1988

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District

STUDY: Fuel Spill at the U.S. Marine Corps (USMC) Air Station at Tustin, California

PROBLEM: JP-5 jet fuel has contaminated ground water at the U.S. Marine Corps (USMC) Air Station in Tustin, CA, and is reported seeping into the Peters Canyon Channel which empties ultimately to Newport Bay. The source is unlined earthen burn pits used for crashcrew training for 10-20 years.

OBJECTIVE: To delineate the areal and vertical extent of contamination and determine the hydrologic parameters governing movement of the contamination.

GEOGRAPHIC COVERAGE: U.S. Marine Corps Air Station near Tustin
THIS ACTIVITY STARTED: 04/01/1983 and ENDED: 09/01/1985 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, jp-5, jet fuel spill.
FOR DETAILS, CONTACT: Roy A. Schroeder, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 557-6700 This summary information was LAST VERIFIED on: 06/02/1987

STUDY: Galerkin-Finite Element Analysis of Heat Transport in Imperial Valley, California Ground Water Basin

PROBLEM: A single phase, two-dimensional model of the hot brine hydrothermal system should be applied in California's Imperial Valley. The modeling technique was developed by Mercer, Pinder, and Donaldson and has been applied to the hot water hydrothermal system at Wairakei, New Zealand. However, the model was not completely calibrated to reproduce the field data and should be applied to a geothermal system in the United States where future development is expected.

OBJECTIVE: 1) to test on the Imperial Valley hydrothermal area the single-phase simulation model technique developed for the hydrothermal field at Wairakei. The primary differences between the two geothermal areas are temperature and water chemistry variability. In the Imperial Valley the hot water anomalies are several in number and some are of small extent. 2) to develop a single-phase simulation model for steady-state conditions in the Imperial Valley hydrothermal area, which can be used as a basis for the latter development of a transient-flow model when significant exploitation occurs. 3) to use modeling as a tool to obtain a more accurate conceptual model of the Imperial Valley hydrothermal system.

GEOGRAPHIC COVERAGE: Imperial Valley
THIS ACTIVITY STARTED: 07/01/1974 and ENDED: 06/01/1976 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, project planning, galerkin finite element, heat transport, single phase, hot brine, hydrothermal, geothermal.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Geohydrologic Investigation of the Sacramento Valley Area

PROBLEM: Ground water level declines of more than 60 feet, land subsidence of more than 2 feet, and the potential for upward migration of deeper saline water have prompted the California Department of Water Resources and the Geological Survey to cooperatively investigate the geohydrology of the Sacramento Valley and Redding Basin. Previous studies have revealed difficulties in characterization of aquifer properties, quantification of stream-aquifer interaction, and estimation of ground water pumpage.

OBJECTIVE: To describe and analyze the ground water flow system in the Sacramento Valley and Redding Basin to aid the decision-making process of water resource managers. Specifically, to quantify the hydrologic and geologic characteristics of the ground water flow system, the stresses on that system, and the relation between streamflow and the system. A secondary objective is the creation of Geographic Information System (GIS) controlled data base that will be easily accessible for future project work in the Sacramento Valley and Redding Basin.

GEOGRAPHIC COVERAGE: Sacramento Valley Basin
THIS ACTIVITY STARTED: 10/01/1985 and may END: 09/30/1991 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, level declines, land subsidence, saline, stream-aquifer interaction, pumpage, gis.
FOR DETAILS, CONTACT: James W. Borchers, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 06/21/1988

STUDY: Geohydrological Studies in the Montara-El Granada Area, California

PROBLEM: Because the ground water system in the Montara-El Granada area has not been defined adequately to assess the potential for injection of treated water, the El Granada sanitary district of San Mateo County has requested that the Geological Survey study and define the geohydrology of the area.

OBJECTIVE: The purpose of this proposed study is to determine if the ground water system in the coastal area between Devil's Slide and Frenchman's Creek is capable of receiving, transmitting, and discharging the treated wastewater. The scope of the study would include: 1) defining the geologic framework of the area; 2) determining the hydrologically significant units; 3) determining the saturated and unsaturated thickness of the aquifers, 4) determining the aquifer characteristics (transmissivity and storage coefficient), 5) determining the direction of ground water movement.

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District
STUDY: Geohydrological Studies in the Montara-El Granada Area, California

GEOGRAPHIC COVERAGE: Montara-El Granada Area
THIS ACTIVITY STARTED: 10/01/1972 and ENDED: 06/01/1974 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, injection, treated water, saturated, unsaturated, transmissivity, storage coefficient.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Geohydrology of the Garner Valley Area, Riverside County, California

PROBLEM: A water shortage is developing in Strawberry Valley. Importation of water from adjacent Garner Valley may increase the water supply.
OBJECTIVE: To determine the average annual natural recharge to and discharge from the Garner Valley ground water basin.

GEOGRAPHIC COVERAGE: Garner Valley Area
THIS ACTIVITY STARTED: 11/01/1973 and ENDED: 06/25/1975 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, water shortage, natural recharge, discharge.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Geohydrology of the Hollister Area

PROBLEM: The Hollister area was qualitatively described from studies completed in Federal Fiscal Year 1969. However, water resources planners need answers to specific problems -- some of a quantitative nature -- before they plan a distribution system for imported water.
OBJECTIVE: To describe the geology, source, direction of movement, and quality of water in the area; to determine the water-bearing character of the geologic units in the area; and to test the conceptual model of the area with digital models.

GEOGRAPHIC COVERAGE: Hollister area
THIS ACTIVITY STARTED: 01/01/1967 and ENDED: 01/01/1981 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, project planning, studies sources of pollution, distribution system.
FOR DETAILS, CONTACT: Christopher D. Farrar, Project Chief
U.S. Geological Survey; Water Resources Division; 5 West 9th Street, #2; Santa Rosa, CA 94502
PHONE: (707) 525-4265 This summary information was LAST VERIFIED on: 05/27/1987

STUDY: Geohydrology, Mojave River Basin, California

PROBLEM: The Mojave Water Agency is responsible for the management of the water resources of its service area and needs data on this resource.
OBJECTIVE: To 1.) determine the occurrence and movement of ground water in the area, including the location and extent of the principal ground water basins; 2.) estimate the usable ground water in storage in each important basin from which water is being pumped; and 3.) evaluate the adequacy of the local water supply, including its quality.

GEOGRAPHIC COVERAGE: Mojave River Basin
THIS ACTIVITY STARTED: 08/01/1968 and ENDED: 06/30/1979 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, usable ground water, adequacy, supply.
FOR DETAILS, CONTACT: William F. Hardt, Project Chief
PHONE: (916) 978-4633 This summary information was LAST VERIFIED on: 05/15/1987

STUDY: Geology and Ground Water in Santa Cruz County, California

PROBLEM: Areas of Santa Cruz County have never been studied in enough detail to adequately define the hydrologic system. The geohydrology must be known, at least qualitatively, before proposed management alternatives can be evaluated.
OBJECTIVE: To describe the geology and to determine the source, direction of movement, and quality of water in the area; to determine the water-bearing character of the geologic units in the area; and to identify units that are potentially threatened by salt water intrusion.

GEOGRAPHIC COVERAGE: Santa Cruz County
THIS ACTIVITY STARTED: 01/01/1969 and ENDED: 04/01/1981 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, management alternatives, salt water intrusion.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District

STUDY: Geothermal Hydrology of Lower Coachella Valley, Southeastern California

PROBLEM: Coachella Valley is formed and bounded by faults of the San Andreas system. The valley is part of the Salton Trough, within which are several promising geothermal fields of the Imperial Valley, and a producing geothermal field at Cerro Prieto, Mexico. To date there has been little serious geothermal exploration or assessment in the Coachella area. There are hints of possible high heat flow in Coachella Valley; these include areas of warm or hot springs, and higher than expected temperatures have been reported for some flowing water wells at the lower end of the valley.

OBJECTIVE: (1) To describe the general geohydrologic framework of the Coachella Valley, especially as it may relate to any geothermal systems in the area; (2) to evaluate geologic, geochemical, and geophysical data that may indicate the geothermal potential of the area; and (3) to outline any additional work that may be warranted for areas that appear to have high geothermal potential.

GEOGRAPHIC COVERAGE: Lower Coachella Valley
THIS ACTIVITY STARTED: 10/01/1977 and ENDED: 02/01/1982 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, geothermal, salton trough, hot springs, geologic, geochemical, geophysical.
FOR DETAILS, CONTACT: James H. Robison, Project Chief
U.S. Geological Survey; Denver Federal Center; mailing address: P.O. Box 25046; Lakewood, CO 80225
PHONE: (303) 236-5193 This summary information was LAST VERIFIED on: 05/20/1987

STUDY: Ground Water Analysis for Purposes of Earthquake Prediction in the Area of Palmdale Bulge

PROBLEM: Changes in water levels in artesian wells are one of the possible precursors of earthquakes. A careful systematic investigation of wells should be a part of any large study directed at sensing small strains within the earth. At the start of the project there was significant lack of water-level data and no continuous water-level recorders operating in the Palmdale area.

OBJECTIVE: Research results in the U.S.S.R. and the People's Republic of China indicated that ground water often shows pre-earthquake change in water levels in observation wells, along with possible changes in ground water quality. A systematic study is proposed to see whether precursors may be detected here in the United States, particularly in Southern California along the San Andreas Fault near Palmdale, California. In support of the U.S. Geological Survey's earthquake program, its Water Resources Division will select and instrument a number of specific wells with equipment specifically designed to collect appropriate ground water level and quality data.

GEOGRAPHIC COVERAGE: Palmdale area of Los Angeles County
THIS ACTIVITY STARTED: 10/01/1976 and ENDED: 09/30/1985 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, earthquake prediction, artesian wells, changes in water levels, water-level recorders, observation wells, San Andreas fault.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Ground Water Appraisal for the City of Merced and Vicinity

PROBLEM: The City of Merced recently purchased its water-supply system from a private utility company. The city has long-range plans for all of its principal services except its water supply.

OBJECTIVE: 1.) To appraise ground water conditions in Merced and vicinity with regard to source, occurrence, and movement; and 2.) to provide a proposal for developing tools for management of ground water resources in the area.

GEOGRAPHIC COVERAGE: City of Merced and Vicinity
THIS ACTIVITY STARTED: 06/01/1976 and ENDED: 09/01/1982 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, appraisal, source.
FOR DETAILS, CONTACT: Ann L. Elliott, Project Chief
PHONE: (916) 978-4633 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water Appraisal in the Redding Basin, Shasta and Tehama Counties, California

PROBLEM: Geological information indicates that the aquifer system of the Redding Basin is different from the aquifer of the Sacramento Valley. Consequently, information on ground water in the basin is minimal because the basin has not been included in the numerous studies of the Sacramento Valley. The lack of information and increased usage therein create a need for a basin-wide appraisal of ground water resources.

OBJECTIVE: To define the geologic features of the aquifer and the source, occurrence, movement, and quality of ground water in the Redding Basin. In addition, the project will provide estimates of storage and pumpage of ground water.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Ground Water Appraisal in the Redding Basin, Shasta and Tehama Counties, California

GEOGRAPHIC COVERAGE: Redding Basin
THIS ACTIVITY STARTED: 07/01/1978 and ENDED: 09/01/1983 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, appraisal, geologic features, storage, pumping.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 05/13/1987

STUDY: Ground Water Appraisal of the Ocotillo Basin, Imperial County, California

PROBLEM: The Imperial County Department of Public Works is in need of ground water data on the Ocotillo Basin for proper water management. The basin is arid, averaging only 3 to 4 inches of precipitation per year. The present population of the basin is 300 to 400 people; however, the population will probably increase and the area develop into a desert vacation community soon after the freeway from San Diego is completed. Some water is presently exported from the basin for industrial use to Plaster City and domestic use to Mexicali, Mexico. Quality problems exist in the basin, as high dissolved solids occur in water to the east of Coyote Wells and high fluorides are found in water from several wells near Ocotillo.

OBJECTIVE: Includes evaluating the extent and quality of ground water in the basin. A digital model will be constructed and calibrated to aid in the evaluation of long-term pumpage of the ground water. A report will be prepared on the results of the study.

GEOGRAPHIC COVERAGE: Ocotillo Basin
THIS ACTIVITY STARTED: 01/01/1975 and ENDED: 06/01/1976 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, appraisal, industrial, domestic, dissolved solids, fluorides.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water Appraisal of the Cortina Indian Rancheria

PROBLEM: The water supply wells for Cortina Rancheria yield water which fails to meet drinking water standards due to excessively high concentrations of chloride and dissolved solids. Alternative sources of water that meet the standards are not readily available. The Bureau of Indian Affairs (BIA) has determined that economic and residential development of the Rancheria cannot proceed without first obtaining an accurate assessment of the quality of available ground and surface water supplies.

OBJECTIVE: An appraisal of water quality conditions will be done to assist the Bureau of Indian Affairs in formulating economic and residential development plans for the Rancheria. In addition, a work plan will be prepared to provide guidelines for future collections of additional geohydrologic and water quality data for the Rancheria.

APPROACH: A literature search will be done for all available information regarding the geology, hydrology, and water quality of the Cortina Rancheria area. Available data from federal, state, local, and private agencies will be obtained and evaluated with respect to accuracy, completeness, and specificity for the Cortina Rancheria area. The transferability of data and interpretive conclusions from areas of similar geohydrology will be considered. Standard data analysis methods will be used for the water quality appraisal. The work plan for further data collection will be based on a subjective evaluation of the limitations of existing data.

GEOGRAPHIC COVERAGE: Cortina Indian Rancheria
THIS ACTIVITY STARTED: 10/01/1985 and ENDED: 09/30/1987 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, appraisal, water supply wells, chloride, TDS, bureau of indian affairs, literature search.
FOR DETAILS, CONTACT: Eugene B. Yates, Project Chief
PHONE: (916) 978-4633 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water Appraisal Study in Merced and Stanislaus Counties, California

PROBLEM: Efficient management and use of water supplies, including conjunctive use of surface and underground reservoirs, will require solution of physical, economic, and social problems. Because of physical problems, the existing reconnaissance report in the area (report No. WSP 1459) should be followed by more detailed studies of the geology, hydrology, and chemical quality of ground water. This study is essential to provide more detailed physical background information for the solution of the water supply problems.

OBJECTIVE: The purpose of the investigation is to supplement earlier studies on the detailed subsurface geology and hydrology of the developed ground water reservoir. The scope includes: 1.) delineation of subsurface geologic features in terms of general lithology, thickness, areal extent and water-bearing character; 2.) description of the hydrology of the area related to ground water body or bodies within the reservoir; 3.) the occurrence of ground water relative to geologic subdivisions; 4.) movement of water within the reservoir; and 5.) identification of dissolved mineral constituents in ground water of the area.

GEOGRAPHIC COVERAGE: Merced and Stanislaus Counties
THIS ACTIVITY STARTED: 12/01/1969 and ENDED: 09/30/1973 (dates may be approximate).

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Ground Water Appraisal Study in Merced and Stanislaus Counties, California

KEYWORDS: ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, appraisal, conjunctive use, reconnaissance report, chemical quality, geologic subdivisions, lithology, dissolved minerals.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 05/13/1987

STUDY: Ground Water Appraisal, Seal Beach Naval Weapons Station, California

PROBLEM: The Navy requests: 1.) information on the availability of ground water for irrigation and domestic purposes; 2.) assistance in well site selection; and 3.) assistance in preparation of drilling specifications. Water development in the area is complicated by possible sea water intrusion and the presence of a fault zone.
OBJECTIVE: The major objective of this phase of the appraisal is the preparation of all pertinent ground water data for automatic data processing. Advice will be given to the Navy as needed, on well sites and drilling specifications.

GEOGRAPHIC COVERAGE: Seal Beach Naval Weapons Station
THIS ACTIVITY STARTED: 04/01/1971 and ENDED: 06/01/1971 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies sources of pollution, appraisal, irrigation, domestic, well site selection, drilling specifications, water development, sea water intrusion, fault zone.
FOR DETAILS, CONTACT: Joe A. Moreland, Project Chief
U.S. Geological Survey; Federal Building; 301 South Park Avenue, Drawer 10076; Helena, MT 59626-0076
PHONE: (406) 449-5302 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water Appraisal, USMC Base, Twentynine Palms

PROBLEM: The Marine Base water supply comes from wells in Surprise Spring basin. Although this area has water of good quality, the quantity is limited because barrier faults restrict the flow to wells and there is low recharge in the arid environment. Water levels are declining because of increased pumping. Other potentially usable basins exist; however, water quality, in particular high fluoride concentrations, may be a problem in these other basins.
OBJECTIVE: Investigate areas adjacent to the existing base supply to determine the quantity and quality of available ground water. For those areas showing promise, select well sites and provide technical assistance to the base regarding well design and preparation of well specifications. On a continuing basis, monitor water production, quality, and water levels.

GEOGRAPHIC COVERAGE: U.S. Marine Corps Base, Twentynine Palms
THIS ACTIVITY STARTED: 07/01/1963 and ENDED: 12/01/1987 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, appraisal, low recharge, pumping, fluoride, well design, levels, monitor.
FOR DETAILS, CONTACT: Clark J. Londquist, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water Conditions and Well Yields in Fractured Rocks, Southwestern Nevada County, California

PROBLEM: We lack knowledge about ground water in Nevada County. Ground water from fractured hard rock supplies water for most new development. The need by planners and managers for ground water information in this area is becoming critical.
OBJECTIVE: (1) Describe availability of ground water and briefly appraise the quality of ground water in the study area (about 140 square miles); (2) establish general guidelines for selecting suitable locations for future ground water development; and (3) suggest an approach and methods that can be applied to other areas in the Sierra foothills.

GEOGRAPHIC COVERAGE: Sierra foothills, Nevada County
THIS ACTIVITY STARTED: 02/01/1980 and ENDED: 09/01/1982 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, well yields, fractured rock, development, planners, foothills.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 05/26/1987

STUDY: Ground Water Data Network for California

PROBLEM: There exist no guidelines for orderly and systematic collection of ground water data for California. Data collected in the past has often been for single-purpose use and data adequacy has not been assessed.
OBJECTIVE: The objectives of this study are: (1) to establish criteria for collecting ground water data in California, (2) to evaluate the adequacy of those data that have been or are being collected, and (3) to establish priorities and make recommendations for additional work or for changes in existing programs.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Ground Water Data Network for California

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 01/01/1969 and ENDED: 06/01/1973 (dates may be approximate).
KEYWORDS: ground water management, pertinent reports available, project planning, data network, systematic collection.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water Evaluation of Santa Margarita - San Luis Rey Valleys, California

PROBLEM: An agency was formed to prepare a comprehensive water quality management plan for the Santa Margarita and San Luis Rey basins by June 1973. Knowledge of the ground water systems was lacking and available data had not been analyzed to determine the additional work required to develop an understanding of the system.
OBJECTIVE: Compile and analyze the available hydrologic and water quality data for both watersheds to determine 1) if sufficient data, historical and current, is available to model the watersheds; and 2) the most efficient approach to model the hydrology and water quality of the ground water basins.

GEOGRAPHIC COVERAGE: Santa Margarita-San Luis Rey Valleys
THIS ACTIVITY STARTED: 03/01/1971 and ENDED: 06/01/1972 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, model, evaluation, analyze data.
FOR DETAILS, CONTACT: Joe A. Moreland, Project Chief
U.S. Geological Survey; Federal Building; 301 South Park Avenue, Drawer 10076; Helena, MT 59626-0076
PHONE: (406) 449-5302 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water in Northern Monterey County, California

PROBLEM: North Monterey County is placing increased demands on its ground water resource to meet present suburban development and agricultural needs. County planners have expressed the view that future demand for water may need to be restricted due to over-utilization of the ground water resource. Knowledge of ground water hydrology in North Monterey County is limited to a ground water appraisal done in 1969 by the California Department of Water Resources. A more detailed and up-to-date understanding is now needed to meet the planners' needs.
OBJECTIVE: Describe the ground water regime including: 1) where and how ground water occurs within the geologic framework; 2) the source and movement of water within the water-bearing strata; 3) present ground water demand; and 4) the long-term sustained yields within given geographic areas based upon the recharging source.

GEOGRAPHIC COVERAGE: Northern Monterey County Area
THIS ACTIVITY STARTED: 10/01/1979 and ENDED: 02/23/1983 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, suburban development, agricultural, appraisal, sustained yield, recharging source.
FOR DETAILS, CONTACT: Michael J. Johnson, Project Chief
PHONE: (702) 882-1388 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water in the Seaside Area, Monterey County, California

PROBLEM: The Seaside area is experiencing accelerated urban growth. This continuing growth has made impacts on natural resources of the area, especially the water resources. Growth projections indicate increases in population and consequent increased water demand. If ground water sources are inadequate to supply these projected demands, alternate sources will have to be considered. The two main factors that will limit additional ground water development are sea water intrusion, which has been detected in the Seaside area, and ground water yield.
OBJECTIVE: To provide 1) an updated geologic description of the Seaside area that defines fault boundaries, structure, and geologic units that control the storage and movement of ground water; 2) a delineation of ground water recharge areas; 3) estimates of amount of ground water in storage and of potential ground water yield; and 4) recommendations, if warranted, where additional geologic definition and well control are needed.

GEOGRAPHIC COVERAGE: Seaside area
THIS ACTIVITY STARTED: 10/01/1979 and ENDED: 09/01/1981 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, urban growth, sea water intrusion, yield, fault boundary, recharge.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water in the Tassajara Area, Contra Costa County, California

PROBLEM: Many new real estate developments are being proposed in Southern Contra Costa County (Tassajara Area). County planners are extremely concerned about the availability and quality of water supplies for the area. The county has recognized there is a lack of information on water availability and potential problems that could arise with uncontrolled development.
OBJECTIVE: To provide local planners with the ground water information necessary to control development within the limitations of ground water availability and quality.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Ground Water in the Tassajara Area, Contra Costa County, California

GEOGRAPHIC COVERAGE: Tassajara area, Southern Contra Costa County
THIS ACTIVITY STARTED: 01/01/1981 and ENDED: 04/01/1982 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, studies extent of ground water pollution, real estate developments, county planners, availability of water supplies.
FOR DETAILS, CONTACT: Roy L. Glass, Project Chief
U.S. Geological Survey; Water Resources Division; 1209 Orca Street; Anchorage, AL 99501
PHONE: (907) 271-4153 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water Inventory, Marine Corps Supply Center, Barstow, California

PROBLEM: The water supply for the Center is ground water pumped from wells in the Barstow and Yermo ground water subunits of the Mojave River basin. Wells in these subunits supply water for all irrigation, industrial, public supply and domestic uses. The future ground water demand in the basin will increase as the area continues to develop. Therefore, a dependable supply is vital for long-range planning by the Marine Corps.
OBJECTIVE: To collect and analyze the data necessary to advise the Corps on hydrologic conditions that may affect their water supply.

GEOGRAPHIC COVERAGE: Mojave River Basin
THIS ACTIVITY STARTED: 01/01/1964 and ENDED: 06/30/1971 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, inventory, irrigation, industrial, public supply, long-range planning.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Ground Water Potential, Pescadero Area, San Mateo County, California

PROBLEM: Shallow wells drilled in the alluvium of Pescadero Creek supply the population of the town of Pescadero. This same alluvium is also the depository for the domestic sewage through individual home septic tank leach fields. The sewage effluent, combined with a high ground water table, has caused many wells to become contaminated, resulting in a serious public health hazard. It has become obvious that some other source of water must be found for domestic needs of the town.
OBJECTIVE: Determine if there are geologic formations in the vicinity of the town of Pescadero that have the ability to supply enough potable ground water for the domestic needs of the town. It has been estimated by San Mateo County planning specialists that Pescadero needs a continuous supply of about 35 gallons per minute.

GEOGRAPHIC COVERAGE: Pescadero area
THIS ACTIVITY STARTED: 11/01/1978 and ENDED: 09/01/1979 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, studies extent of ground water pollution, alluvium, shallow wells, septic tank leach fields, domestic sewage, public health hazard.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water Quality Evaluation in the Santa Maria Valley, California

PROBLEM: Ground water is the principal source of water used in the Santa Maria Valley. Practically all point and nonpoint wastes are discharged to land or streams and ultimately discharged to the ground water system. Ground water quality has deteriorated significantly in some areas of the Santa Maria Valley during the past two decades. Protection and enhancement of ground water quality is essential if this water source is to be used beneficially in the future. An evaluation of the significance of individual waste discharges and methods of disposal is needed in order to properly plan and manage wastewater in the valley.
OBJECTIVE: The objectives of this study are 1.) to develop information on the present status of water quality, 2.) to develop an understanding of the more significant mechanisms that have influenced the past and present deterioration of ground water quality, and 3.) to evaluate possible courses of action or measures that might help to eradicate or control the degradation that apparently exists in the aquifer system beneath the Santa Maria plain.
Upon completion of the study, a coordinated ground water and surface water quality sampling network would be established that would continually monitor areas of ground water degradation and those sources determined by this study as affecting ground water quality.

GEOGRAPHIC COVERAGE: Santa Maria Valley
THIS ACTIVITY STARTED: 05/01/1974 and ENDED: 07/01/1976 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, studies extent of ground water pollution, studies sources of pollution, point and nonpoint wastes, waste discharges, disposal, degradation, water quality sampling network.
FOR DETAILS, CONTACT: Jerry L. Hughes, Project Chief
U.S. Geological Survey; Water Resources Division; 230 Collins Road; Boise, ID 83702
PHONE: (208) 334-1750 This summary information was LAST VERIFIED on: 05/12/1987

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**

STUDY: Ground Water Quality in the Santa Ana River Basin, California

PROBLEM: In the upper Santa Ana River Basin, ground water is used extensively to meet the demands of an expanding population. Comprehensive ground water evaluation has not been conducted since 1968. A broad-area data base defining ground water quality for specified time periods is essential to document degradation and pollution of ground water caused by land use and waste discharges or improvement in quality due to natural or artificial ground water recharge. A broad-area data base is also necessary to calibrate predictive mathematical models used by water managers to make long-range water quality management decisions.

OBJECTIVE: (1) Coordinate and assist in the water quality data collection program designed to simulate a 1968 data base previously used to calibrate an existing ground water model; (2) evaluate the adequacy of the existing data base (network of wells sampled) for use in future periodic ground water evaluation programs; (3) recommend modifications to improve the existing data base; (4) coordinate and assist in assuring quality control and compatibility for the water quality data collected; (5) determine regions in which the ground water has been degraded or polluted.

GEOGRAPHIC COVERAGE: Santa Ana River Basin
THIS ACTIVITY STARTED: 10/01/1977 and ENDED: 09/01/1979 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, evaluation, expanding population, broad-area data base, degradation, waste discharges, calibrate, predictive models, management.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water Reconnaissance in the Northeastern Fresno Area

PROBLEM: Land use changes in the study area from dry-land agricultural to urban have increased use of water from wells and increased waste disposal via septic tanks. The study area consists of alluvial material, underlain by bedrock at shallow depth, that constitutes both the aquifer for the area and the reservoir for waste disposal. The effects of urban-rural development on water supply and water quality are of prime concern. The Survey has been asked to supply information on water quantity, availability, and movement, in a multiagency study coordinated by the county.

OBJECTIVE: To provide reconnaissance-level information including: (1) estimation of approximate storage capacity and volume of water in storage, (2) determination of long- and short-term trends for the available ground water supply in various parts of the area, and (3) estimation of the volume of ground water moving westward and southward out of the Clovis area and changes in ground water movement when changes are made in ground water and surface water use.

GEOGRAPHIC COVERAGE: Clovis area
THIS ACTIVITY STARTED: 01/01/1974 and ENDED: 06/03/1975 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, reconnaissance, agricultural urban, wells, waste disposal, septic tanks, alluvial, bedrock, storage, trends.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 05/13/1987

STUDY: Ground Water Reconnaissance, Death Valley National Monument, California

PROBLEM: The National Park Service does not have adequate information about the occurrence, quantity, and quality of water resources in Death Valley National Monument to properly plan for proper utilization of the supply.

OBJECTIVE: To provide the National Park Service with hydrologic data, monitoring and guidance for optimum development of the water resources in Death Valley National Monument.

GEOGRAPHIC COVERAGE: Death Valley
THIS ACTIVITY STARTED: 03/01/1965 and CONTINUING as of: 06/30/1988 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, pertinent reports available, project planning, studies sources of pollution, reconnaissance, park service, monitoring, development.
FOR DETAILS, CONTACT: John Bader,
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 06/30/1988

STUDY: Ground Water Resource Appraisal, California Region

PROBLEM: Development of the California Region has been accompanied by continual expansions in needs for water. These needs require periodic assessments and appraisals of availability of the resource so that future needs can be met within limitations of the environment. Published hydrologic data may not show current effects of water development and use, or they may not be adequate for current needs.

OBJECTIVE: To utilize all available (published and unpublished) data, to summarize our present knowledge of the ground water resources of the region, and also the current effects of development and use of water upon our natural resources.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 01/01/1971 and ENDED: 02/01/1972 (dates may be approximate).

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Ground Water Resource Appraisal, California Region

KEYWORDS: ground water management, pertinent reports available, appraisal, summarize.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Ground Water Resources of Mendocino County, California

PROBLEM: Mendocino County is experiencing rapid population growth. County planners have expressed the view that, to meet future demand for water, increased utilization of ground water resources will be necessary. At present, knowledge of ground water hydrology in Mendocino County is very limited and is inadequate to meet the planners' needs.

OBJECTIVE: Describe the ground water regime: 1) identify aquifers and their areal extent; 2) determine the source of the ground water and the direction of ground water movement; 3) determine variations in ground water quality; 4) calculate storage capacities of well defined ground water basins; and 5) set up a network of observation wells for determination of water levels and water quality.

GEOGRAPHIC COVERAGE: Mendocino County
THIS ACTIVITY STARTED: 04/01/1980 and ENDED: 12/31/1983 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, studies sources of pollution, population growth, identify aquifers, storage capacities, observation wells, levels.
FOR DETAILS, CONTACT: Christopher D. Farrar, Project Chief
U.S. Geological Survey; Water Resources Division; 5 West 9th Street, #2; Santa Rosa, CA 94502
PHONE: (707) 525-4265 This summary information was LAST VERIFIED on: 05/27/1987

STUDY: Ground Water Resources of the Thousand Oaks Area

PROBLEM: The City of Thousand Oaks in southeastern Ventura County is a rapidly expanding urban area 40 miles northwest of Los Angeles. The City is interested in developing a comprehensive water resources management plan, of which the ground water resource is a key element. Before this can be done, however, a detailed hydrologic assessment of the ground water resource is needed. The area which should be studied is about 60 square miles and lies in a narrow valley filled with deposits of alluvium and Tertiary marine and volcanic rocks. The geologic framework is complex. Little is known of the ground water system in the study area.

OBJECTIVE: Assess, both qualitatively and quantitatively, the ground water resources of the Thousand Oaks area. This is to include: (1) delineation of significant ground water storage units or subbasins and their thickness and extent; (2) determination of the direction of ground water movement and volume of water in storage in each subbasin; (3) determination of quantitative aquifer properties such as transmissivity and storage coefficient; (4) definition of the areal variations of ground water quality in the area; (5) determination of the nature and extent of the unsaturated material and the feasibility of artificial recharge to the basin; and (6) estimation of the safe yield for the basin.

GEOGRAPHIC COVERAGE: Thousand Oaks area
THIS ACTIVITY STARTED: 07/01/1977 and ENDED: 09/30/1981 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, project planning, urban, alluvium, tertiary marine, volcanic rock, transmissivity, storage coefficient, unsaturated, safe yield, artificial recharge.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Ground Water Resources, Koehn Subunit, Fremont Ground Water Basin, California

PROBLEM: Concern exists over a possible threat to the local fresh ground water resource in the Koehn subunit of the Fremont Valley ground water basin. Withdrawal of ground water for increased agricultural activity in the subunit has resulted in what appears to be a rapid decline in ground water levels south and southwest of Koehn Lake. A reversal of the natural ground water flow gradient is possible. If such a reversal exists, brine may be migrating southward and southwestward into the fresh water zone of the aquifer.

OBJECTIVE: The objectives of the study are to define the current and historical conditions in the subunit sufficiently to determine if problems of water quantity and water quality exist and to define the hydrologic system sufficiently such that reasonable estimates of future effects can be derived by local management.

GEOGRAPHIC COVERAGE: Fremont Valley Ground Water Basin
THIS ACTIVITY STARTED: 07/01/1975 and ENDED: 06/01/1976 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, hydrogeology, pertinent reports available, studies extent of ground water pollution, withdrawal, agriculture, brine.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**

STUDY: Ground-Water-Flow Modeling and Optimization Techniques Applied to High-Ground-Water Problems in San Bernardino, California

PROBLEM: The San Bernardino Valley Municipal Water District (SBVMWD) is (in part) responsible for management of the San Bernardino Valley Ground Water Basin. The SBVMWD has sponsored development of a mathematical ground water flow model of the basin which has been used to evaluate operational alternatives for the ground water basin in order to mitigate the impacts of ground water recharge on high water levels. From this work, a set of feasible alternatives has been developed. The SBVMWD has asked that optimization of alternatives be developed.

OBJECTIVE: To develop optimal operational schemes for the San Bernardino Valley Ground Water Basin to control rising ground water levels.

NOTES: John Freckleton worked with Wesley R. Danskin on the project and the report will probably be published under the title, "Ground Water Flow Modelling and Optimization Techniques Applied to High Ground Water Problems in San Bernardino, California," in the series called, "Selected Papers in the Hydrological Sciences."

GEOGRAPHIC COVERAGE: San Bernardino Valley
THIS ACTIVITY STARTED: 10/01/1982 and ENDED: 12/31/1987 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, model, optimization, recharge, high water levels.
FOR DETAILS, CONTACT: John R. Freckleton, Hydrologist
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 05/22/1987

STUDY: Hydrologic Appraisal of Potential Landfill Sites

PROBLEM: Increasing urban growth in western San Diego County, especially in the San Diego Metropolitan area, has created a need for additional landfill sites for waste disposal. Correspondingly, urban growth has reduced the number of suitable landfill sites near or within the urban area. Faced with this problem, San Diego County has decided to look in the southeastern part of the county for potential landfill sites. The potential landfill sites need to be evaluated for their hydrologic suitability.

OBJECTIVE: To develop, apply, and document procedures and methodology for the selection and evaluation of potential landfill sites.

APPROACH: The first phase will develop and apply reconnaissance procedures to select potential landfill sites. Available geophysical, geological, and hydrological information will be compiled with land-use, lineament, and topographic information to aid in selecting sites. Surface geophysical techniques will be used where hydrogeological information is not sufficient. This first phase work will lead to the selection of about 12 potential sites from which the County will select two for detailed geohydrologic evaluation. The second phase will consist of detailed surface-geophysics surveys, well drilling and testing, water sampling, and chemical analyses at the two potential sites. This work will define the volume, structure, lithology, and hydraulic characteristics of unconsolidated deposits as the two potential sites and will enable definition of subsurface flow.

GEOGRAPHIC COVERAGE: Southeastern San Diego County Area
THIS ACTIVITY STARTED: 10/01/1984 and ENDED: 04/01/1987 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, project planning, studies ground water pollutant transport, appraisal, landfill sites, urban growth, waste disposal, land use, reconnaissance, topographic, lithology, unconsolidated deposits.
FOR DETAILS, CONTACT: Charles A. Kaehler, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 557-6700 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Hydrologic Data Collection in Antelope Valley/East Kern (AVEK) Water Agency Area

PROBLEM: Prospective development of the Antelope Valley Area depends on judicious use of limited local water resources in conjunction with those which are imported.

OBJECTIVE: To cope with prospective development and changing water requirements in the AVEK Water Agency service area. This includes an annual appraisal of the water resources situation, with particular reference to ground water storage and use. The evaluation provides an opportunity to advise the water agency of potential problem areas that may warrant detailed study.

APPROACH: The annual program includes the following elements: 1.) make water-level measurements in key wells in the Avek Water Agency area to determine any change in storage; 2.) periodically sample selected wells for chemical analysis; 3.) continue the processing of hydrologic data by computer; and 4.) prepare, as funds allow, annual maps based upon the above for submission to the AVEK Water Agency.

GEOGRAPHIC COVERAGE: Antelope Valley-East Kern Water Agency Area
THIS ACTIVITY STARTED: 01/01/1963 and CONTINUING as of: 08/18/1988 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies ground water pollutant transport, studies sources of pollution, data collection, conjunction, storage, level, depth, chemical analysis, maps.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Hydrologic Data Collection in Antelope Valley/East Kern (AVEK) Water Agency Area

FOR DETAILS, CONTACT: Charles E. Lamb, Project Chief
PHONE: (619) 978-4633 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Hydrologic Effects of Gasoline Spills

PROBLEM: A layer of gasoline has been found floating on the water table about 40 feet below land surface at the town of Stovepipe Wells in Death Valley National Monument. The source of the contamination was a leaking underground service station storage tank. Areal extent of the plume is 500 feet by 1,500 feet. Purchase minus resale records indicate potential loss of 19,000 gallons between October 1978 and September 1979. This area is chosen as a field site for study of the behavior and fate of gasoline in a ground water environment.
OBJECTIVE: To evaluate the geochemical properties of gasoline in aquifers and to mathematically model its transport.

GEOGRAPHIC COVERAGE: Death Valley
THIS ACTIVITY STARTED: 08/01/1983 and ENDED: 09/30/1984 (dates may be approximate).
KEYWORDS: hydrogeology, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, gasoline spills, underground storage tank, model.
FOR DETAILS, CONTACT: Roy A. Schroeder, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 557-6700 This summary information was LAST VERIFIED on: 06/02/1987

STUDY: Hydrologic Evaluation of Haystack Butte Area with Emphasis on Possible Discharge of Class I Wastes, Edwards Air Force Base, California

PROBLEM: A class-I site must be appraised geologically and hydrologically for disposal of spent rocket fuel from the rocket propulsion laboratory tests at Edwards Air Force Base. Wastes include fluoride, chloride, and nitrogen salts, and exotic, toxic, and unknown chemicals.
OBJECTIVE: To determine if the area east of Haystack Butte can be designated as a State Water Resources Control Board Class I waste disposal site, for which complete protection is provided for all time for quality of ground and surface waters from all wastes deposited therein and against hazard to public health and wildlife resources. Primary emphasis is to determine if the geological conditions are naturally capable of preventing vertical and lateral hydraulic continuity between liquids and gases emanating from the waste in the site and usable surface or ground waters.

GEOGRAPHIC COVERAGE: Haystack Butte area
THIS ACTIVITY STARTED: 07/01/1973 and ENDED: 04/01/1985 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, class-i, rocket fuel, fluoride, chloride, nitrogen salts, toxic chemicals, public health, wildlife.
FOR DETAILS, CONTACT: Jerry L. Hughes, Project Chief
U.S. Geological Survey; Water Resources Division; 230 Collins Road; Boise, ID 83702
PHONE: (208) 334-1750 This summary information was LAST VERIFIED on: 05/12/1987

STUDY: Hydrologic Evaluation of Desert Basins for Power Plant Siting

PROBLEM: All forecasts of future electric power needs predict a great increase in requirements. Steam electric plants will produce 97 percent of the need. Study groups have assumed that most of this need would be met by seashore sites where sea water would be used for cooling. Proposition 19 and intense pressure from environmental protection groups has created a need to look elsewhere for electric power plant siting. The desert area of southeastern California consists mainly of mountainous areas and alluvial-filled basins. Much of the alluvium contains ground water and is sufficiently permeable to yield water to wells. The water in many of the basins is brackish and unsuitable for urban uses, but could be withdrawn and used for thermal electric power plant cooling.
OBJECTIVE: (1) Determine hydrologic and water quality criteria with which to evaluate the ground water basins; (2) evaluate and classify the basins with regard to the criteria as (a) suitable, (b) suitable with reservations, and (c) unsuitable; and (3) propose a program for the detailed investigation which will be required before any basin can be committed to power plant siting.

GEOGRAPHIC COVERAGE: Desert counties of Southern California
THIS ACTIVITY STARTED: 07/01/1977 and ENDED: 09/01/1981 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, project planning, desert basins, power plant siting, forecasts, electric power, alluvial basins, brackish, cooling.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District

STUDY: Hydrologic Evaluation of a Gasoline Leak at the Seal Beach Naval Weapons Station

PROBLEM: Unleaded gasoline from a leaky underground tank at a service station has contaminated a shallow aquifer at the Naval Weapons Center (NWC) at Seal Beach, California. The storage tank has been emptied and sealed and the spreading gasoline does not pose a threat to drinking-water supplies. The potential for contamination of a tidal marsh which serves as a wildlife refuge is reason for concern.

OBJECTIVE: (1) To determine the areal and vertical extent of gasoline contamination; (2) To determine lithologic and hydrologic properties of the aquifer; (3) Estimate the quantity of gasoline in the aquifer; and (4) To evaluate the effectiveness of cleanup.

APPROACH: About 30 shallow holes will be drilled using a hollow-stem auger. Splitspoon cores from selected holes and depths will be taken for determination of grain-size and gasoline concentration. Shallow holes will be drilled and cased with 2 inch PVC pipe and water levels will be measured to determine direction of flow. Selected wells will be sampled for major ions, macronutrients, and volatile organic compounds. A shallow hole will be drilled and cased with 6-inch PVC pipe for use in pump tests and a recorder will be installed to measure tidal fluctuations in ground water.

GEOGRAPHIC COVERAGE: Seal Beach Naval Weapons Station
THIS ACTIVITY STARTED: 10/01/1984 and ENDED: 04/01/1987 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, ground water management, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, evaluation, gasoline leak, underground tank, tidal marsh, wildlife refuge, lithology, hollow-stem auger, split-spoon cores, ions, nutrients, VOCs.
FOR DETAILS, CONTACT: Roy A. Schroeder, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 557-6700 This summary information was LAST VERIFIED on: 06/02/1987

STUDY: Hydrologic Impacts of Dams to be Constructed on Cottonwood and South Fork Cottonwood Creeks

PROBLEM: The construction of two dams were planned on Cottonwood Creek and South Fork Cottonwood Creek near Redding, California. The proposed dams would have been constructed in areas underlain by principally the Tehama Formation, which comprises important water-bearing alluvial deposits. It was expected that both the de-watering of the construction sites and filling of the reservoirs after construction would produce changes in the regional ground water levels.

OBJECTIVE: To evaluate the impacts of reservoirs on Cottonwood Creek and South Fork Cottonwood Creek on the regional ground water system. The evaluation included both the regional impacts of de-watering during construction and the impacts of the reservoir after construction.

GEOGRAPHIC COVERAGE: Cottonwood Creek and South Fork Areas (262 sq. mi.)
THIS ACTIVITY STARTED: 10/01/1983 and ENDED: 09/30/1984 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, dams, tehama formation, alluvial deposits, dewater, construction sites, reservoirs.
FOR DETAILS, CONTACT: Hugh T. Mitten, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 05/13/1987

STUDY: Hydrologic Model Study, Santa Clara County, California

PROBLEM: the Santa Clara County Flood Control and Water Conservation District, the water agency charged with the responsibility of managing the water resources of a large part of the Santa Clara Valley, has requested the U.S. Geological Survey to establish the relationship of ground water to surface water; to determine the capability of the Santa Clara Valley ground water basin to transmit water from the existing and potential recharge areas to heavily pumped areas; and to predict how changes in water management will affect the ground water basin.

OBJECTIVE: to construct and verify a digital, mathematical model of the hydrologic system of the Santa Clara Valley using data previously compiled and analyzed when preparing to construct an analog model.

GEOGRAPHIC COVERAGE: Santa Clara Co. Flood Control & Water Conservation District
THIS ACTIVITY STARTED: 09/01/1967 and ENDED: 06/01/1971 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, studies ground water pollutant transport, model, recharge.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Hydrologic Studies Related to Volcanic Activity in Long Valley

PROBLEM: Long Valley, along the eastern Sierra Nevada frontal fault, is part of a large volcanic depression called the Long Valley Caldera. Since 1978, earthquake activity has increased in the caldera. This earthquake activity and 31 cm of uplift in the area is probably a result of rising magma. On May 26, 1982, the U.S. Geological Survey (USGS) issued a notice of potential volcanic hazard in the Long Valley area. In response to this notice, the USGS should take the lead in studies that include monitoring, assessment of potential hazards and research for methods of prediction.

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District
STUDY: Hydrologic Studies Related to Volcanic Activity in Long Valley

OBJECTIVE: The project is divided into three phases with the following objectives: Phase 1 - monitor ground water and surface water to detect any changes in the hydrologic system caused by geologic processes and phenomena associated with volcanism or with magma at depth in the Long Valley caldera; Phase 2 - determine the flood discharge at selected locations, depth of flow extent of inundation, and time of travel of the flood wave following project failure of Long Valley Dam on the Owens River; and Phase 3 - delineate the type and magnitude of changes that would be expected in the ground water system of the Long Valley caldera prior to volcanic eruption.
APPROACH: Phase 1 - a network to monitor ground water levels, temperature and quality, and surface water quality will be implemented in an effort to relate data collected to geological events. Phase 2 - the General Purpose Dam-Break Flood Simulation Model (K-634) will be used. Phase 3 - quantitative models capable of analyzing the interactions which take place between water-saturated rock and magmatic intrusions will be developed.

GEOGRAPHIC COVERAGE: Long Valley
THIS ACTIVITY STARTED: 07/01/1982 and ENDED: 09/30/1989 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, caldera, earthquake, magma, uplift, monitoring, prediction, eruption, levels, temperature, flood.
FOR DETAILS, CONTACT: Christopher D. Farrar, Project Chief
U.S. Geological Survey; Water Resources Division; 5 West 9th Street, #2; Santa Rosa, CA 94502
PHONE: (707) 525-4265 This summary information was LAST VERIFIED on: 06/21/1988

STUDY: Indio Effluent Recharge Study

PROBLEM: The feasibility of recharging Indio's sewage effluent to the local ground water supply must be determined in order to beneficially use 40 percent of effluent by January 1974, 70 percent by January 1975, and 99 percent by January 1976.
OBJECTIVE: To determine 1.) potential recharge sites; 2.) existence, extent and degree of confining recharge area; 3.) expected infiltration rates in recharge area; 4.) area necessary to infiltrate up to 8,000 acre-feet-per-year; and 5.) effects of recharge operation and methods of control of algae growth. A report will be prepared describing the study and its results.

GEOGRAPHIC COVERAGE: Indio Area
THIS ACTIVITY STARTED: 07/01/1973 and ENDED: 06/01/1974 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies ground water pollutant transport, effluent recharge, infiltration, algae growth.
FOR DETAILS, CONTACT: Joe A. Moreland, Project Chief
U.S. Geological Survey; Federal Building; 301 South Park Avenue, Drawer 10076; Helena, MT 59626-0076
PHONE: (406) 449-5302 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Infiltration of Flood Peaks on Hat Creek into Adjacent Lava Flows

PROBLEM: The U. S. Army Corps of Engineers is evaluating a proposed flood control project on Hat Creek in Lassen National Forest. One suggested approach to disposition of flood peaks that exceed the capacity of the Hat Creek channel (300 cubic feet per second below Sandy Meadows campground) is to divert the excess water eastward from the creek and allow the water to infiltrate into the Holocene lava flow. The problem is that infiltration properties (including infiltration rate, storage capacity, and barriers to ground water flow) and water-table conditions (including depth to water configuration, and gradients) are not known in the suggested infiltration area.
OBJECTIVE: The study is designed as a minimum-cost effort to evaluate the possibility of infiltrating flood peaks on Hat Creek into nearby lava beds and the probable effects of infiltration on the receiving aquifer.

GEOGRAPHIC COVERAGE: Hat Creek, Lassen National Forest
THIS ACTIVITY STARTED: 03/01/1977 and ENDED: 09/30/1977 (dates may be approximate).
KEYWORDS: flood peaks, lava flows, infiltration, storage capacity, depth.
FOR DETAILS, CONTACT: Ronald P. Fogelman, Project Chief
PHONE: (916) 978-5446 This summary information was LAST VERIFIED on: 05/07/1987

STUDY: Infiltration Study near the City of Mt. Shasta

PROBLEM: Siskiyou County has been required, by court order, to operate waste disposal ponds for the city of Mt. Shasta for a number of years. The county has been enjoined by the California Water Resources Control Board from dumping waste into the Sacramento River, adjacent to the disposal ponds. The 33-year old city sewage collection system is leaky and below the water table in some places. The inflow to the disposal ponds is several times greater than reasonably expected from a city of this size.
OBJECTIVE: The county engineer needs information for use in planning a system to infiltrate wastewater into the subsurface. The State Water Resources Control Board has given tentative approval of their plans. The objectives are 1.) to determine rates of infiltration at existing and prospective pond site; 2.) to determine the direction and rate of movement and storage available for infiltrated water; 3.) to determine effects of contamination by infiltrated wastewater; and 4.) to draw a water-level contour map for the area covered by the city sewer system.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Infiltration Study near the City of Mt. Shasta

GEOGRAPHIC COVERAGE: City of Mount Shasta
THIS ACTIVITY STARTED: 08/01/1971 and ENDED: 09/24/1973 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, infiltration, waste disposal ponds, sewage collection system, water-level contour map.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Initial Assessment of Ground Water Quality Degradation in the Monterey Bay Region of California

PROBLEM: The Association of Monterey Bay Area Governments (AMBAG) has been designated as the area-wide planning agency under section 208 of Public Law 92-500. AMBAG lacks the background information and technical competence to carry out their planning responsibilities in the ground water quality area. Thus, they approached the USGS for assistance.

OBJECTIVE: 1.) To determine what ground water studies have been made and what geohydrologic and geochemical data are available; 2.) to assess whether existing studies and data are adequate to define the magnitude and extent of existing ground water quality problems; and 3.) to determine if the U.S. Geological Survey should submit additional proposals for further studies to AMBAG.

GEOGRAPHIC COVERAGE: Monterey Bay Region
THIS ACTIVITY STARTED: 04/01/1976 and ENDED: 06/01/1976 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, studies extent of ground water pollution, initial assessment, ambag, public law 92-500, geochemical.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Intermediate Depth Drilling and Testing of Hydrothermal Systems

PROBLEM: Techniques necessary for locating geothermal resources of all types and for estimating their individual size and energy potential are not well developed; in many geothermal areas, data are not available on which to base estimates of heat flow. Also lacking are data on the geologic structure, location and character of aquifers, pressure and temperature gradients, and water quality.

OBJECTIVE: Drill and test wells to provide geologic, hydrologic, water quality and heat flow data needed for formulating conceptual models of geothermal systems and for estimating their size and energy potential. Techniques must be developed for collecting both hydrologic and heat flow information from a single hole, wherever possible.

GEOGRAPHIC COVERAGE: Counties with known geothermal fields
THIS ACTIVITY STARTED: 07/01/1974 and ENDED: 06/30/1976 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, drilling, geothermal, heat flow, geologic structure.
FOR DETAILS, CONTACT: Jim Carter, Assistant Chief - Research
PHONE: (415) 329-4439 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Investigation of Land Subsidence: Application of a New Technique

PROBLEM: Land subsidence of more than 4 feet has been estimated in parts of the Sacramento Valley as a result of increased ground water pumpage since 1960. The effectiveness of many floodways, levees, and drains has been impaired by this subsidence. In the Sacramento Valley, many benchmarks used to measure subsidence have questionable elevations. Further, the aquifer mechanics responsible for land subsidence in the Sacramento Valley are not understood.

OBJECTIVE: (1) To apply and evaluate a new surveying procedure called Global Positioning System (GPS), which provides a rapid and relatively inexpensive method of repeat leveling; (2) to document existing land subsidence and to describe the aquifer mechanics involved in subsidence; and (3) to establish a monitoring program to detect any continuing subsidence.

APPROACH: Initially a pilot study will be made to evaluate the GPS survey capabilities. If the GPS is considered suitable, the methods will be used to survey a primary network of stable benchmarks and a secondary network in areas of possible subsidence. Also, a field inventory of unused or abandoned wells will be made in areas of suspected subsidence that are suitable for extensometer, piezometer, and possible strain meter installation. If suitable existing wells cannot be located, new wells will be drilled. These complete installations will be used to monitor the overall rate of subsidence at each site.

GEOGRAPHIC COVERAGE: Selected areas, Sacramento Valley (2)
THIS ACTIVITY STARTED: 10/01/1985 and ENDED: 09/30/1989 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, land subsidence, pumpage, floodways, levees, drains, aquifer mechanics, surveying, gps, monitoring, network, abondoned wells, piezometer, extensometer.
FOR DETAILS, CONTACT: James C. Blodgett, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 06/21/1988

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**

STUDY: Land Subsidence Studies in California: Extent, Magnitude, Rates and Causes

PROBLEM: In numerous areas of severe ground water overdraft, effective overburden stresses are increased by as much as 50 percent, causing significant compaction of the aquifer system and consequent subsidence of the land surface. These changes create economic and engineering problems in the operation of the ground water basins and in construction and maintenance of water-transport structures-- especially major canals. Stress increases in an artesian system result from either a reduction in artesian head or a rise in the overlying water table.

OBJECTIVE: 1.) to study extent, magnitude, rates, and causes of land subsidence in California, 2.) to furnish criteria for estimating the amount of subsidence that would occur under assumed hydrologic change, 3.) to determine whether subsidence is reversible in part, and 4.) to suggest ways for stopping or ameliorating subsidence.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 07/01/1956 and ENDED: 08/15/1971 (dates may be approximate).
KEYWORDS: ground water cleanup, ground water management, ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, land subsidence, overdraft, overburden stresses, compaction, artesian system, canals.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Lompoc Plain Salt Balance

PROBLEM: The Lompoc Hydrologic Subarea is further west than the other four ground water subareas of the Santa Ynez River Basin. Most of the flat valley floor, known as the Lompoc Plain, is irrigated agricultural land that includes more than 8,000 acres of truck and field crops and pastureland. As population has increased, some irrigated agricultural land and some brushland have been converted to housing developments. Large quantities of mineral salts are carried into the Lompoc area by both surface and subsurface waters; these salts, coupled with commercial fertilizer, salt for water softeners, and other wastes introduced by man have caused an imbalance in the chemical equilibrium of the ground water basin.

OBJECTIVE: To develop information on the present status of ground water quality and on the more significant mechanisms that have influenced the deterioration of ground water quality, and to evaluate courses of action to be taken in mitigating the presumed adverse salt balance; specific objectives are: (1) determine occurrence, extent, and movement of ground water resources in Lompoc Valley; (2) determine location, quality and quantity of existing and potential mineral sources; (3) determine the present distribution of water resources of different quality and identify areas where usual or problem conditions exist; (4) outline an adequate monitoring program for water quality in the Plain.

GEOGRAPHIC COVERAGE: Lompoc Plain
THIS ACTIVITY STARTED: 07/01/1971 and ENDED: 02/02/1976 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, salt balance, irrigated agriculture, field crops, truck crops, pastureland, brushland, mineral salts, commercial fertilizer, water softeners.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Long Valley Hydrology

PROBLEM: To conduct coordinated geological, geochemical, hydrological, and geophysical surveys of the Western United States, and to carry out related research in an effort to determine the hydrothermal resources of the region and their potential for development as sources of electrical energy, fresh water, water for desalination, and minerals. A substantial part of the effort must be devoted to research in order to improve available techniques and instruments or develop new ones, to improve our scientific capability in finding, analyzing, and developing the resource, and to prevent unacceptable environmental changes during development and use of the potentially valuable resources.

OBJECTIVE: To study the interrelation between the hydrologic system and a geothermal heat source; to describe and interpret the role of ground water in dissipating heat; to estimate the reservoir characteristics of the geothermal system, including boundary conditions and the distribution of hydrologic parameters such as porosity, permeability, pressure, and physical state (gas or liquid) of the water.

GEOGRAPHIC COVERAGE: Long Valley area
THIS ACTIVITY STARTED: 10/01/1971 and ENDED: 09/30/1976 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, project planning, geochemical, geophysical, geothermal, desalination, minerals, porosity, permeability, pressure.
FOR DETAILS, CONTACT: Robert E. Lewis, Project Chief
U.S. Geological Survey; Water Resources Division; 230 Collins Road; Boise, ID 83702
PHONE: (208) 334-1566 This summary information was LAST VERIFIED on: 07/01/1987

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**

STUDY: Mechanics of Aquifer Systems

PROBLEM: In numerous areas of severe ground water overdraft, effective overburden stresses are increased as much as 50 percent causing significant compaction of the aquifer system and consequent subsidence of the land surface. These changes not only create numerous economic and engineering problems in the operation of the ground water basin, but provide a field laboratory for studying geohydrologic processes. Stress increases in an artesian system result from either a reduction in artesian head or a rise in the overlying water table.

OBJECTIVE: This project seeks to 1.) determine the principles controlling the deformation of aquifer systems resulting from change in effective stress; 2.) to determine hydrologic and mechanical parameters of aquifer systems from field measurements of the response of the system (strain) to changes in stress, in both the elastic and inelastic ranges; 3.) to extend existing leaky-aquifer theories to multilayered aquifer-aquitard systems in heterogeneous alluvial deposits; 4.) and to appraise the meaning and utility of the storage coefficient in compactible aquifer systems.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 07/01/1956 and ENDED: 09/30/1986 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, overdraft, overburden, compaction, land subsidence, artesian system, inelastic, leaky-aquifer theory, aquifer-aquitard, alluvial, storage coefficient.
FOR DETAILS, CONTACT: Jim Carter, Assistant Chief - Research
PHONE: (415) 329-4439 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Northeast Counties Ground Water Investigation

PROBLEM: In California's northeast counties, the impact from the recent drought (in 1976-77) and a growing population have intensified the need for reliable ground water information. Areas where surface water provided most of the water supplies now must expand the development of the ground water supplies to meet current and projected needs. Ground water information for these basins is minimal, and knowledge of the ground water system is needed to effectively plan and manage the water resources of these basins.

OBJECTIVE: To appraise the ground water conditions in selected basins in California's northeast counties. Appraisals will include: geologic and hydrologic features of the aquifers; source, occurrence, and movement of ground water; estimates of ground water storage and pumpage; and quality of ground water.

GEOGRAPHIC COVERAGE: Northeastern California
THIS ACTIVITY STARTED: 04/01/1980 and ENDED: 09/01/1981 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, investigation, drought, growing population, projected needs, appraisal, storage, pumping.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Nuclear Methods in Hydrogeochemistry

PROBLEM: Knowledge of the behavior of trace elements in water, particularly transport phenomena, is fundamental to the analysis of many water quality and hydrogeochemical problems. Inorganic water pollutants such as mercury, cadmium and radioactive isotopes are encountered at trace concentration levels where chemical behavior differs greatly from behavior at macro concentration levels. Nuclear techniques provide one of the best tools for trace element investigation and may offer promise for flow tracing and prediction of waste movement.

OBJECTIVE: Investigate the geochemistry of trace elements in water principally using nuclear techniques. Examples of investigations undertaken are the interaction of trace element solutes and particulate matter in surface water, interaction of trace elements and aquifer material, and the geochemistry of rare earth elements. The geochemistry of fissile material (uranium and thorium) is of particular interest. Development of conservative trace element tracers for both surface and ground water has been initiated.

GEOGRAPHIC COVERAGE: Not applicable to any one area
THIS ACTIVITY STARTED: 07/01/1967 and may END: 12/01/1999 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, studies ground water pollutant transport, nuclear methods, trace elements, hydrogeochemical, mercury, cadmium, radioactive isotopes, uranium, thorium, rare earth elements.
FOR DETAILS, CONTACT: Howard Taylor, Research Chemist
PHONE: (303) 236-3614 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Oak Glen Water Resources Development Study

PROBLEM: The San Bernardino Valley Municipal Water District would like to develop the water resources of Oak Glen Canyon for local use above that elevation and replace Oak Glen Creek flow at lower elevations with imported water. The imported water would be recharged into the Yucaipa Ground Water Basin by water spreading on the Oak Glen-Wilson Creek alluvial fans. Presently water is furnished to the Oak Glen area from wells in Yucaipa by a series of booster pumps and storage tanks. The average annual water yield of the basin is probably in the range of 500 to 1,500 acre-feet.

OBJECTIVE: The purpose of the study is 1.) to analyze the hydrologic system and 2.) to develop a plan for optimizing the conjunctive use of the surface water and ground water in Oak Glen Canyon, with economic data furnished by the local agency and its consultants.

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District
STUDY: Oak Glen Water Resources Development Study

GEOGRAPHIC COVERAGE: San Bernardino-Yucaipa Area
THIS ACTIVITY STARTED: 09/01/1970 and ENDED: 09/30/1973 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, imported water, recharge, alluvial fans, water yield, optimize, conjunctive use.
FOR DETAILS, CONTACT: Robert E. Lewis, Project Chief
U.S. Geological Survey; Water Resources Division; 230 Collins Road; Boise, ID 83702
PHONE: (208) 334-1566 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Occurrence of Arsenic in Ground Water in Long Valley, California

PROBLEM: Water from many hot springs in the Long Valley area have a high arsenic content, some in excess of 10 mg/l. Water from these springs mixes with surface water in the area and is ultimately transported by the Los Angeles aqueduct to the Los Angeles city water supply. Fortunately, the mixing with large quantities of Owens River water reduces the arsenic concentration to about an average 0.03 mg/l at aqueduct distribution points. This is below the 0.05 mg/l limits permissible for public water supplies, but could become a problem with lower flows in the Owens River or increasing quantities of hot springs water reaching the aqueduct.

OBJECTIVE: This study will attempt to locate the source and quantity of the thermal waters high in arsenic so that a plan can be developed by Los Angeles Department of Water and Power for preventing such water from reaching the city water supply and local well fields in Long Valley.

GEOGRAPHIC COVERAGE: Long Valley
THIS ACTIVITY STARTED: 07/01/1972 and ENDED: 06/01/1974 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, hydrogeology, pertinent reports available, project planning, studies sources of pollution, arsenic, hot springs, geothermal, well fields.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Owens River Basin Water Resources Appraisal

PROBLEM: Increased export of Owens Valley ground water to Los Angeles through an aqueduct has resulted in a legal battle between the Los Angeles Department of Water and Power (DWP) and Inyo County. DWP maintains that the increased pumping is derived from a reduction in evapotranspiration losses with no irreparable damage to the ecology or water resources of the valley. Inyo County believes otherwise.

OBJECTIVE: To examine the available geohydrologic information of the valley, particularly basic data, and determine its adequacy to answer 18 specific questions. If data are inadequate, determine what types of studies and extent of coverage are necessary to resolve the deficiency. A report will be written which will become part of a larger document containing other sections written by investigators not affliated with the U.S. Geological Survey.

GEOGRAPHIC COVERAGE: Owens River Basin
THIS ACTIVITY STARTED: 07/01/1978 and ENDED: 09/01/1985 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, appraisal, legal battle, increased pumping, evapotranspiration losses, et.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Potential Artificial Ground Water Recharge in San Joaquin County, California

PROBLEM: The need for and use of ground water in San Joaquin County has caused ground water to decline at a rate of about 1.5 to 2 feet per year. Anticipated increases in surface water supplies have been delayed indefinitely. Also, saline ground water is reported to be migrating into fresh water at a rate up to 150 feet per year.

OBJECTIVE: To evaluate the potential for artificial recharge of surface water to the unconfined aquifer system by the spreading basin method in two areas in the eastern part of San Joaquin County.

GEOGRAPHIC COVERAGE: Central Valley Test Area
THIS ACTIVITY STARTED: 02/01/1980 and ENDED: 09/01/1985 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, project planning, recharge, saline, decline, unconfined aquifer, spreading basin.
FOR DETAILS, CONTACT: Peter W. Anttila, Acting Project Chief
PHONE: (916) 978-4633 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Project Design for Geohydrologic and Water Quality Studies, Searles Valley Ground Water Basin, California

PROBLEM: Firms pump brine from wells and process it to extract minerals, then return the water to the aquifer through spreading ponds, methods resulting in a minimum of water loss and small drawdowns in wells. A new operator plans to use very large evaporation ponds prior to brine processing. Large water losses and drawdowns are anticipated, and fluids may migrate from old to new lease areas. Chemical composition of water returned to the system will be different, and redissolution of salts will change aquifer permeability. Predictions of brine migration and water quality and permeability changes are needed by the U.S. Geological Survey Conservation Division for regulating the leases.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Project Design for Geohydrologic and Water Quality Studies, Searles Valley Ground Water Basin, California

OBJECTIVE: To design and estimate costs and manpower needs for an overall study of the geohydrology of Searles Lake Valley. The objective of the overall study would be to provide data needed by Conservation Division for administering the mineral leases in Searles Valley to assure maximum recovery of the available mineral resource in accordance with existing laws and regulations.

GEOGRAPHIC COVERAGE: Searles Lake Valley
THIS ACTIVITY STARTED: 04/01/1972 and ENDED: 06/01/1972 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, brine, pump, extract minerals, spreading ponds, small drawdowns, evaporation ponds, water losses, salts, recharge.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Pyramid Lake Ground Water Augmentation Study, Nevada

PROBLEM: The Pyramid Lake task force, established by joint action of the U.S. Secretary of Interior and State governments of Nevada and California, is charged with finding means of augmenting the water supply of Pyramid Lake by some 150,000 acre-feet per year to stabilize the lake at about its present level. The ground water study group is also charged with evaluating nearby ground water basins as possible sources of supply.
OBJECTIVE: To determine (1) whether all or part of the 150,000 acre-feet-per-year could be obtained from ground water sources within about 50 miles of the lake; (2) the scope and costs of a test-drilling program (phase 2); and (3) the scope and general costs for construction of wells, pipelines, and related facilities (phase 3) plus operation and maintenance costs for 30 years (phase 1v).

GEOGRAPHIC COVERAGE: Pyramid Lake
THIS ACTIVITY STARTED: 07/01/1970 and ENDED: 06/01/1971 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, augmentation, lake, test drilling, wells, pipelines.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Quantitative Evaluation of Ground Water Supplies in the Northern Part of Napa Valley, California

PROBLEM: Increasing demand for ground water in Napa Valley has led to a need to reevaluate the potential for developing more ground water in that area. There is a possibility that increased withdrawals of ground water will result in adverse changes in the water quality. This possibility must be evaluated.
OBJECTIVE: To determine the quantity of water in storage in the alluvium under the valley, to estimate the quantity of ground water that could be withdrawn under given conditions of river discharge and head distribution, and to assess the quality changes that might result from various conditions of ground water withdrawal.

GEOGRAPHIC COVERAGE: Napa Valley Area
THIS ACTIVITY STARTED: 07/01/1970 and ENDED: 06/01/1972 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, evaluation, increased withdrawals, alluvium.
FOR DETAILS, CONTACT: Michael J. Johnson, Project Chief
PHONE: (702) 882-1388 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Reconnaissance Study of Recoverable Ground Water, Imperial Valley, California

PROBLEM: Imperial Valley is an area with a potential for developing geothermal energy for power generation, desalination and mineral extraction. Shallow and deep wells in the 2,500 square mile area indicate greater than normal temperature gradients. There is geothermal development in the Buttes field adjacent to the Salton sea and at Cerro Prieto, 55 miles to the south in Mexico. Exploratory drilling by the Bureau of Reclamation and University of California, Riverside, and oil companies have found 7 additional small areas of high temperature anomalies. Feasibility of future development requires additional studies and drilling.
OBJECTIVE: The purpose of the study is to estimate the total amount of water in storage, and the amount of total recoverable water in storage in the sedimentary basin with salinity equal to or less than that of sea water (35,000 mg/1). A principal use of the information will be to estimate the magnitude of the local geothermal energy resource. Meeting these objectives will require developing a conceptual model of the geohydrology of the cold, warm and hot flow systems in the basin.

GEOGRAPHIC COVERAGE: Imperial Valley
THIS ACTIVITY STARTED: 06/01/1971 and ENDED: 07/13/1972 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, reconnaissance, geothermal, power generation, desalination, mineral extraction, exploratory drilling, oil companies, sedimentary basin, sea water.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**

STUDY: Regional Aquifer Analysis, Central Valley, California

PROBLEM: The Central Valley aquifer system has been identified as one of the three major aquifer systems scheduled for intensive study in the nationwide Regional Aquifer Systems Analysis program. The area, one of the principal food-producing areas in the United States, has become increasingly dependent upon ground water for irrigation. Establishment of management plans that will optimize use of aquifers in the Valley requires integrated quantitative evaluation of the geologic, hydrologic, and chemical quality parameters that govern the development of the system. Technical data that are needed for sound management and regulation are deficient or nonexistent in many areas of the Valley.
OBJECTIVE: Overall, to make quantitative evaluations of the various properties of aquifers in the Central Valley to such a degree that the evaluations can reasonably be used to manage the various hydrologic basins for the most beneficial use of the water resource.

GEOGRAPHIC COVERAGE: Central Valley
THIS ACTIVITY STARTED: 10/01/1977 and ENDED: 09/01/1982 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, rasa, irrigation, optimize, chemical quality.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Sacramento Valley Ground Water Appraisal

PROBLEM: Implementation of the California Water Plan includes transport and use of ground water and surface water from the Sacramento Valley as part of the overall supply. Detailed knowledge of the ground water system is needed for use in a program for managing the total water resources of California.
OBJECTIVE: To provide detailed knowledge of the ground water system in the Sacramento Valley.

GEOGRAPHIC COVERAGE: Sacramento-San Joaquin Delta
THIS ACTIVITY STARTED: 07/01/1970 and ENDED: 06/20/1985 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, project planning, appraisal.
FOR DETAILS, CONTACT: Peter W. Anttila, Acting Project Chief
PHONE: (916) 978-4633 This summary information was LAST VERIFIED on: 05/26/1987

STUDY: San Francisco Bay Region Environmental Studies

PROBLEM: Successful urban planning and development must be based on an understanding of the physical environment and natural resources involved. The U. S. Department of Housing and Urban Development has requested the U. S. Geological Survey (USGS) to undertake a study of the environmental factors in the San Francisco Bay region related to the earth sciences. This project description covers only the Water Resources Division activity and does not include studies and mapping to be done by the Geologic and Topographic Divisions of the USGS.
OBJECTIVE: This study will attempt to provide a comprehensive demonstration of the utility of basic resource data for planning in a major urban region. The aim of the USGS Water Resources Division is to provide a framework for planning based on sound hydrologic principles whereby problems, constraints, and factors advantageous to development can be recognized early in the planning stage.

GEOGRAPHIC COVERAGE: San Francisco Bay Area
THIS ACTIVITY STARTED: 01/01/1970 and ENDED: 09/30/1982 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, project planning, urban planning, environmental factors, development.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Sea Water Intrusion and Ground Water Yield of the Soquel-Aptos Area, Santa Cruz County, California

PROBLEM: The Soquel Creek County Water District is developing water-supply plans to the year 2020 and would like to know if present ground water supplies are adequate to meet projected demand. The two main factors in the area that limit ground water development are sea water intrusion and limitations on ground water yield.
OBJECTIVE: To determine ground water yield and evaluate seawater intrusion in the Soquel-Aptos area.

GEOGRAPHIC COVERAGE: Soquel-Aptos Area, Santa Cruz County
THIS ACTIVITY STARTED: 07/01/1977 and ENDED: 08/25/1980 (dates may be approximate).
KEYWORDS: ground water management, pertinent reports available, project planning, sea water intrusion, yield.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District

STUDY: Sources of Emergency Water Supplies in Santa Clara County, California

PROBLEM: A major emergency such as an earthquake could cause failure of the water supply and distribution system. As of this date, Santa Clara County has not done any planning to determine sources of emergency water supplies.

OBJECTIVE: To present criteria needed for selecting emergency water-supply wells; summarize information for selected water wells, reservoirs, springs, and perennial streams that could be used as sources of water; and describe emergency water-purification procedures that could be used by individuals or small groups of people.

GEOGRAPHIC COVERAGE: Santa Clara County
THIS ACTIVITY STARTED: 01/01/1976 and ENDED: 09/01/1977 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, pertinent reports available, emergency water supply wells, reservoirs, springs, perennial streams, water purification.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Southern California Regional Aquifer Analysis

PROBLEM: To meet the needs for hydrologic information on a regional scale and to develop predictive capabilities to effectively manage the Nation's ground water resources, the U.S. Geological Survey (USGS) has initiated a series of hydrologic investigations in the Regional Aquifer Systems Analysis (RASA) program. Annual ground water pumpage in the study area is about 2.6 million acre-feet. The water is used mainly for agricultural and domestic supplies. About 2.3 million acre-feet-per-year is pumped from the coastal basins where salt-water intrusion and degradation of ground water quality are common problems. About 0.3 million acre-feet-per-year is pumped from desert basins where the problems are the relatively small rates of natural recharge and naturally occurring high concentrations of fluoride, boron, sulfate, and total dissolved solids.

OBJECTIVE: (1) To define the hydrologic and geochemical characteristics of ground water basins; (2) to determine the chemical quality of water including sources of pollution; (3) to determine the available ground water storage and the rates of depletion; (4) to estimate when serious reductions in yield may begin to occur in the basins; (5) to evaluate alternative methods for extending the life of ground water basins; (6) to estimate the impacts of future pumpage on water quality including salt water intrusion; and (7) to define the role of ground water during extreme hydrologic conditions such as drought and its usefulness as a source of emergency water supply.

APPROACH: The first phase of the study will identify all existing and pertinent hydrologic information and will identify areas where there are critical data gaps. Within the first 18 months, a bibliography containing about 4,000 entries will be prepared. Within this same time, maps will be prepared from existing data that show: (1) current land and ground water uses; (2) documented ground water problems and issues; (3) a geohydrologic framework including basin boundaries and aquifer characteristics and thicknesses; (4) water levels and directions of ground water movement; (5) dissolved-solids concentrations; and (6) areas and rates of pumpage, artificial recharge, and ground water depletion. The second phase of the study will consist of studies including data collection and modeling where necessary to better understand and report on: (1) the geohydrologic framework; (2) geochemistry and water quality problems; (3) hydraulics of sea water intrusion; and (4) utilization of ground water including hydraulic and economic optimization of management alternatives.

GEOGRAPHIC COVERAGE: Southern California area
THIS ACTIVITY STARTED: 10/01/1983 and ENDED: 09/30/1985 (dates may be approximate).
KEYWORDS: ground water cleanup, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, rasa, salt water intrusion, degradation, pump, desert basins, natural recharge, fluoride, boron, sulfate, TDS, storage, depletion, yield, maps.
FOR DETAILS, CONTACT: Peter Martin, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Southwest Alluvial Basins - Regional Aquifer System Analyses

PROBLEM: Optimum use of the available water resource is recognized as a management goal in the arid southwest. A prerequisite to this management is a detailed understanding of the ground water system. Such problems as definition of the available water resources, aquifer properties, recharge to the ground water system, and water quality characteristics must be addressed. In addition to studying the ground water basins as individual units, the entire area will be analyzed from a regional aspect to assess the interbasin effects of large-scale withdrawals.

OBJECTIVE: Overall objectives include: (1) defining the present and historic ground water resources of the basins, including (a) the amount in storage, (b) extent and effects of development, (c) recharge to the system, and (d) water quality characteristics; (2) providing a management tool or set of tools to allow the study of alternative management schemes; and (3) making this information and data available to local interests through the course of the study.

GEOGRAPHIC COVERAGE: Southwestern United States
THIS ACTIVITY STARTED: 09/01/1978 and ENDED: 09/30/1986 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, alluvial, optimum, aquifer properties, recharge, interbasin effects, large-scale withdrawals.

CONTINUED FROM: U.S. Geological Survey; Water Resources Division; Western Region - California District
STUDY: Southwest Alluvial Basins - Regional Aquifer System Analyses

FOR DETAILS, CONTACT: Thomas W. Anderson, Project Chief
U.S. Geological Survey; Water Resources Division; 300 West Congress FB-44; Tucson, AZ 85701
PHONE: (602) 629-6266 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Tunnel System Hydrology, Los Angeles

PROBLEM: The Los Angeles area lacks adequate transportation facilities. An above-ground rapid transit system would be extremely expensive to build because of the extensive urban development in the area. A subway system would be the most practical; however, data are not in a form for easy interpretation in determining the feasibility of a tunnel system. Thus, the Department of Transportation has requested the USGS to compile and present these data in such a form as to be useful when and where the need arises.

OBJECTIVE: The main objective is to ensure that the most complete, accurate, and detailed geologic and hydrologic information obtainable is made available to systems planners, design engineers, contractors, and others in the early and later stages of development of urban rapid transit systems involving tunnels. Available data will be presented in a form understandable to the intended users.

GEOGRAPHIC COVERAGE: Los Angeles County
THIS ACTIVITY STARTED: 07/01/1975 and ENDED: 09/30/1977 (dates may be approximate).
KEYWORDS: hydrogeology, pertinent reports available, project planning, tunnel, transportation, subway, urban rapid transit.
FOR DETAILS, CONTACT: Robert E. Lewis, Project Chief
U.S. Geological Survey; Water Resources Division; 230 Collins Road; Boise, ID 83702
PHONE: (208) 334-1566 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Updating Ground Water Information in the Area near Eureka, California

PROBLEM: Recent action by local Eureka-area voters has resulted in cessation of further work on a proposed surface water supply development in the Mad River basin. Alternate sources of water supply are being sought by local agencies. Use of reclaimed water in conjunction with expanded ground water usage is contemplated.

OBJECTIVE: Information on ground water in the Eureka area will be updated in light of present and projected future water needs. Data to be evaluated include well logs, ground water levels, and water quality analyses collected since the 1952 evaluation. Future ground water surveillance needs will be presented.

GEOGRAPHIC COVERAGE: Eureka Area
THIS ACTIVITY STARTED: 06/01/1975 and ENDED: 09/01/1977 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, information, water supply development, reclaimed water, conjunctive use, well logs, level, evaluation, surveillance needs.
FOR DETAILS, CONTACT: Michael J. Johnson, Project Chief
PHONE: (702) 882-1388 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Vegetation Survivability Studies in Owens Valley, California

PROBLEM: Increased ground water pumpage, especially since 1970, has caused the loss of phreatophytes in some portions of the Owens Valley.

OBJECTIVE: To obtain information on plant survivability by evaluating the response of the vegetation to changes in the shallow water table.

GEOGRAPHIC COVERAGE: Owens Valley Area
THIS ACTIVITY STARTED: 04/01/1983 and ENDED: 09/01/1987 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, vegetation, pumpage, phreatophytes.
FOR DETAILS, CONTACT: Stephen K. Sorenson, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Wastewater Re-use in San Diego County, California

PROBLEM: Most of San Diego County's water is imported. When the Central Arizona Project is completed, one of the major sources of water of San Diego County will be reduced. To compensate for this loss, the San Diego Regional Water Quality Board wants to evaluate ground water basins as sites for wastewater reuse. Many logistical problems are associated with using reclaimed wastewater such as the ambient quality of the ground water, the storage capacity of the aquifer, the quality of the reclaimed water, and the soil suitability.

OBJECTIVE: Evaluate the ground water and surface water quantity and quality within each subarea. Samples will be collected and measurements made to provide a current data base. Evaluate the ability of each basin to accept reclaimed water. Define past, present, and future beneficial uses. Determine future plans of water purveyors, public agencies, and other water users concerning the use of reclaimed water. Assess the environmental impact of the use of reclaimed water on each subarea.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Wastewater Re-use in San Diego County, California

GEOGRAPHIC COVERAGE: SW Coastal San Diego County
THIS ACTIVITY STARTED: 07/01/1981 and ENDED: 09/01/1986 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, central arizona project, wastewater reuse, reclaimed wastewater, beneficial uses, water purveyors.
FOR DETAILS, CONTACT: Gregory C. Lines, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 293-6700 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Water from Leaking Abandoned Gas Wells along the Tuolumne River

PROBLEM: Water of poor chemical quality is leaking from abandoned gas wells near the Tuolumne River. Flow from these wells is a large component in the baseflow of the river. Locations of wells are uncertain, and the effectiveness of proposed control measures is uncertain.
OBJECTIVE: To determine the availability of data on location and discharge of leaking gas wells and investigate the possibility of using infrared photogrammetry to pinpoint sites. Review existing proposed program for plugging wells and consider design of appropriate monitoring program.

GEOGRAPHIC COVERAGE: Tuolumne River area, Stanislaus County
THIS ACTIVITY STARTED: 01/01/1975 and ENDED: 01/01/1976 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies sources of pollution, abandoned gas wells, baseflow, infrared photogrammetry, plugging wells, monitor.
FOR DETAILS, CONTACT: Ronald W. Page, Project Chief
PHONE: (916) 324-9089 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Water Resource Study of Lanfair-Fenner Valleys, California

PROBLEM: The Bureau of Land Management (BLM) provides water for stock on grazing lands owned by the Federal Government. Public Rangelands Improvement Act (PL 95-514) directs that on-the-ground range rehabilitation, including construction of range improvements, be implemented to correct unsatisfactory range conditions. Part of this range improvement program as described in the Act will involve construction of water wells in several arid basins in the 11 western states. Lanfair and Fenner Valleys, the study area, are located about 200 miles northeast of Los Angeles. A general ground water evaluation is needed to provide data for ground water resource planning and to estimate the depth to water and its quality.
OBJECTIVE: Collect, compile and interpret available ground water data pertaining to Lanfair and Fenner Valleys to facilitate water resource management by BLM. Data will be collected to aid BLM in making site-specific ground water evaluations for well drilling, to obtain water for livestock, and to supply drinking water for recreational areas.

GEOGRAPHIC COVERAGE: Lanfair-Fenner Valleys, Northeastern San Bernardino County
THIS ACTIVITY STARTED: 05/01/1981 and ENDED: 09/01/1981 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, project planning, BLM, grazing lands, range rehabilitation, water wells, evaluation, depth, livestock, drinking water, recreation.
FOR DETAILS, CONTACT: David A. Freiwald, Project Chief
U.S. Geological Survey; Federal Office Building; 700 West Capitol Avenue; Little Rock, AR 72201
PHONE: (501) 378-6391 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Water Resources Appraisal, Vandenberg AFB

PROBLEM: Contaminates from the Vandenberg AFB landfill and other sites have the potential to degrade the water quality of nearby ground- and surface-water resources.
OBJECTIVES: Assist Vandenberg AFB in its water management plan by evaluating the impact of the landfill and other sites on the nearby water resources. Specific objectives are to determine the quality of native ground and surface waters, to determine the quantity of the contaminates, to determine the quality of the ground and surface water downstream from these sites, and to evaluate potential ground- and surface-water pollution caused by these sites.

GEOGRAPHIC COVERAGE: Vandenberg Air Force Base area
THIS ACTIVITY STARTED: 03/01/1958 and ENDED: 09/30/1985 (dates may be approximate).
KEYWORDS: ground water management, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, appraisal, contaminates, landfill, degrade quality.
FOR DETAILS, CONTACT: Charles Berenbrock, Project Chief
U.S. Geological Survey; 5735 Kearny Villa Rd, Suite O; San Diego, CA 92123
PHONE: (619) 557-6700 This summary information was LAST VERIFIED on: 05/07/1987

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**

STUDY: Water Resources of Cahuilla Indian Reservation, California

PROBLEM: The Cahuilla Indians are concerned that continual pumping from the Cahuilla-Anza ground water basins may be exceeding the average annual recharge to the basins and may be infringing on their water rights.
OBJECTIVE: Investigate the effects on the underground water resources of substantial pumping for agriculture from the Cahuilla and Anza ground water basins, both on the Cahuilla Indian Reservation and on lands adjoining the reservation.

GEOGRAPHIC COVERAGE: Cahuilla Indian Reservation and surrounding areas
THIS ACTIVITY STARTED: 03/01/1973 and ENDED: 03/31/1977 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, indian reservation, pumping, recharge, water rights, agriculture.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Water Resources of San Luis Rey Basin

PROBLEM: Federal Power Commission license No. 176 covering part of the San Luis Rey Basin is under consideration for renewal. Water rights of Indian lands and their relations to the license and all water uses in the basin are of concern to the Indian tribes and the Bureau of Indian Affairs (BIA). The BIA has requested the USGS to prepare exhibits and give expert testimony on the hydrology of the basin at a hearing to be held on the license renewal.
OBJECTIVE: To compile and present data on the hydrologic characteristics of the basin and on the effects of surface and ground water use on the flow regime of the San Luis Rey River.

GEOGRAPHIC COVERAGE: Part of the San Luis Rey Basin
THIS ACTIVITY STARTED: 10/01/1971 and ENDED: 12/12/1973 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, federal power commission, indian lands, bureau of indian affairs.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/16/1987

STUDY: Water Resources of the California Desert Conservation Area

PROBLEM: The Bureau of Land Management (BLM) is responsible for land-use management of three-quarters of California's desert lands. BLM is responsible for managing timber, forage, wildlife, recreation use, minerals, water, historical and archeological areas, and total environment of this vast area. BLM is planning to meet major projected land-use needs of the future (1980's) compatible with protecting the environment for future generations. The BLM is developing a comprehensive management plan, the first step of which is to prepare an inventory of the desert area resources.
OBJECTIVE: To (1) summarize available information related to water resources (surface water, ground water and water quality) of the California Desert Conservation Area in a report consisting of a series of hydrologic atlas-type maps; (2) evaluate from existing data the location of ground water recharge areas and the potential for disposal of hazardous wastes; (3) describe the current data base and evaluate its adequacy in achieving BLM objectives; (4) describe a program for acquiring the information necessary for BLM to plan and manage use of its water resources; and (5) provide computerized data.

GEOGRAPHIC COVERAGE: Desert counties of Southern California
THIS ACTIVITY STARTED: 07/01/1977 and ENDED: 09/01/1979 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, pertinent reports available, project planning, studies extent of ground water pollution, desert, BLM, land-use, timber, forage, wildlife, recreation, minerals, archeological, atlas maps.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Water Resources of Upper Coachella Valley, California

PROBLEM: Importation of large amounts of Colorado River water is anticipated to begin in 1973. The quality of the imported water is inferior to that of the native ground water. The water purveyors want to have tools available so that they may make prudent decisions concerning needs for either continuing to utilize Colorado River water or importing other water, such as Feather River water, if the Colorado River water appears to be significantly degrading the native ground water.
OBJECTIVE: The objective of this study would be (1) to analyze the distribution of the water quality both vertically and horizontally, (2) to construct a digital hydraulic model and (3) to construct a digital water quality model. The water quality model would then be used to forecast water quality based on alternative management practices. The forecasting would hopefully allow the Water Districts ample time to determine how long Colorado River water can be used before importing Feather River water (at a cost in 1973 of 60 to 75 million dollars).

GEOGRAPHIC COVERAGE: Upper Coachella Valley
THIS ACTIVITY STARTED: 07/01/1973 and ENDED: 09/01/1983 (dates may be approximate).

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Water Resources of Upper Coachella Valley, California

KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, importation, colorado river water, feather river water, forecast.
FOR DETAILS, CONTACT: S. J. Tyley, Project Chief
PHONE: (916) 978-4633 This summary information was LAST VERIFIED on: 05/15/1987

STUDY: Water Supply Exploration of the Public Domain, Pacific Coast Region

PROBLEM: Investigations should be conducted of ground water and surface water resources on the public lands to advise the land agencies in planning and development of stock water supplies to effectuate proper distribution of grazing and to develop recreational supplies. Field investigations should be conducted in Arizona, California, Idaho, Nevada, Oregon, western Utah, and Washington.
OBJECTIVE: To determine the best method of providing water where it is needed to assist in the maximum utilization of the public domain and still afford the greatest amount of protection possible to natural resources. Currently, the water needs on the public domain are primarily for livestock use and public supply in recreation areas.

GEOGRAPHIC COVERAGE: California Coastal Counties and Mono County
THIS ACTIVITY STARTED: 11/01/1968 and may END: 12/01/1999 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, water supply exploration, grazing, stock water, recreational, livestock.
FOR DETAILS, CONTACT: Jim Carter, Assistant Chief - Research
PHONE: (415) 329-4439 This summary information was LAST VERIFIED on: 08/18/1988

STUDY: Western San Joaquin Valley Hydrologic Studies

PROBLEM: Shallow ground water in the highly productive agricultural area of the western San Joaquin Valley contains high concentrations of several potentially toxic trace elements, particularly selenium. Some of this water has been artificially drained to surface waters, where adverse effects on waterfowl have been observed. The area of contaminated ground water is extensive and the potential effects on surface and ground water quality by continued irrigation and drainage is considerable.
OBJECTIVE: To conduct a comprehensive hydrogeologic and geochemical study of the sources, distribution, movement, and fate of selenium and other trace elements in the hydrologic system of western San Joaquin Valley.
APPROACH: An integrated series of laboratory and field studies, including extensive sampling of soils, ground water, and the San Joaquin River System; also, laboratory studies of trace-element geochemistry, and ground water flow and solute transport modeling.

GEOGRAPHIC COVERAGE: Western San Joaquin Valley
THIS ACTIVITY STARTED: 10/01/1984 and ENDED: 09/30/1989 (dates may be approximate).
KEYWORDS: ground water cleanup, ground water management, ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, agriculture, toxic trace elements, selenium, waterfowl, irrigation, drainage, geochemical, laboratory, field, solute transport model, soils.
FOR DETAILS, CONTACT: Robert J. Gilliom, Project Chief
PHONE: (916) 978-4648 This summary information was LAST VERIFIED on: 06/21/1988

STUDY: Western United States Water Plan

PROBLEM: Planning and development of water resources projects including geothermal resources to meet needs in the Western region through 2020. The problem is also one of evaluating alternative plans that include ground water or surface water or conjunctive uses and avoiding environmental conflicts.
OBJECTIVE: Apply water resource data at the planning level and advice at the management level with emphasis on ground water hydrology to optimize project planning and evaluation in terms of efficient water development from all sources.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 07/01/1971 and ENDED: 06/01/1974 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, pertinent reports available, project planning, geothermal, conjunctive use, optimize, water development.
FOR DETAILS, CONTACT: John Bader, Public Information Officer
PHONE: (916) 978-4643 This summary information was LAST VERIFIED on: 07/01/1987

STUDY: Yosemite National Park - Water Resources Appraisal

PROBLEM: Plans for increased use of the park will require expansion of facilities.
OBJECTIVE: To obtain data for the area within the park that will be of immediate and long-term value in developing additional public water supplies.

CONTINUED FROM: **U.S. Geological Survey; Water Resources Division; Western Region - California District**
STUDY: Yosemite National Park - Water Resources Appraisal

GEOGRAPHIC COVERAGE: Mariposa and Tuolumne Counties in Yosemite National Park
THIS ACTIVITY STARTED: 07/01/1963 and ENDED: 07/01/1972 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, project planning, appraisal, expansion, public water supplies.
FOR DETAILS, CONTACT: Elver J. McClelland, Project Chief
PHONE: (916) 978-4633 This summary information was LAST VERIFIED on: 07/01/1987

United Water Conservation District

Street address of Organization: 725 E. Main Street - Suite 301; Santa Paula, CA 93060
Mailing address of Organization: P.O. Box 432; Santa Paula, CA 93060

PROGRAM: Ground Water Recharge Management

This program oversees the management of the existing ground water supply throughout the Santa Clara drainage system.

GEOGRAPHIC COVERAGE: Oxnard Plain
THIS ACTIVITY STARTED: 01/01/1950 and CONTINUING as of: 10/20/1989 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water monitoring, pertinent reports available, planning, site inspection, technical support, recharge, Santa Clara drainage.
FOR DETAILS, CONTACT: Greg Middleton, Hydrologist
PHONE: (805) 525-4431 This summary information was LAST VERIFIED on: 10/20/1989

PROGRAM: United Water Conservation District Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and for radioactivity every 4 years. Other constituents are tested for occasionally as requested by the Department of Health Services.
The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Santa Clara River Valley
THIS ACTIVITY STARTED: 01/01/1956 and CONTINUING as of: 04/17/1989 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Ron Morgan, Hydrologist
PHONE: (805) 525-4431 This summary information was LAST VERIFIED on: 04/17/1989

PROJECT: The Sea Water Intrusion Abatement Project

The objective is to provide ground water replenishment of the aquifer systems beneath the Oxnard Plain.

GEOGRAPHIC COVERAGE: Oxnard Plain
THIS ACTIVITY STARTED: 01/01/1981 and CONTINUING as of: 10/20/1989 (dates may be approximate).
KEYWORDS: allocates funds, ground water cleanup, demonstration project, ground water monitoring, pertinent reports available, planning, site investigation, replenishment, aquifer, Oxnard Plain.
FOR DETAILS, CONTACT: Greg Middleton, Hydrologist
PHONE: (805) 525-4431 This summary information was LAST VERIFIED on: 10/20/1989

STUDY: Annual District Ground Water Conditions Study

The purpose of this study is to assess ground water overdraft and sea water intrusion in the Santa Clara River Valley Ground Water Basin. Each year the results are used to set pump charge rates.

GEOGRAPHIC COVERAGE: Santa Clara River Valley
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 04/18/1989 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, ground water management, ground water usage, pertinent reports available, studies sources of pollution, ground water overdraft, sea water intrusion, pump charge rates.
FOR DETAILS, CONTACT: Ron Morgan, Hydrologist
PHONE: (805) 525-4431 This summary information was LAST VERIFIED on: 04/18/1989

CONTINUED FROM: **United Water Conservation District**

STUDY: Nitrate Abatement Feasibility Study

The Nitrate Abatement Feasibility Study includes:
1. an assessment of point and non-point sources of nitrate in the Montavo Forebay Ground Water Basin;
2. models of pollutant transport; and
3. an analysis of mitigation alternatives.

The results of the study will be used to develop a conjunctive use-transport model for the affected area.

GEOGRAPHIC COVERAGE: Montalvo Forebay Basin
THIS ACTIVITY STARTED: 11/01/1988 and ENDED: 11/30/1989 (dates may be approximate).
KEYWORDS: ground water usage, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, nitrates, pollutants, conjunctive use.
FOR DETAILS, CONTACT: Ron Morgan, Hydrologist
PHONE: (805) 525-4431 This summary information was LAST VERIFIED on: 04/18/1989

STUDY: Nitrate Abatement Feasibility Study

The objective of this study is to locate and identify the occurence of high nitrate concentrations in aquifers throughout the Oxnard Plain. Data resulting to this study is maintained by the parent program (Ground Water Recharge Management) and called the "Ground Water Data Base".

GEOGRAPHIC COVERAGE: Oxnard Plain
PART OF A PROGRAM titled: Ground Water Recharge Management
THIS ACTIVITY STARTED: 01/01/1986 and CONTINUING as of: 10/20/1989 (dates may be approximate).
KEYWORDS: estimate impacts of ground water pollution, hydrogeology, pertinent reports available, studies extent of ground water pollution, studies sources of pollution, nitrate abatement, Oxnard Plain.
FOR DETAILS, CONTACT: Greg Middleton, Hydrologist
PHONE: (805) 525-4431 This summary information was LAST VERIFIED on: 10/20/1989

STUDY: Santa Clara River Valley Conjunctive Use Model and Ground Water Management Plan

The purpose of the study is to develop a conjunctive use management plan to address water supply and water quality in the Santa Clara Valley Ground Water Basins.

GEOGRAPHIC COVERAGE: Santa Clara River Valley
THIS ACTIVITY STARTED: 01/01/1988 and may END: 12/31/1990 (dates may be approximate).
KEYWORDS: ground water management, ground water usage, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, conjunctive use, water quality, water supply.
FOR DETAILS, CONTACT: Ron Morgan, Hydrologist
PHONE: (805) 525-4431 This summary information was LAST VERIFIED on: 04/18/1989

University of California, Davis; Davis Campus; Institute of Ecology

Street address of Organization: U.C. Davis (Institute of Ecology); Davis, CA 95616

STUDY: Groundwater Contamination Within the Tahoe Basin

Prior to this study, knowledge of the importance of groundwater contamination within the Tahoe Basin and subsequent nutrient loading to Lake Tahoe relative to other sources was limited. The information provided by this Study was necessary to evaluate the importance of groundwater pollution, its interaction with Lake Tahoe, and suggest remedial actions where necessary.

The objectives of this Study were to:
1. Determine the degree of nutrient contamination of the ground waters in three aquifers surrounding Lake Tahoe which are Upper Truckee River, Trout Creek, and Ward Creek.
2. Quantify the amount of water and associated nutrients entering Lake Tahoe via ground water from these three aquifers.
3. Assess the impact of ground water inflow on the growth rate of algae in Lake Tahoe.
4. Outline mitigation measures to prevent further and potential future degradation of ground water quality in the Tahoe Basin.

The program focused on eight general areas of investigation. These were combined to provide an understanding of the role ground water plays in the water and nutrient budgets of Lake Tahoe. These include:
1. Geophysical characterization of the size and shape of the three Study aquifers.
2. Groundwater quality monitoring through well water chemistry.
3. Hydraulic gradient and transmissivity of aquifers.
4. Quantification of water and nutrient influx via ground water to Lake Tahoe.

CONTINUED FROM: **University of California, Davis; Davis Campus; Institute of Ecology**
STUDY: Groundwater Contamination Within the Tahoe Basin

5. Direct measurements of seepage through lakebed sediments.
6. Sediment interstitial water chemistry.
7. Periphyton biomass accumulation.
8. Bioassay tests on the effects of nutrients and ground waters on the growth rate of algae.

The results of the investigations on the eight areas are presented in the final report of the Study entitled "Ground Water Quality Within the Tahoe Basin". This final report concludes that the ground waters in the three watersheds studied contribute significantly to the nutrient loading of Lake Tahoe. In the Ward Valley watershed, for example, ground water contributes 60 percent of the total nitriate loading (surface and ground water sources) entering the Lake. The report also includes a mitigation and implementation plan and a financial and institutional plan.

GEOGRAPHIC COVERAGE: Lake Tahoe Basin
THIS ACTIVITY STARTED: 10/01/1985 and ENDED: 12/31/1987 (dates may be approximate).
KEYWORDS: ground water cleanup, estimate impacts of ground water pollution, ground water management, ground water usage, hydrogeology, pertinent reports available, project planning, studies extent of ground water pollution, studies ground water pollutant transport, studies sources of pollution, nutrient loading, eutrophication, nitrates, sediments, ground water, bioassay, 205j.
FOR DETAILS, CONTACT: Dr. Stanford L. Loeb, Principal Investigator
Purdue University; Department of Forestry and Natural Resources
PHONE: (317) 494-3632 This summary information was LAST VERIFIED on: 08/08/1988

Upper San Gabriel Valley Water District

Street address of Organization: 11310 Valley Blvd; El Monte, CA 91731

PROGRAM: Upper San Gabriel Valley Water District Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: San Gabriel Valley
THIS ACTIVITY STARTED: 01/01/1980 and CONTINUING as of: 03/30/1990 (dates may be approximate).
KEYWORDS: administrative support, ground water modeling, ground water monitoring, pertinent reports available, technical support, water supply wells, organics, minerals, wells, Title 22, AB1803.
FOR DETAILS, CONTACT: Robert Berlien, General Manager
PHONE: (818) 443-2297 This summary information was LAST VERIFIED on: 03/30/1990

Valley County Water District

Street address of Organization: 14521 Ramona Blvd; Baldwin Park, CA 91706

PROGRAM: Valley County Water District Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and quarterly for organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: San Gabriel Valley
THIS ACTIVITY STARTED: 01/01/1989 and CONTINUING as of: 04/11/1990 (dates may be approximate).
KEYWORDS: allocates funds, ground water monitoring, pertinent reports available, planning, technical support, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Stan Yarbrough, General Manager
PHONE: (818) 338-7301 This summary information was LAST VERIFIED on: 04/11/1990

Vandalia Irrigation Main District

Street address of Organization: 2032 S. Hillcrest Street; Porterville, CA 93257

PROGRAM: Vandalia Irrigation Main District Small Water Supply Systems Monitoring

The community water system (consisting of less than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

CONTINUED FROM: **Vandalia Irrigation Main District**
PROGRAM: Vandalia Irrigation Main District Small Water Supply Systems Monitoring

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: 1,200 Acres of Wetlands Southeast of Porterville City
THIS ACTIVITY STARTED: 01/01/1923 and CONTINUING as of: 01/18/1990 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Haskell Swearingen, District Manager
PHONE: (209) 784-0121 This summary information was LAST VERIFIED on: 01/18/1990

PROGRAM: Vandalia Irrigation Main District Ground Water Recharge

Water storage is needed to complement variable water supplies available to the Vandalia Irrigation Main District. An average of 2,500 to 3,000 acre-feet of water per year is allowed to percolate into ground water from holding ponds for extraction as needed.

GEOGRAPHIC COVERAGE: 1,200 Acres of Wetlands Southeast of Porterville City
THIS ACTIVITY STARTED: 01/01/1923 and CONTINUING as of: 01/18/1990 (dates may be approximate).
KEYWORDS: ground water monitoring, ground water recharge, holding ponds.
FOR DETAILS, CONTACT: Haskell Swearingen, District Manager
PHONE: (209) 784-0121 This summary information was LAST VERIFIED on: 01/18/1990

Ventura County Water Works District No.1

Street address of Organization: 7150 Walnut Canyon Road; Moorpark, CA 93021

PROGRAM: Large Water Supply Systems Monitoring -- Ventura County Water Works District No.1

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at the County Waterworks office and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: City of Moorpark & Vicinities
THIS ACTIVITY STARTED: 01/01/1979 and CONTINUING as of: 10/19/1989 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Reddy Pakala, Manager
PHONE: (805) 584-4830 This summary information was LAST VERIFIED on: 10/19/1989

Ventura County; Environmental Health Department

Street address of Organization: 800 S. Victoria; Ventura, CA 93009

PROGRAM: Hazardous Waste Program

The responsibilities of public agencies to react to a spill of hazardous materials are delineated in an area-wide emergency response plan, prepared as outlined by the California Office of Emergency Services. The following activities are coordinated by the appropriate incident commander:
- Resources necessary to handle the spill are gathered
- The spill is isolated
- The media are informed
- An assessment is made of the extent of any needed cleanup procedures

GEOGRAPHIC COVERAGE: Ventura County
THIS ACTIVITY STARTED: 07/01/1983 and CONTINUING as of: 08/09/1989 (dates may be approximate).
KEYWORDS: ground water cleanup, enforcement, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, hazardous material spills, emergency response plan, inventory, hazardous waste generator inspections.
FOR DETAILS, CONTACT: Terrence Gildey, Supervising Environmental Health Specialist
PHONE: (805) 654-2815 This summary information was LAST VERIFIED on: 08/09/1989

Ventura County; Environmental Health Department

Street address of Organization: 801 S. Victoria; Ventura, CA 93003

PROGRAM: Leaking Underground Tank Program

This program oversees the assessment of sites where underground tanks have released environmental contaminants which must be cleaned up.

GEOGRAPHIC COVERAGE: All of Ventura County except for the city of Ventura
THIS ACTIVITY STARTED: 07/01/1988 and CONTINUING as of: 06/30/1989 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water modeling, ground water monitoring, pertinent reports available, site inspection, site investigation, technical support, assessment, underground tanks, release site.
FOR DETAILS, CONTACT: Doug Beach, Manager of Underground Tanks Program
PHONE: (805) 654-3519 This summary information was LAST VERIFIED on: 06/30/1989

PROGRAM: Underground Tank Regulatory Program

The design, construction, closure and abandonment of storage tanks are regulated by a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank, drainage system, and monitoring system. The permit is valid for 5 years and cannot be renewed unless the underground tank has been inspected within the prior 3 years. More frequent testing is usually required since any monitoring system must be capable of determining the containment ability of the underground storage tank and detecting any active or future unauthorized releases.

References: California Code of Regulations, Title 23, Chapter 3, Subchapter 16; 1988 Uniform Fire Code, Articles 79 & 80.

GEOGRAPHIC COVERAGE: All of Ventura County except for the city of Ventura
THIS ACTIVITY STARTED: 12/06/1983 and CONTINUING as of: 06/30/1989 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water modeling, ground water monitoring, permitting, pertinent reports available, planning, site inspection, site investigation, technical support, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Doug Beach, Manager of Underground Tanks Program
PHONE: (805) 654-3519 This summary information was LAST VERIFIED on: 06/30/1989

Ventura County; Flood Control and Water Resources Department; Ground Water Section

Street address of Organization: 800 S. Victoria; Ventura, CA 93009

PROGRAM: Ventura County Water Well Permitting

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells. Regulations are enforced through a permit program. The county well permitting ordinance number is 3806.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California).

GEOGRAPHIC COVERAGE: Ventura County
THIS ACTIVITY STARTED: 12/01/1970 and CONTINUING as of: 04/18/1989 (dates may be approximate).
KEYWORDS: enforcement, permitting, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: LaVern Hoffman, Hydrologist
PHONE: (805) 654-2907 This summary information was LAST VERIFIED on: 04/18/1989

Ventura County; Resource Management Agency; Environmental Health Department

Street address of Organization: 800 S. Victoria; Ventura, CA 93009

PROGRAM: Ventura County Small Water Supply Systems Monitoring Program

Community water systems consisting of less than 200 service connections are sampled once a month at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for general mineral and inorganic compounds and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.
The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services Sacramento office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Ventura County
THIS ACTIVITY STARTED: 01/01/1960 and CONTINUING as of: 10/31/1988 (dates may be approximate).

CONTINUED FROM: **Ventura County; Resource Management Agency; Environmental Health Department**
PROGRAM: Ventura County Small Water Supply Systems Monitoring Program

KEYWORDS: enforcement, ground water monitoring, permitting, site inspection, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Diane Eastman, Water Program Specialist
PHONE: (805) 654-2431 This summary information was LAST VERIFIED on: 10/31/1988

Ventura River County Water District

Street address of Organization: 603 W. Ojai Avenue; Ojai, CA 93023

PROGRAM: Ventura River County Water District Large Water Supply Systems Monitoring Program

The community water system consisting of more than 2000 service connections is sampled biweekly at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every month for minerals and organic compounds, and for radioactivity every 4 years. Other constituents are tested for occasionally as requested by the Department of Health Services.
The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Parts of: W. section of Ojai, Oakview and Casitas Springs
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 08/08/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Chuck Curtis, Administrative Assistant
PHONE: (805) 646-3688 This summary information was LAST VERIFIED on: 08/08/1988

Victorvalley County Water District

Mailing address of Organization: P.O. Box 909; Victorville, CA 92392

PROGRAM: Victor Valley County Water District--Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and for radioactivity every 4 years. Other constituents are tested for occasionally as requested by the Department of Health Services.
The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: City of Victorville
THIS ACTIVITY STARTED: 01/01/1974 and CONTINUING as of: 08/25/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Chuck Lester, General Manager
PHONE: (619) 245-6424 This summary information was LAST VERIFIED on: 08/25/1988

Vista Irrigation District

Street address of Organization: 202 West Connecticut; Vista, CA 92083

PROGRAM: Vista Irrigation District Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: 40 Miles North of the City of San Diego
THIS ACTIVITY STARTED: 01/01/1985 and CONTINUING as of: 03/13/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water modeling, ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Paul Dorey, Henshaw Superintendent
PHONE: (619) 724-8811 This summary information was LAST VERIFIED on: 03/13/1990

PROGRAM: Vista Irrigation District Ground Water Basin Management

The objective of this program is to maintain ground water quality and to ensure adequate water supplies by promoting efficient utilization of ground water resources. This is generally accomplished by one or more of the following:

1. Formulating ground water pumping schedules within the district;
2. Monitoring ground water quality;
3. Identifying potential sources of ground water pollution;
4. Providing input to federal and state regulatory agencies, especially in regard to the issuing of waste discharge requirements by the Regional Water Quality Control Board (RWQCB); and
5. Recommending regulation of land use and development that impacts ground water (e.g. through zoning and building permits).

Analysis of projected needs and uses of ground water is included. Where appropriate, ground water replenishment programs may be implemented.

GEOGRAPHIC COVERAGE: Warner Ranch, San Diego County
THIS ACTIVITY STARTED: 01/01/1949 and CONTINUING as of: 03/13/1990 (dates may be approximate).
KEYWORDS: administrative support, allocates funds, ground water modeling, ground water monitoring, pertinent reports available, planning, technical support, basin management, recharge, pollution, discharge permits, ground water replenishment, water quality, water supply, projected need.
FOR DETAILS, CONTACT: Paul Dorey, Henshaw Superintendent
PHONE: (619) 724-8811 This summary information was LAST VERIFIED on: 03/13/1990

Water Education Foundation

Street address of Organization: 717 K Street, Suite 517; Sacramento, CA 95814

PROGRAM: Water Education Foundation

The Water Education Foundation is a nonprofit, nonpartisan corporation with the mission of disseminating unbiased information and implementing education programs on important water issues. It is governed by a 25-member Board of Directors representing a broad cross-section of the state's water and education communities. The Foundation is supported by tax-deductible contributions from corporations and individuals, by subscriptions to its monthly magazine Western Water, and by the sale of information and educational materials.

The Foundation has general information about ground water in California, including a report entitled 'The Layperson's Guide to Ground Water and Toxics'.

GEOGRAPHIC COVERAGE: All of California
THIS ACTIVITY STARTED: 01/01/1977 and CONTINUING as of: 05/06/1988 (dates may be approximate).
KEYWORDS: administrative support, pertinent reports available, education, guide, general information.
FOR DETAILS, CONTACT: Staff
PHONE: (916) 444-6240 This summary information was LAST VERIFIED on: 05/06/1988

West San Bernardino County Water District

Street address of Organization: 855 West Baseline; Rialto, CA 92376

PROGRAM: West San Bernardino County Water District--Large Water Supply Systems Monitoring Program

The community water system consisting of approximately 12,500 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled monthly for nitrates, every 3 years for minerals and organic compounds, and every 4 years for radioactivity. One well is tested monthly for TCE when in use. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Bloomington and Rialto Area
THIS ACTIVITY STARTED: 01/01/1965 and CONTINUING as of: 11/29/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Anthony Araiza, Assistant General Manager
PHONE: (714) 875-1804 This summary information was LAST VERIFIED on: 11/29/1988

PROJECT: Chino Basin Potable Water Source

Test wells will be drilled to locate a source of potable water in the Chino Basin. Extration depth is critical due to high nitrate levels near the surface of the water table.

CONTINUED FROM: **West San Bernardino County Water District**
PROJECT: Chino Basin Potable Water Source

GEOGRAPHIC COVERAGE: Chino Ground Water Basin
THIS ACTIVITY CONTINUING as of: 11/29/1988 (dates may be approximate).
KEYWORDS: pertinent reports available, site investigation, potable, nitrates, chino basin.
FOR DETAILS, CONTACT: Anthony Araiza, Assistant General Manager
PHONE: (714) 875-1804 This summary information was LAST VERIFIED on: 11/29/1988

Western Municipal Water District of Riverside County

Mailing address of Organization: P.O. Box 5286; Riverside, CA 92517

PROGRAM: Watermaster Program

Court ordered adjudication of upper watershed and groundwater basins was assigned to the four overlying Municipal Water Districts: Chino Basin Municipal Water District, Orange County Water District, San Bernardino Valley Municipal Water District, and Western Municipal Water District. Through various court orders and legal agreements, the "Watermaster" monitors and enforces compliance with pumping limits, export limits, minimum stream flow and quality requirements.

GEOGRAPHIC COVERAGE: Upper Santa Ana River Basin
THIS ACTIVITY STARTED: 01/01/1963 and CONTINUING as of: 10/25/1988 (dates may be approximate).
KEYWORDS: allocates funds, enforcement, ground water modeling, ground water monitoring, pertinent reports available, planning, site inspection, technical support, adjudication, watermaster, groundwater basins, compliance, stream flow, water quality, pumping limits, export limits.
FOR DETAILS, CONTACT: Steven Mains,
PHONE: (714) 780-4170 This summary information was LAST VERIFIED on: 10/25/1988

Westwood Community Services Water and Sewer District

Mailing address of Organization: P.O. Box F; Westwood, CA 96137

PROGRAM: Large Water Supply Systems Monitoring Program, Westwood

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Westwood
THIS ACTIVITY STARTED: 01/01/1970 and CONTINUING as of: 11/05/1987 (dates may be approximate).
KEYWORDS: administrative support, ground water monitoring, water supply, fecal coliform, chlorine, wells, minerals, organics.
FOR DETAILS, CONTACT: Chuck Anders, Manager
PHONE: (916) 256-3211 This summary information was LAST VERIFIED on: 11/05/1987

Winterhaven Water District

Mailing address of Organization: P.O. Box 787; Winterhaven, CA 92283

PROGRAM: Winterhaven Water District Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Unincorporated Town of Winterhaven
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 03/19/1990 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Raymond Bell, District Manager
PHONE: (619) 572-0177 This summary information was LAST VERIFIED on: 03/19/1990

Woodville Public Utilities District

Mailing address of Organization: P.O. Box 4567; Woodville, CA 93258

PROGRAM: Woodville Public Utility District Large Water Supply Systems Monitoring

The community water system (consisting of more than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every year for minerals, organic compounds, and radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Unincorporated Town of Woodville
THIS ACTIVITY STARTED: 01/01/1949 and CONTINUING as of: 01/02/1990 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Ken Lambert, District Manager
PHONE: (209) 686-9649 This summary information was LAST VERIFIED on: 01/02/1990

Yolo County; Flood Control and Water Conservation District

Mailing address of Organization: Route 1, Box 1079M; Woodland, CA 95695

PROGRAM: Static Water Level Monitoring

The static water levels of wells throughout the county are monitored twice yearly: in the spring and fall.

GEOGRAPHIC COVERAGE: Yolo County
THIS ACTIVITY STARTED: 01/01/1947 and CONTINUING as of: 03/18/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water wells, water level.
FOR DETAILS, CONTACT: Christy Barton, Assistant to the General Manager
PHONE: (916) 662-0265 This summary information was LAST VERIFIED on: 03/18/1988

Yolo County; Health Department; Environmental Health Division

Street address of Organization: 10 Cottonwood Street; Woodland, CA 95695

PROGRAM: Hazardous Materials Spills Program

The county has prepared an area-wide emergency response plan to hazardous materials spills as outlined by the Office of Emergency Services. The emergency response plan outlines the responsibilities of the agencies involved. Events are coordinated with the appropriate incident commander, resources necessary to handle the spill are gathered, the spill is isolated and the media is informed. Appropriate people are called in to assess the extent of needed cleanup procedures.

All individual businesses that handle hazardous materials must submit to the county their own plan for responding to an accidental release of these materials as well as an annual inventory of their hazardous materials.

Reference: AB2185 (1985, Waters); Health and Safety Code, Division 20, Chapter 6.95, Section 25500 et seq.; Yolo County Business License Ordinance 960.

GEOGRAPHIC COVERAGE: Yolo County
THIS ACTIVITY STARTED: 01/01/1979 and CONTINUING as of: 03/18/1988 (dates may be approximate).
KEYWORDS: ground water cleanup, enforcement, ground water monitoring, site investigation, technical support, hazardous material spills, emergency response plan, inventory, AB2185.
FOR DETAILS, CONTACT: Thomas To, Environmental Health Director
PHONE: (916) 666-8646 This summary information was LAST VERIFIED on: 03/18/1988

PROGRAM: Regulation of On Site Sewage Disposal Systems

The installation and maintenance of individual sewage disposal systems consisting of septic tanks and leach fields are regulated by a permit program. This program: conducts soil analyses and occasional percolation tests to determine the suitability of the leach field for treating wastes, checks for setback before issuing building permits, and ensures that there is adequate separation from water supply wells.

GEOGRAPHIC COVERAGE: Yolo County
THIS ACTIVITY STARTED: 01/01/1976 and CONTINUING as of: 03/18/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, planning, site inspection, site investigation, technical support, septic tanks, sewage, leach fields, percolation tests, wells.
FOR DETAILS, CONTACT: Thomas To, Environmental Health Director
PHONE: (916) 666-8646 This summary information was LAST VERIFIED on: 03/18/1988

CONTINUED FROM: **Yolo County; Health Department; Environmental Health Division**

PROGRAM: Sanitary Landfill Permitting and Monitoring Program - Yolo County

The ground water contamination detection program consists of regular sampling from a number of monitoring wells located at the county landfill located between the cities of Woodland and Davis. The samples are obtained from the first encountered ground water and are tested monthly for pH, and specific conductance. The depth to ground water is also noted. Quarterly, the water samples are tested for chemical oxygen demand, chloride, iron, nitrate, total dissolved solids and total hardness.

The results of the monitoring program are maintained by the Regional Water Quality Control Board in the 'Waste Discharger Monitoring Files' as well as by this county office.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 15, and the California Water Code, Section 13273 (Solid Waste Assessment Test/SWAT/Calderon).

GEOGRAPHIC COVERAGE: Yolo County
THIS ACTIVITY STARTED: 01/01/1978 and CONTINUING as of: 03/18/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, planning, site inspection, site investigation, landfill, well, ph, conductance, COD, chlorine, iron, nitrate, TDS, total hardness, Subchapter 15, SWAT.
FOR DETAILS, CONTACT: Thomas To, Environmental Health Director
PHONE: (916) 666-8646 This summary information was LAST VERIFIED on: 03/18/1988

PROGRAM: Small Water Supply Systems Monitoring Program - Yolo County

Approximately 200 community water systems consisting of less than 200 service connections are regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Yolo County
THIS ACTIVITY STARTED: 01/01/1961 and CONTINUING as of: 03/18/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, ground water monitoring, permitting, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Thomas To, Environmental Health Director
PHONE: (916) 666-8646 This summary information was LAST VERIFIED on: 03/18/1988

PROGRAM: Underground Tanks Program

Regulations apply to the design, construction, closure and abandonment of underground storage tanks. These regulations also apply to the monitoring and drainage systems installed at the tank locations.

Regulations are enforced through a permit program. Permits for underground tanks are renewed, modified or terminated based on an inspection of the tank and monitoring system. The permit is valid for 5 years, whereas the underground tank and the monitoring records are inspected every 3 years.

Reference: The California Code of Regulations, Title 23, Chapter 3, Subchapter 16.

GEOGRAPHIC COVERAGE: Yolo County
THIS ACTIVITY STARTED: 01/01/1984 and CONTINUING as of: 03/18/1988 (dates may be approximate).
KEYWORDS: administrative support, ground water cleanup, enforcement, ground water monitoring, permitting, site inspection, site investigation, technical support, underground tank, hazardous material spills, Subchapter 16.
FOR DETAILS, CONTACT: Thomas To, Environmental Health Director
PHONE: (916) 666-8646 This summary information was LAST VERIFIED on: 03/18/1988

PROGRAM: Water Well Permitting - Yolo County

Regulations govern the siting, drilling and construction of new water wells, the deepening and reperforating of existing wells, and the abandonment and destruction of old wells. Regulations are enforced through a permit program.

Application forms, permits and inspection reports are on file at the County Environmental Health Department office. Water Well Driller Reports are forwarded to the California Department of Water Resources, Central District in Sacramento.

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California).

CONTINUED FROM: **Yolo County; Health Department; Environmental Health Division**
PROGRAM: Water Well Permitting - Yolo County

After 1990, all counties will be required to adopt a well permitting ordinance, either a State model ordinance or their own.

References: Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: Yolo County
THIS ACTIVITY STARTED: 01/01/1976 and CONTINUING as of: 03/18/1988 (dates may be approximate).
KEYWORDS: administrative support, enforcement, permitting, site inspection, site investigation, technical support, water wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: Thomas To, Environmental Health Director
PHONE: (916) 666-8646 This summary information was LAST VERIFIED on: 03/18/1988

Yucaipa Valley Water District

Street address of Organization: 12770 Second Street; Yucaipa, CA 92399

PROGRAM: Yucaipa Valley Water District--Large Water Supply Systems Monitoring Program

The community water system consisting of more than 200 service connections is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every 3 years for minerals and organic compounds, and for radioactivity every 4 years. Other constituents are tested for occasionally as requested by the Department of Health Services.

The results of the water analyses are stored at both the County Department of Environmental Health and at the Department of Health Services regional office.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Yucaipa Valley
THIS ACTIVITY STARTED: 01/01/1972 and CONTINUING as of: 09/06/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Lou Stewart, Water Superintendent
PHONE: (714) 797-5117 This summary information was LAST VERIFIED on: 09/06/1988

Yuima Municipal Water District

Mailing address of Organization: P.O. Box 177; Pauma Valley, CA 92061

PROGRAM: Yuima Municipal Water District Small Water Supply Systems Monitoring

The community water system (consisting of less than 200 service connections) is regularly sampled at random distribution points for total coliform concentration and chlorine residuals. Individual community supply wells are sampled every six month for minerals and every 3 years for organic compounds. Other constituents are tested for occasionally as requested by the Department of Health Services.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

GEOGRAPHIC COVERAGE: Northern San Diego County
THIS ACTIVITY STARTED: 01/01/1963 and CONTINUING as of: 03/20/1990 (dates may be approximate).
KEYWORDS: enforcement, ground water monitoring, planning, site inspection, site investigation, technical support, water supply, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803.
FOR DETAILS, CONTACT: Susan Collins, General Manager
PHONE: (619) 742-3704 This summary information was LAST VERIFIED on: 03/20/1990

Zone 7 Water Agency - Alameda County

Street address of Organization: 5997 Parkside Drive; Pleasanton, CA 94566

PROGRAM: Alameda County Water Well Permitting and Groundwater Protection Program

Regulations govern the siting, drilling and construction of new water wells (including monitoring wells), the deepening and reperforating of existing wells, the abandonment and destruction of old wells, and the drilling of exploratory borings. Regulations are enforced through a permit program. The county has adopted its own permitting ordinance.

The Alameda County Water Well Drillers Reports and boring logs are maintained by the agency, but are not available to the general public.

CONTINUED FROM: **Zone 7 Water Agency - Alameda County**
PROGRAM: Alameda County Water Well Permitting and Groundwater Protection Program

References: California Water Code Sections 231, 13800, DWR Bulletin 74-81 (Water Well Standards: State of California). County Ordinance 73-68. Model Well Ordinance Act (AB3127, Arias, 1986); California Water Code Sections 13701, 13712, 13800, 13801.

GEOGRAPHIC COVERAGE: Most of Alameda County
THIS ACTIVITY STARTED: 07/17/1973 and CONTINUING as of: 09/13/1988 (dates may be approximate).
KEYWORDS: enforcement, permitting, technical support, water wells, monitoring wells, construction, abandonment, destruction.
FOR DETAILS, CONTACT: J. Killingstad, Chief, Water Resources Engineering Section
PHONE: (415) 484-2600 This summary information was LAST VERIFIED on: 09/13/1988

PROGRAM: Livermore Valley Basin Groundwater Recharge Program

The purpose of this program is to recharge the groundwater basin in the area on a continuing basis thereby increasing the quality and quantity of the groundwater stored. Groundwater recharge is increased by releasing water into natural streams. The water level monitoring done as a part of the Livermore Valley Basin Groundwater Monitoring Program provides feedback on the success of the recharge process. The quantity and frequency of releases into streams are determined, in part, by this feedback.

GEOGRAPHIC COVERAGE: Livermore Valley, incl. Dublin, Pleasanton, Livermore
THIS ACTIVITY STARTED: 08/01/1962 and CONTINUING as of: 09/05/1988 (dates may be approximate).
KEYWORDS: technical support, basin management, groundwater recharge, storage, quantity, quality, natural streams, monitoring feedback, water levels.
FOR DETAILS, CONTACT: J. Killingstad, Chief, Water Resources Engineering Section
PHONE: (415) 484-2600 This summary information was LAST VERIFIED on: 09/05/1988

PROGRAM: Livermore Valley Basin Groundwater Monitoring Program

The agency performs monitoring activities within its jurisdiction and gathers water data generated in the watershed by other entities. The groundwater program includes water levels and general water quality.

GEOGRAPHIC COVERAGE: Livermore Valley, incl. Dublin, Pleasanton, Livermore
THIS ACTIVITY STARTED: 07/01/1974 and CONTINUING as of: 09/05/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, technical support, basin monitoring, levels, quality.
FOR DETAILS, CONTACT: J. Killingstad, Chief, Water Resources Engineering Section
PHONE: (415) 484-2600 This summary information was LAST VERIFIED on: 09/05/1988

PROGRAM: Livermore Valley Basin Hydrologic Inventory Program

This program collects and maintains an inventory of groundwater supply and demand in the basin.

GEOGRAPHIC COVERAGE: Livermore Valley, incl. Dublin, Pleasanton, Livermore
THIS ACTIVITY STARTED: 10/01/1974 and CONTINUING as of: 09/05/1988 (dates may be approximate).
KEYWORDS: pertinent reports available, technical support, hydrologic inventory, rainfall, streamflow, recharge, supply, demand, metered uses, model.
FOR DETAILS, CONTACT: J. Killingstad, Chief, Water Resources Engineering Section
PHONE: (415) 484-2600 This summary information was LAST VERIFIED on: 09/05/1988

PROGRAM: Zone 7 Water Agency (Alameda County) Water Supply Systems Monitoring Program

Zone 7 is a wholesale water district serving approximately a dozen municipal and industrial customers. Zone 7's system is regularly sampled at distribution points for total coliform concentration and chlorine residuals. Water at the treatment plants is sampled quarterly for pesticides. Individual municipal supply wells are sampled quarterly for minerals, organic compounds and volatile organics (including gasoline constituents), annually for heavy metals and pesticides,and every 4 years for radioactivity. Other constituents are tested for occasionally as requested by the Department of Health Services. The results of many of the water analyses are stored at the Department of Health Services regional office.

Approximately 5% of the Agency's total water supply comes from groundwater, the rest from the State Water Project. Groundwater is the source of about 25% of the Livermore Valley's total water supply, with the additional groundwater being supplied by the City of Pleasanton's wells and wells owned by the California Water Service Company in Livermore.

References: The California Code of Regulations, Title 22, Chapter 15, Section 64401, and the California Health and Safety Code, Division 5, Part 1, Chapter 7.

CONTINUED FROM: **Zone 7 Water Agency - Alameda County**
PROGRAM: Zone 7 Water Agency (Alameda County) Water Supply Systems Monitoring Program

GEOGRAPHIC COVERAGE: Livermore Valley, incl. Dublin, Pleasanton, Livermore
THIS ACTIVITY STARTED: 06/14/1964 and CONTINUING as of: 09/06/1988 (dates may be approximate).
KEYWORDS: ground water monitoring, pertinent reports available, technical support, water supply wells, organics, minerals, wells, chlorine, total coliform, Title 22, AB1803, volatile organics (VOC), gasoline.
FOR DETAILS, CONTACT: Jim Horen, Chief, Water Systems Engineering Section
PHONE: (415) 484-2600 This summary information was LAST VERIFIED on: 09/06/1988

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