to read:

10621. (a) Each urban water supplier shall, not later than January 31, 1992, prepare, adopt, and submit to the department an amendment to its urban water management plan which meets the requirements of subdivision (e) of Section 10631.

(b) Each urban water supplier shall periodically review its plan at least once every five years. After the review, it shall make any amendments or changes to its plan which are indicated by the review. Amendments or changes in its plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

SEC. 3. Section 10631 of the Water Code is amended to read:

10631. A plan shall do all of the following:

(a) Include an estimate of past, current, and projected water use and, to the extent records are available, segregate those uses between residential, industrial, commercial, and governmental uses.

(b) Identify conservation measures currently adopted and being practiced.

(c) Describe alternative conservation measures, including, but not limited to, consumer education, metering, water saving fixtures and appliances, lawn and garden irrigation techniques, and low water use landscaping, which would improve the efficiency of water use with an evaluation of their costs and their environmental and other significant impacts.

(d) Provide a schedule of implementation for proposed actions as indicated by the plan.

(e) Provide an urban water shortage contingency plan which includes all of the following elements which are within the authority of the urban water supplier:

(1) Past, current, and projected water use and, to the extent records are available, a breakdown of those uses on the basis of residential single family, residential multifamily, industrial, commercial, governmental, and agricultural use.

(2) An estimate of the minimum water supply available at the end of 12, 24, and 36 months, assuming the

PWS-0200-0301

worst case water supply shortages.

(3) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

(4) Mandatory provisions to reduce water use which include prohibitions against specific wasteful practices, such as gutter flooding.

(5) Consumption limits in the most restrictive stages. Each urban water supplier may use any type of consumption limit in its water shortage contingency plan that would reduce water use and is appropriate for its area. Examples of consumption limits that may be used include, but are not limited to, percentage reductions in water allotments, per capita allocations, an increasing block rate schedule for high usage of water with incentives for conservation, or restrictions on specific uses.

(6) Penalties or charges for excessive use.

(7) An analysis of the impacts of the plan on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(8) A draft water shortage contingency resolution or ordinance to carry out the urban water shortage contingency plan.

(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency plan.

(f) To the extent feasible, describe the method which will be used to evaluate the effectiveness of each conservation measure implemented under the plan.

(g) Describe the steps which would be necessary to implement any proposed actions in the plan.

SEC. 4. Section 10652 of the Water Code is amended to read:

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or

PWS-0200-0302

to the implementation of subdivision (e) of Section 10631. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing subdivision (e) of Section 10631, or any project for expanded or additional water supplies.

SEC. 5. Section 10656 is added to the Water Code, to read:

10656. An urban water supplier that does not submit an amendment to its urban water management plan pursuant to subdivision (a) of Section 10621 to the department by January 31, 1992, is ineligible to receive drought assistance from the state until the urban water management plan is submitted pursuant to Article 3 (commencing with Section 10640) of Chapter 3.

PWS-0200-0303

Approved October 13, 1991

Governor

PWS-0200-0304

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CALIFORNIA 1991-92 REGULAR SESSION

ASSEMBLY BILL 1869

ASSEMBLY BILL NO. 1869
CHAPTER 938

1991 CA A.B. 1869

VERSION: Enacted

DATE-INTRO: March 8, 1991

SYNOPSIS:

An act to amend Sections 10615, 10621, 10631, 10825, 10826, and 10841 of the Water Code, relating to water.

[Approved by Governor October 13, 1991. Filed with Secretary of State October 14, 1991.]

DIGEST:

LEGISLATIVE COUNSEL'S DIGEST

AB 1869, Speier. Water resources: urban water management.

(1) Existing law requires every urban supplier serving water directly to customers to prepare and adopt an urban water management plan, and to periodically review the plan, in a specified manner. Existing law requires an urban water management plan to describe and evaluate reasonable and practical efficient water uses and water conservation activities. A copy of the plan is required to be filed with the Department of Water Resources.

This bill would require an urban management plan to describe and evaluate water reclamation activities.

(2) Existing law requires each urban water supplier to periodically review its plan at least once every 5 years.

This bill would require the urban water supplier to update its plan once every 5 years.

(3) Existing law requires an urban management plan to include prescribed elements.

This bill would revise those elements to require the urban management plan to include an estimate of projected potable and reclaimed water use, to identify reclamation measures being practiced and the method used to evaluate the effectiveness of those measures, to describe the use of any pool covers, to

describe findings, actions, and planning relating to prescribed water audits and incentives and leak detection and repair, to describe actions and planning to eliminate the use of specified water systems, and to include certain information relating to reclamation measures and the use of reclaimed water.

(4) Existing law, requires every agricultural water supplier serving water directly to customers to prepare a prescribed informational report and requires certain agricultural water suppliers to prepare and adopt a specified agricultural water management plan.

This bill would, to the extent information is available, require the reports to identify reclamation practices used by the agricultural water supplier and the agricultural water management plans to describe any water reclamation programs, including treatment and distribution facilities and to identify the quantity and source of reclaimed water delivered to and by the supplier and economically feasible measures for water reclamation.

(5) Existing law authorizes an agricultural water supplier required to prepare a plan to consult with public agencies or persons with expertise relating to conservation.

This bill would authorize the agricultural water suppliers to consult with public agencies or persons with expertise relating to water reclamation.

TEXT: The people of the State of California do enact as follows:

SECTION 1. Section 10615 of the Water Code is amended to read:

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate reasonable and practical efficient uses and reclamation and conservation activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

SEC. 2. Section 10621 of the Water Code is amended to read:

10621. (a) Each urban water supplier shall periodically update its plan at least once every five years. After the review, it shall make any amendments or changes to its plan which are indicated by the review.

(b) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

SEC. 3. Section 10631 of the Water Code is amended to read:

10631. A plan shall do all of the following:

(a) Include an estimate of past, current, and projected potable and reclaimed water use and, to the extent records are available, segregate those uses between residential, industrial, commercial, and governmental uses.

(b) Identify conservation and reclamation measures currently adopted and being practiced.

(c) Describe alternative conservation measures, including, but not limited to, consumer education, metering, water saving fixtures and appliances, pool covers, lawn and garden irrigation techniques, and low water use landscaping, which would improve the efficiency of water use with an evaluation of their costs and their environmental and other significant impacts.

(d) Provide a schedule of implementation for proposed actions as indicated by the plan.

(e) Describe the frequency and magnitude of supply deficiencies, based on available historic data and future projected conditions comparing water supply and demand, including a description of deficiencies in time of drought and emergency and the ability to meet deficiencies.

(f) To the extent feasible, describe the method which will be used to evaluate the effectiveness of each conservation and reclamation measure implemented under the plan.

(g) Describe the steps which would be necessary to implement any proposed actions in the plan.

(h) Describe findings, actions, and planning relating to all of the following:

(1) The use of internal and external water audits for single-family residential, multifamily residential, institutional, commercial, industrial, and governmental customers, and the use of incentive programs to encourage customer audits and program participation.

(2) The use of distribution system water audits.

(3) Leak detection and repair.

(4) The use of large landscape water audits and incentives for conversion to water reuse.

(5) Methods to increase the use of reclaimed water in areas in which the use of potable water is not required.

(i) Describe financial incentives used to encourage the use of reclaimed water and the results of these actions in terms of acre-feet per year used.

(j) Describe water reclamation measures for agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses.

(k) Identify actions and incentives to facilitate the development of dual water systems for the use of reclaimed water in new construction, for flushing toilets and urinals, landscaping, golf courses, cemetaries, irrigation, and other appropriate purposes.

(l) Describe actions and planning to eliminate the use of once-through cooling systems, nonrecirculating water systems, and nonrecycling decorative water fountains, and to encourage the recirculation of water if proper public health and safety standards are maintained.

(m) Describe actions and plans to enforce conservation and reclamation measures.

(n) To the extent feasible, describe the amount of water saved through water conservation and reclamation measures employed by user groups.

SEC. 4. Section 10825 of the Water Code is amended to read:

10825. To the extent information is available, the reports shall address all of the following:

(a) The quantity and source of water delivered to, and by, the supplier.

(b) Other sources of water used within the service area, such as groundwater and other diversions.

(c) A general description of the supplier's water delivery system and service area, including a map.

(d) Total irrigated acreage within the service area.

(e) The amount of acreage of trees and vines grown within the service area.

(f) An identification of all of the following:

(1) Current water conservation and reclamation practices being used.

(2) Plans for changing current water conservation plans.

(3) Conservation educational services being used.

(g) A determination of whether the supplier, through improved irrigation water management, has a significant opportunity to do one or both of the following:

(1) Save water by means of reduced evapotranspiration, evaporation, or reduction of flows to unusable water bodies that fail to serve further beneficial uses.

(2) Reduce the quantity of highly saline or toxic drainage water.

SEC. 5. Section 10826 of the Water Code is amended to read:

10826. To the extent information is available, the plans shall address all of the following:

(a) The quantity and source of surface water, groundwater, and reclaimed water delivered to and by the supplier.

(b) A description of all of the following:

(1) The water delivery system used in the area supplied.

(2) The beneficial uses of the water supplied, including noncrop beneficial uses.

(3) Conjunctive use programs.

(4) Incidental and planned groundwater recharge.

(5) Water reclamation programs, including treatment and distribution facilities.

(6) The amounts of the delivered water that are lost to further beneficial use to unusable bodies of water or moisture-deficient soils through the following:

(A) Crop evapotranspiration.

(B) Noncrop evapotranspiration.

(C) Evaporation from water surfaces.

(D) Surface flow or percolation.

(c) An identification of cost-effective and economically feasible measures for water conservation and reclamation, their resulting detriments and benefits, and the impacts on amounts of downstream surface water supply and immediately adjacent groundwater supply.

(d) An evaluation of other significant impacts, including impacts within the service area and downstream on fish and wildlife habitat, water quality, energy use, and other factors of either local or statewide concern or interstate concern, where applicable. Alternatives should be designed to minimize impacts on other beneficial users currently being served both within and without the service area and to result in improved overall water management.

(e) A schedule prepared by the supplier to implement those water management practices that it determines to be cost-effective and economically feasible. Priority shall be given to those water management practices, or combination of practices, that offer lower incremental costs than expanded or additional water supplies.

SEC. 6. Section 10841 of the Water Code is amended to read:

10841. (a) An agricultural water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water conservation and reclamation and management methods and techniques.

(b) In order to assist agricultural water suppliers in obtaining needed expertise as provided for in subdivision (a), the department, upon request of an agricultural water supplier, shall provide the supplier with a list of persons or agencies having expertise or experience in the development of water

management plans.

(c) The department shall prepare by July 1, 1988, an outline of model informational reports and water management plans which an agricultural water supplier may use in complying with the requirements of this part.

SPONSOR:
Speier

4TH DOCUMENT of Level 1 printed in FULL format.

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CALIFORNIA 1993-94 REGULAR SESSION

ASSEMBLY BILL 892

ASSEMBLY BILL NO. 892
CHAPTER 720

1993 CA A.B. 892

VERSION: Enacted

VERSION-DATE: October 4, 1993

SYNOPSIS:

An act to amend Section 10631 of the Water Code, relating to wate

[Approved by Governor October 2, 1993. Filed with Secretary of State October 4, 1993.]

DIGEST:

LEGISLATIVE COUNSEL'S DIGEST

AB 892, Frazee. Urban water management planning.

Existing law requires every urban water supplier, as defined, to prepare and adopt an urban water management plan, and requires the plan to include specified elements.

This bill would revise the requirements relating to the elements to be included in the plan.

TEXT: The people of the State of California do enact as follows:

SECTION 1. Section 10631 of the Water Code is amended to read:

10631. A plan shall do all of the following:

(a) Include an estimate of past, current, and projected potable and reclaimed water use and, to the extent records are available, segregate those uses between residential, industrial, commercial, and governmental uses.

(b) (1) Identify conservation and reclamation measures currently adopted and being practiced.

(2) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports for the

purposes of identifying conservation measures as required by paragraph (1).

(c) Describe alternative conservation measures, including, but not limited to, consumer education, metering, water saving fixtures and appliances, pool covers, lawn and garden irrigation techniques, and low water use landscaping, that would improve the efficiency of water use with an evaluation of their costs and their environmental and other significant impacts.

(d) Provide a schedule of implementation for proposed actions as indicated by the plan.

(e) Provide an urban water shortage contingency plan that includes all of the following elements that are within the authority of the urban water supplier:

(1) Past, current, and projected water use and, to the extent records are available, a breakdown of those uses on the basis of single-family residential, multifamily residential, commercial, industrial, governmental, and agricultural use.

(2) An estimate of the minimum water supply available at the end of 12, 24, and 36 months, assuming the worst case water supply shortages.

(3) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions that are applicable to each stage.

(4) Mandatory provisions to reduce water use that include prohibitions against specific wasteful practices, such as gutter flooding.

(5) Consumption limits in the most restrictive stages. Each urban water supplier may use any type of consumption limit in its water shortage contingency plan that would reduce water use and is appropriate for its area. Examples of consumption limits that may be used include, but are not limited to, percentage reductions in water allotments, per capita allocations, an increasing block rate schedule for high usage of water with incentives for conservation, or restrictions on specific uses.

(6) Penalties or charges for excessive use.

(7) An analysis of the impacts of the plan on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(8) A draft water shortage contingency resolution or ordinance to carry out the urban water shortage contingency plan.

(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency plan.

(f) Describe the frequency and magnitude of supply deficiencies, based on available historic data and future projected conditions comparing water supply and demand, including a description of deficiencies in time of drought and emergency and the ability to meet deficiencies.

(g) To the extent feasible, describe the method which will be used to evaluate the effectiveness of each conservation and reclamation measure implemented under the plan.

(h) Describe the steps which would be necessary to implement any proposed actions in the plan.

(i) Describe findings, actions, and planning relating to all of the following:

(1) The use of internal and external water audits for single-family residential, multifamily residential, institutional, commercial, industrial, and governmental customers, and the use of incentive programs to encourage customer audits and program participation.

(2) The use of distribution system water audits.

(3) Leak detection and repair.

(4) The use of large landscape water audits and incentives for conversion to water reuse.

(5) Methods to increase the use of reclaimed water in areas in which the use of potable water is not required.

(j) Describe financial incentives used to encourage the use of reclaimed water and the results of these actions in terms of acre-feet per year used.

(k) Describe water reclamation measures for agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses.

(l) Identify actions and incentives to facilitate the development of dual water systems for the use of reclaimed water in new construction, for flushing toilets and urinals, landscaping, golf courses, cemeteries, irrigation, and other appropriate purposes.

(m) Describe actions and planning to eliminate the use of once-through cooling systems, nonrecirculating water systems, and nonrecycling decorative water fountains, and to encourage the recirculation of water if proper public health and safety standards are maintained.

(n) Describe actions and plans to enforce conservation and reclamation measures.

(o) To the extent feasible, describe the amount of water saved through water conservation and reclamation measures employed by user groups.

(p) Describe actions and planning to ensure the involvement of community members within the service area with regard to water management planning.

SPONSOR:
Frazee

APPENDIX C

Synopses of Regulatory Requirements

Federal Requirements

Two Federal Acts regulate the discharge and use of reclaimed water or wastewater: the Clean Water Act and the Safe Drinking Water Act.

Clean Water Act. Federal requirements impacting the discharge of reclaimed water, or wastewater, (and any other liquid wastes) to "navigable waters" are contained in the 1972 amendments to the Federal Water Pollution Control Act of 1956, commonly known as the Federal Clean Water Act (CWA) (Public Law 92-500). The CWA created the Environmental Protection Agency (EPA) and established the National Pollutant Discharge Elimination System (NPDES), a permit system for discharge of contaminants to navigable waters. NPDES requires that all municipal and industrial dischargers of liquid wastes apply for and obtain a permit prior to initiating discharge.

Safe Drinking Water Act. Federal requirements impacting the use of reclaimed water for groundwater recharge are contained in the 1986 amendments to the Safe Drinking Water Act (SDWA) of 1974 (Public Law 93-523). The SDWA focuses on regulation of drinking water and control of public health risks by establishing and enforcing maximum contaminant levels for various compounds in drinking water. The 1986 amendments also established requirements for protection of groundwater supplies through wellhead protection programs and regulation of underground injection of wastes.

Administration. In the State of California, the administration and enforcement of the NPDES and SDWA programs have been delegated to the State.

State Requirements

State requirements for production, discharge, distribution, and use of reclaimed water are contained in the California Water Code, Division 7 - Water Quality, Sections 1300 through 13999.16 (Water Code); the California Administrative Code, Title 22 - Social Security, Division 4 - Environmental Health, Chapter 3 - Reclamation Criteria, Sections 60301 through 60475 (Title 22); and the California Administrative Code, Title 17 - Public Health, Chapter 5, Subchapter 1, Group 4 - Drinking Water Supplies, Sections 7583 through 7630 (Title 17). In addition, guidelines for production, distribution, and use of reclaimed water have been prepared or endorsed by State agencies administering the reclaimed water regulations.

Water Code. The Water Code contains requirements for the production, discharge, and use of reclaimed water. The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code), which was promulgated in 1969, established the State Water Resources Control Board (SWRCB) as the State agency with primary responsibility for the coordination and control of water quality, water pollution, and water rights (Division 7, Chapter 1). Established in 1967, the SWRCB assumed the functions of the former State Water Rights Board and the State Water Quality Control Board, which were abolished.

Nine Regional Water Quality Control Boards (RWQCB) were established to represent the SWRCB regionally and carry out the enforcement of water quality and pollution control measures (Division 7, Chapter 4). In addition, each RWQCB was required to formulate and adopt water quality control plans and establish requirements for waste discharge to waters

of the State. In 1972, Chapter 5.5 was added to Division 7 to provide the RWQCBs with the authority to carry out the provisions of the Federal CWA. The RWQCB-La Hontan has jurisdiction over the Antelope Valley.

Division 7, Chapter 7 - Water Reclamation, was included in the Porter-Cologne Water Quality Control Act in 1969. Subsequent amendments required the California Department of Health Services (DHS) to establish water reclamation criteria, gave the RWQCB the responsibility of prescribing specific water reclamation requirements for water which is used or proposed to be used as reclaimed water, provided for the regulation of injection of waste into the ground, and required the use of reclaimed water, if available, rather than potable water for irrigation of greenbelt areas.

In addition to Division 7, Chapter 7, Sections 1210 through 1212 of the Water Code, added in 1980, focus on the ownership of treated wastewater and require that the owner of a wastewater treatment plant obtain approval from the SWRCB prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater.

Title 22. In 1975, Title 22 was prepared by the California Department of Health Services (DHS) in accordance with the requirements of Division 7, Chapter 7 of the Water Code. In 1978, Title 22 was revised to conform with the 1977 amendment to the Federal CWA. The requirements of Title 22, as revised in 1978 and again in 1990, regulate production and use of reclaimed water in California today.

Title 22 established three categories of wastewater treatment effluent (reclaimed water):

- Primary effluent
- Adequately disinfected, oxidized effluent (commonly called secondary effluent)
- Adequately disinfected, oxidized, coagulated, clarified, filtered effluent (commonly called tertiary effluent)

Within the second and third categories, criteria for maximum numbers of coliforms within the effluent were established for various reclaimed water uses.

In addition to reclaimed water uses and treatment requirements, Title 22 addresses sampling and analysis requirements at the treatment plant, preparation of an engineering report prior to production or use of reclaimed water, general treatment design requirements, reliability requirements, and alternative methods of treatment.

The DHS has developed proposed revisions to the existing reclamation regulations. These revisions are intended to expand the range of allowable uses of reclaimed water and clarify some of the ambiguity contained in the existing regulations.

Title 17. Title 17 regulates one aspect of the distribution of reclaimed water. The focus of Title 17 is protection of drinking (potable) water supplies through control of cross-connections with potential contaminants. Examples of potential contaminants to potable water supplies are sewage; nonpotable water supplies such as reclaimed water, irrigation water, and auxiliary water supplies; fire protection systems; and hazardous substances.

Title 17, Group 4, Article 2 - Protection of Water System, Table 1 specifies the minimum backflow protection required on the potable water system for situations in which there is potential for contamination to the potable water supply. Reclaimed water is addressed twice as follows:

- An air-gap separation is required on "Premises where the public water system is used to supplement the reclaimed water supply".

- An air-gap separation is required on "Premises where reclaimed water is used and there is no interconnection with the potable water system. A [reduced pressure principle backflow prevention device] may be provided in lieu of an [air gap] if approved by the health agency and water supplier."

An air-gap separation is defined as "a physical break between the supply line and a receiving vessel". A reduced pressure principle backflow prevention device is defined as "a backflow preventer incorporating not less than two check valves, an automatically operated differential relief valve located between the two check valves, a tightly closing shut-off valve on each side of the check valve assembly, and equipped with necessary test cocks for testing".

Guidelines. To assist in compliance with Title 22, the DHS has prepared a number of guidelines for production, distribution, and use of reclaimed water. Additionally, for distribution of reclaimed water, DHS recommends use of guidelines prepared by the California-Nevada Section of the American Water Works Association (AWWA). These guidelines are summarized below.

Guideline for the Preparation of an Engineering Report on the Production, Distribution, and Use of Reclaimed Water. According to Title 22, prior to implementation of a water reclamation project (production, distribution, or use) an engineering report must be prepared and submitted to DHS. This guideline, prepared by DHS and dated 10 June 1988, specifies the contents of an engineering report. The report should describe the production process, including the treated (effluent) water quality, the raw water quality, the treatment process, the plant reliability features, the supplemental water supply, the monitoring program, and a contingency plan to prevent distribution of inadequately treated water. The report should include maps of the distribution system and describe how the system will comply with DHS and AWWA guidelines and Title 17. The report should include maps of proposed use areas and should describe the use areas, the types of uses proposed, the people responsible for supervising the uses, the design of the user systems, and the proposed user inspection and monitoring programs.

Manual of Cross Connection Control/Procedures and Practices. This manual, dated July 1981, focuses on establishing a cross-connection control program to protect the public against backflow and back-siphonage of contamination. Main elements of the manual include areas where protection is required; causes of backflow; approved backflow preventers; procedures, installation, and certification of backflow preventers; and water shutoff procedures (for conditions which pose a hazard to the potable water supply).

Guidelines for the Distribution of Nonpotable Water. These guidelines were prepared by the California-Nevada Section of AWWA. The purpose of these guidelines is to provide guidance for planning, designing, constructing, and operating nonpotable water systems, including reclaimed water systems. Distribution lines, storage and supply, pumping, on-site (user) applications, and system management are discussed. DHS guidelines reference these guidelines.

Guidelines for the Use of Reclaimed Water. These DHS guidelines, dated 10 June 1988, are an expansion of Title 22 and focus on the distribution and use of reclaimed water. They cover general use requirements, such as confinement of reclaimed water to the user site and protection of drinking water supplies, and specific use requirements. The specific uses covered include landscape irrigation, impoundments, and agricultural reuse. Guidelines for worker protection, providing warning signs, limiting access, confining reclaimed water to the site, and scheduling irrigation are provided.

Guidelines for the Use of Reclaimed Water for Construction Purposes. These DHS guidelines, dated 10 June 1988, provide information relating to the production, hauling and use of reclaimed water for construction purposes. Included in the guidelines are controls to be maintained at the treatment plant and during hauling and use.

Administration. In the State of California, reclamation requirements are administered by the SWRCB, the RWQCB, and the DHS. The direct involvement of each agency during a reclamation project is summarized below:

SWRCB

- Issue loans in accordance with the Water Code.
- Approve petitions for the change in place and purpose of use of treated wastewater in accordance with the Water Code.

RWQCB

- Prepare or revise reclamation requirements in accordance with the Water Code.
- Review and approve engineering report required under Title 22.
- Review and approve recharge projects using reclaimed water in accordance with the Water Code.

DHS

- Review and approve engineering report as requested by RWQCB.
- Review and approve final plans for cross connection control and pipeline separations in accordance with Title 17, and inspect distribution system prior to operation.

- In conjunction with local health agencies, review and approve final on-site (user) system plans for cross connection control in accordance with Title 17, and inspect system prior to operation.

The DHS has delegated a portion of its administrative duties to local health agencies and becomes more involved at the request of the local health agencies.

Local Requirements

Local requirements focus on the distribution and use of reclaimed water and, primarily, the onsite (user) systems, with emphasis on cross-connection control. State regulations and guidelines discussed above are the governing requirements. The County Department of Health Services establishes more specific requirements for the separation and construction of potable and reclaimed waterlines, guidelines for on-site (user) systems, and identification of reclaimed water facilities.

Administration. Local requirements are administered by the County DHS. The County DHS's direct involvement in a reclaimed water project is as follows:

- Review as-built drawings of users' potable water system.
- Perform an onsite survey of the users' water system.
- Guide users in methods of identifying potable and reclaimed water systems.
- Review and approve design drawings of users' reclaimed water systems.
- Inspect user's potable and reclaimed water systems following construction.

APPENDIX D

Potential Reclaimed Water Users

POTENTIAL RECLAIMED WATER USERS

User Node	User Name	Current Status	Required Water Treatment Level	Annual Demand (af/yr)	Peak Month Demand (af/mo)	Peak Day Demand		Operating Conditions During Peak Day			Peak Hour Demand (gpm)
						(af/dy)	(1000 gpd)	Days/ week	From - To	Total Hours	
	Palmdale										
2	Alfalfa Farm	Existing	Secondary	1,151	214.6	7.40	2,627.4	7	12 am - 12 am	24	1,825
2A	Alfalfa Farm	Existing	Secondary	1,306	243.6	8.40	2,982.4	7	12 am - 12 am	24	2,071
5	Alfalfa Farm	Existing	Secondary	2,706	504.6	17.40	6,177.9	7	12 am - 12 am	24	4,290
12A	Christmas Tree & Landscape Farm	Existing	Secondary	81	18.8	0.80	233.9	7	12 am - 12 am	24	162
12B	Christmas Tree & Landscape Farm	Future	Secondary	61	14.1	0.60	175.4	7	12 am - 12 am	24	122
13	Alfalfa Farm	Existing	Secondary	995	185.6	6.40	2,272.3	7	12 am - 12 am	24	1,578
13A	Alfalfa Farm	Existing	Secondary	622	116.0	4.00	1,420.2	7	12 am - 12 am	24	986
13B	Alfalfa Farm	Existing	Secondary	995	185.6	6.40	2,272.3	7	12 am - 12 am	24	1,578
13C	Alfalfa Farm	Existing	Secondary	373	69.6	2.40	852.1	7	12 am - 12 am	24	592
15A	DOA Test Farm	Existing	Secondary	32	7.5	0.32	93.6	7	12 am - 12 am	24	65
15B	DOA Pistachio Farm	Existing	Secondary	112	29.4	0.90	338.3	7	12 am - 12 am	24	235
15C	DOA Chestnut Farm	Existing	Secondary	149	39.2	1.20	451.1	7	12 am - 12 am	24	313
15D	DOA Barley Farm	Existing	Secondary	304	57.2	2.20	643.3	7	12 am - 12 am	24	447
15E	DOA Pistachio Farm	Future	Secondary	37	9.8	0.30	112.8	7	12 am - 12 am	24	78
15F	DOA Chestnut Farm	Future	Secondary	3,024	796.7	24.39	9,169.0	7	12 am - 12 am	24	6,367
15G	DOA Alfalfa Farm	Future	Secondary	10,618	1,672.9	51.21	19,251.6	7	12 am - 12 am	24	13,369
18A	Sod Farm	Existing	Secondary	684	126.1	5.20	1,683.4	7	12 am - 12 am	24	1,169
18B	Sod Farm	Future	Secondary	263	48.5	2.00	647.5	7	12 am - 12 am	24	450
62	Lusk Commercial Development	Future	Tertiary	48	8.8	0.28	92.5	7	12 am - 6 am	6	257
63	Wms. Property Development	Future	Tertiary	36	6.5	0.21	68.7	7	12 am - 6 am	6	191
65A	Palmdale Business Park	Future	Tertiary	118	16.6	0.54	174.6	7	12 am - 6 am	6	485
65B	Palmdale Business Park Golf Course	Future	Secondary	453	50.9	1.64	535.3	7	12 am - 6 am	6	1,487
100	Antelope Valley Country Club	Existing	Secondary	375	68.8	2.22	722.5	7	10 pm - 6 am	8	1,505
101	Palmdale High School	Existing	Tertiary	138	25.3	0.82	265.9	7	12 am - 6 am	6	739
102	Desert Aire Golf Course	Existing	Secondary	120	22.0	0.71	231.2	7	10 pm - 8 am	10	385
103A	Desert Lawn Memorial Park	Existing	Secondary	21	3.9	0.15	48.2	6	8 am - 4 pm	8	101
103B	Desert Lawn Memorial Park	Future	Secondary	120	22.0	0.85	275.7	6	8 am - 4 pm	8	574
104	McAdam Park	Existing	Tertiary	72	13.2	0.43	138.7	7	10 pm - 8 am	10	231
105	Courson Park	Existing	Tertiary	23	4.1	0.13	43.4	7	10 pm - 8 am	10	72
106	Palms Park	Future	Tertiary	75	13.8	0.44	144.5	7	10 pm - 8 am	10	241
107	Desert Sands Park	Existing	Tertiary	68	12.5	0.40	131.0	7	10 pm - 8 am	10	218
108	Joshua Hills Park	Existing	Tertiary	11	2.0	0.06	21.0	7	10 pm - 8 am	10	35

PWS-0200-0323

POTENTIAL RECLAIMED WATER USERS

User Node	User Name	Current Status	Required Water Treatment Level	Annual Demand (af/yr)	Peak Month Demand (af/mo)	Peak Day Demand		Operating Conditions During Peak Day			Peak Hour Demand (gpm)
						(af/dy)	(1000 gpd)	Days/ week	From - To	Total Hours	
109	Palmdale Park	Future	Tertiary	8	1.4	0.04	14.5	7	10 pm - 8 am	10	24
110	Tejon Park	Future	Tertiary	56	10.2	0.33	106.9	7	10 pm - 8 am	10	178
111	60th East/Ave S-8 Park Site	Future	Tertiary	60	11.0	0.35	115.6	7	10 pm - 8 am	10	193
112	72nd East/Ave R-8 Park Site	Future	Tertiary	30	5.5	0.18	57.8	7	10 pm - 8 am	10	96
113	70th East/Ave R Park Site	Future	Tertiary	30	5.5	0.18	57.8	7	10 pm - 8 am	10	96
114	Manzanita Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
115	Chaparral Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
116	Mesquite Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
117	Joshua Hills Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
118	Desert Rose Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
119	Tamarisk Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
120	Tumbleweed Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
121	Yucca Elementary School	Existing	Tertiary	23	4.3	0.14	45.1	7	12 am - 6 am	6	125
122	Cactus K-8 School	Existing	Tertiary	36	6.7	0.22	70.1	7	12 am - 6 am	6	195
124	Mesa Intermediate School	Existing	Tertiary	52	9.5	0.31	100.2	7	12 am - 6 am	6	278
125	Ocotillo Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
126	Juniper Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
127	Juniper Middle School	Existing	Tertiary	52	9.5	0.31	100.2	7	12 am - 6 am	6	278
128	Highlands High School	Existing	Tertiary	100	18.3	0.59	192.7	7	12 am - 6 am	6	535
129	Rancho Vista Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
130	Manzanita Heights Park	Existing	Tertiary	15	2.8	0.09	28.9	7	10 pm - 8 am	10	48
133	Hill View Middle School	Existing	Tertiary	52	9.5	0.31	100.2	7	12 am - 6 am	6	278
134	Summerwind Elementary School	Future	Tertiary	42	7.6	0.25	80.2	7	12 am - 6 am	6	223
	Palmdale Total			26,004	4,759.6	155.22	55,868.9				46,159
	Lancaster										
3	Peach Farm	Existing	Secondary	8	1.9	0.08	23.4	7	12 am - 12 am	24	16
4	Grain & Alfalfa Farm	Existing	Secondary	2,895	540.6	18.90	6,553.8	7	12 am - 12 am	24	4,551
6A	Alfalfa Farm	Existing	Secondary	1,866	348.0	12.00	4,260.6	7	12 am - 12 am	24	2,959
6B	Alfalfa Farm	Existing	Secondary	1,120	208.8	7.20	2,556.4	7	12 am - 12 am	24	1,775
7	Peach Farm	Existing	Secondary	52	11.7	0.60	150.4	7	12 am - 12 am	24	104
8	Nebeker Ranch	Existing	Secondary	4,229	788.8	27.20	9,657.3	7	12 am - 12 am	24	6,706

POTENTIAL RECLAIMED WATER USERS

User Node	User Name	Current Status	Required Water Treatment Level	Annual Demand (af/yr)	Peak Month Demand (af/mo)	Peak Day Demand		Operating Conditions During Peak Day			Peak Hour Demand (gpm)
						(af/dy)	(1000 gpd)	Days/ week	From - To	Total Hours	
9	Alfalfa Farm	Existing	Secondary	1,617	301.6	10.40	3,692.5	7	12 am - 12 am	24	2,564
9A	Alfalfa Farm	Existing	Secondary	746	139.2	4.80	1,704.2	7	12 am - 12 am	24	1,184
10	Alfalfa Farm	Existing	Secondary	603	112.5	3.88	1,377.6	7	12 am - 12 am	24	957
10A	Alfalfa Farm	Existing	Secondary	1,244	232.0	8.00	2,840.4	7	12 am - 12 am	24	1,973
11	Alfalfa Farm	Existing	Secondary	1,244	232.0	8.00	2,840.4	7	12 am - 12 am	24	1,973
17	Barley Farm	Existing	Secondary	104	19.5	0.75	219.3	7	12 am - 12 am	24	152
50	Centennial Estates Development	Future	Tertiary	25	4.7	0.15	49.0	7	12 am - 6 am	6	136
52	Lancaster Business Park	Existing	Tertiary	55	10.0	0.32	105.6	7	12 am - 6 am	6	293
53A	Serrano Ranch	Future	Tertiary	329	60.3	1.95	633.9	7	12 am - 6 am	6	1,761
53B	Serrano Ranch Golf Course	Future	Secondary	633	116.1	3.74	1,219.7	7	12 am - 6 am	6	3,388
54	K&B Development (Tract 49864)	Future	Tertiary	47	8.6	0.28	90.2	7	12 am - 6 am	6	250
55	Lincoln Land Development	Future	Tertiary	53	9.7	0.31	101.7	7	12 am - 6 am	6	283
56	K&B Development (Tract 46111)	Future	Tertiary	67	12.3	0.40	129.5	7	12 am - 6 am	6	360
57	Presley of Southern Cal Development	Future	Tertiary	26	4.8	0.15	50.4	7	12 am - 6 am	6	140
58	K&B Development (Tract 46612)	Future	Tertiary	18	3.4	0.11	35.6	7	12 am - 6 am	6	99
59	Wain-Bardley Development	Future	Tertiary	18	3.2	0.10	34.0	7	12 am - 6 am	6	94
60	Presley of Southern Cal Development	Future	Tertiary	32	5.8	0.19	61.3	7	12 am - 6 am	6	170
64	Fox Airfield Commercial Development	Future	Tertiary	1,920	352.0	11.35	3,699.5	7	12 am - 6 am	6	10,276
150	Antelope Valley College	Existing	Tertiary	320	58.7	1.89	616.6	7	12 am - 6 am	6	1,713
151A	Rawley Duntley Park	Future	Tertiary	16	2.9	0.11	36.8	6	10 pm - 6 am	8	77
151B	Rawley Duntley Park	Existing	Tertiary	28	5.1	0.20	64.3	6	10 pm - 6 am	8	134
152A	Lancaster City Park	Existing	Tertiary	150	23.5	0.91	295.0	6	10 pm - 6 am	8	615
152B	Lancaster City Park	Future	Tertiary	32	5.9	0.23	73.5	6	10 pm - 6 am	8	153
153	Jane Reynolds Park	Existing	Tertiary	30	5.2	0.20	64.6	6	10 pm - 6 am	8	135
154	Mariposa Park	Existing	Tertiary	28	6.2	0.24	78.3	6	10 pm - 6 am	8	163
155	Eastside Park	Existing	Tertiary	71	10.3	0.40	129.5	6	10 pm - 6 am	8	270
156	El Dorado Park	Existing	Tertiary	40	6.5	0.25	81.0	6	10 pm - 6 am	8	169
157	Tierra Bonita Park	Existing	Tertiary	96	17.6	0.68	220.5	6	10 pm - 6 am	8	459
158	Skytower Park	Existing	Tertiary	48	8.8	0.34	110.3	6	10 pm - 6 am	8	230
159	Apollo Lakes County Park	Existing	Tertiary	129	30.4	1.44	470.0	7	12 am - 6 am	6	1,306
160	Antelope Valley High School	Existing	Tertiary	130	23.8	0.77	250.5	7	12 am - 6 am	6	696
161	Desert Winds High School	Existing	Tertiary	8	1.4	0.05	14.8	7	12 am - 6 am	6	41
162	Piute Intermediate High School	Existing	Tertiary	38	7.0	0.22	73.2	7	12 am - 6 am	6	203
163	Parkview Intermediate High School	Existing	Tertiary	65	11.9	0.38	124.9	7	12 am - 6 am	6	347

PWS-0200-0325

POTENTIAL RECLAIMED WATER USERS

User Node	User Name	Current Status	Required Water Treatment Level	Annual Demand (af/yr)	Peak Month Demand (af/mo)	Peak Day Demand (af/dy)	Peak Day Demand (1000 gpd)	Operating Conditions During Peak Day: Days/ week	Operating Conditions During Peak Day: From - To	Operating Conditions During Peak Day: Total Hours	Peak Hour Demand (gpm)
164	Cory Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
165	Sierra Elementary School	Existing	Tertiary	26	4.7	0.15	49.3	7	12 am - 6 am	6	137
166	Sunnydale Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
167	Monte Vista Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
168	Desert View Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
169	Mariposa Elementary School	Existing	Tertiary	38	7.0	0.22	73.1	7	12 am - 6 am	6	203
170	Joshua Elementary School	Existing	Tertiary	56	10.3	0.33	108.7	7	12 am - 6 am	6	302
171	El Dorado Elementary School	Existing	Tertiary	25	4.6	0.15	48.6	7	12 am - 6 am	6	135
172	Linda Verde Elementary School	Existing	Tertiary	28	5.1	0.16	53.6	7	12 am - 6 am	6	149
173	Paiute Ponds	Existing	Secondary	1,456	228.4	7.37	2,400.0	7	12 am - 12 am	24	1,667
174A	Wagas Land Duck Ponds	Existing	Secondary	1,558	186.0	6.00	1,954.8	7	12 am - 12 am	24	1,358
174B	Wagas Land Irrigation	Existing	Tertiary	480	89.0	2.87	935.4	7	12 am - 12 am	24	650
175A	Joshua Memorial Park	Existing	Secondary	90	16.5	0.53	173.4	7	12 am - 6 am	6	482
175B	Joshua Memorial Park	Future	Secondary	21	3.9	0.12	40.5	7	12 am - 6 am	6	112
176	Young Ranch	Existing	Secondary	253	43.1	1.39	453.0	7	12 am - 12 am	24	315
177	Valley View Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
179	Walker Middle School	Existing	Tertiary	52	9.5	0.31	100.2	7	12 am - 6 am	6	278
180	George Lane Park	Existing	Tertiary	54	9.9	0.32	104.0	7	12 am - 6 am	6	289
181	Quartz Hill High School	Existing	Tertiary	160	29.3	0.95	308.3	7	12 am - 6 am	6	856
182	Meadowlark Golf Course	Existing	Tertiary	30	5.5	0.18	57.8	7	12 am - 6 am	6	161
183	Lancaster Elementary School	Existing	Tertiary	26	4.8	0.15	50.1	7	12 am - 6 am	6	139
184	Lancaster High School	Future	Tertiary	110	20.2	0.65	211.9	7	12 am - 6 am	6	589
185	Eastside High School	Future	Tertiary	134	24.6	0.79	258.2	7	12 am - 6 am	6	717
186	New Vista Elementary School	Future	Tertiary	43	7.9	0.26	83.2	7	12 am - 6 am	6	231
187	Lincoln Elementary School	Future	Tertiary	28	5.1	0.17	54.1	7	12 am - 6 am	6	150
	Lancaster Total			24,978	4,644.8	152.91	52,559.0				58,489
	Rosamond										
200	Rosamond Elementary School	Existing	Tertiary	17	3.1	0.10	32.6	7	10 pm - 8 am	10	54
201	Hamilton Elementary School	Existing	Tertiary	65	11.9	0.38	125.2	7	10 pm - 8 am	10	209
202	Rosamond High School	Existing	Tertiary	66	12.1	0.39	127.2	7	10 pm - 8 am	10	212
203	Tropico Middle School	Existing	Tertiary	26	4.8	0.15	50.1	7	10 pm - 8 am	10	83

PWS-0200-0326

POTENTIAL RECLAIMED WATER USERS

User Node	User Name	Current Status	Required Water Treatment Level	Annual Demand (af/yr)	Peak Month Demand (af/mo)	Peak Day Demand		Operating Conditions During Peak Day			Peak Hour Demand (gpm)
						(af/dy)	(1000 gpd)	Days/ week	From - To	Total Hours	
204	Rare Earth Continuation School	Existing	Tertiary	17	3.1	0.10	32.6	7	10 pm - 8 am	10	54
205	Rosamond Park	Existing	Tertiary	30	5.5	0.18	57.8	7	12 am - 6 am	6	161
206	West Park	Existing	Tertiary	15	2.8	0.09	28.9	7	12 am - 6 am	6	80
207	Desert Highlands Development	Future	Tertiary	209	29.8	1.15	373.3	6	12 am - 6 am	6	1,037
208	Desert Highlands Golf Course	Future	Secondary	90	16.5	0.63	206.8	6	12 am - 6 am	6	574
209	Tract 5052	Future	Tertiary	15	2.8	0.09	29.4	7	12 am - 6 am	6	82
210	Tract 5172	Future	Tertiary	58	10.7	0.35	112.6	7	12 am - 6 am	6	313
211	Tract 5188	Future	Tertiary	12	2.2	0.07	23.1	7	12 am - 6 am	6	64
212	Tract 5195	Future	Tertiary	20	3.6	0.12	38.2	7	12 am - 6 am	6	106
213	Tract 5196	Future	Tertiary	19	3.5	0.11	37.0	7	12 am - 6 am	6	103
214	Tract 5198	Future	Tertiary	19	3.5	0.11	37.0	7	12 am - 6 am	6	103
215	Tract 5204	Future	Tertiary	19	3.6	0.11	37.5	7	12 am - 6 am	6	104
216	Tract 5313	Future	Tertiary	4	0.7	0.02	7.8	7	12 am - 6 am	6	22
217	Tract 5394	Future	Tertiary	6	1.0	0.03	10.8	7	12 am - 6 am	6	30
218	Tract 5400	Future	Tertiary	38	7.0	0.23	74.0	7	12 am - 6 am	6	206
219	Tract 5546	Future	Tertiary	6	1.2	0.04	12.3	7	12 am - 6 am	6	34
220	Tract 4558	Future	Tertiary	12	2.2	0.07	23.4	7	12 am - 6 am	6	65
	Rosamond Total			765	131.7	4.53	1,477.4				3,695
	Edwards AFB										
1	Wing Headquarters	Existing	Tertiary	11	1.8	0.06	19.1	7	10 pm - 8 am	10	32
16	Muroc Manner	Existing	Tertiary	19	2.8	0.09	29.7	7	10 pm - 8 am	10	50
1020	IFAST	Existing	Tertiary	19	1.9	0.06	20.3	7	10 pm - 8 am	10	34
1200	Base Operations	Existing	Tertiary	6	1.0	0.03	10.1	7	10 pm - 8 am	10	17
1220	Test Pilot School	Existing	Tertiary	5	0.7	0.02	7.8	7	10 pm - 8 am	10	13
1250	Offices	Existing	Tertiary	0	0.0	0.00	0.2	7	10 pm - 8 am	10	0
1260	Offices	Existing	Tertiary	5	0.8	0.03	8.2	7	10 pm - 8 am	10	14
1400	Engineering	Existing	Tertiary	9	1.3	0.04	13.7	7	10 pm - 8 am	10	23
1440	Ridley Mission Control Center	Existing	Tertiary	25	2.8	0.09	29.5	7	10 pm - 8 am	10	49
1600	T-38	Existing	Tertiary	13	1.1	0.03	11.1	7	10 pm - 8 am	10	19
1609	C-17	Existing	Tertiary	0	0.0	0.00	0.2	7	10 pm - 8 am	10	0
1610	Colonial Inn	Existing	Tertiary	4	0.5	0.02	5.6	7	10 pm - 8 am	10	9

POTENTIAL RECLAIMED WATER USERS

User Node	User Name	Current Status	Required Water Treatment Level	Annual Demand (af/yr)	Peak Month Demand (af/mo)	Peak Day Demand		Operating Conditions During Peak Day			Peak Hour Demand (gpm)
						(af/dy)	(1000 gpd)	Days/ week	From - To	Total Hours	
1633	Offices	Existing	Tertiary	3	0.5	0.02	5.1	7	10 pm - 8 am	10	9
1830A	Enviornmental	Existing	Tertiary	5	0.7	0.02	7.1	7	10 pm - 8 am	10	12
2201	Softball Field	Existing	Tertiary	10	1.6	0.05	16.4	7	10 pm - 8 am	10	27
2419	Grass Island	Existing	Tertiary	3	0.4	0.01	4.5	7	10 pm - 8 am	10	8
2421	Civilian Personnel	Existing	Tertiary	3	0.5	0.02	4.9	7	10 pm - 8 am	10	8
2430	OSI	Existing	Tertiary	8	1.2	0.04	12.3	7	10 pm - 8 am	10	20
2453	Education Center	Existing	Tertiary	3	0.4	0.01	4.6	7	10 pm - 8 am	10	8
2500	Oasis Club	Existing	Tertiary	15	2.2	0.07	23.1	7	10 pm - 8 am	10	39
2600	Comm. Building	Existing	Tertiary	7	1.0	0.03	10.3	7	10 pm - 8 am	10	17
2650A	CSC	Existing	Tertiary	13	1.9	0.06	20.3	7	10 pm - 8 am	10	34
2656	Library Park	Existing	Tertiary	16	2.3	0.07	24.4	7	10 pm - 8 am	10	41
2665	Library	Existing	Tertiary	16	2.4	0.08	25.0	7	10 pm - 8 am	10	42
2670	Post Office	Existing	Tertiary	6	0.9	0.03	9.8	7	10 pm - 8 am	10	16
2700	Chapel	Existing	Tertiary	21	3.1	0.10	32.9	7	10 pm - 8 am	10	55
2750	FTEMF	Existing	Tertiary	54	7.9	0.26	83.2	7	10 pm - 8 am	10	139
2800	Procurement	Existing	Tertiary	17	2.6	0.08	27.1	7	10 pm - 8 am	10	45
2858	Comm. Bulding	Existing	Tertiary	3	0.4	0.01	4.4	7	10 pm - 8 am	10	7
2860	Security Police	Existing	Tertiary	10	1.5	0.05	15.9	7	10 pm - 8 am	10	26
3497	Self Help	Existing	Tertiary	2	0.3	0.01	3.0	7	10 pm - 8 am	10	5
3500	Civil Engineering	Existing	Tertiary	2	0.2	0.01	2.4	7	10 pm - 8 am	10	4
3507	Dog Pound	Existing	Tertiary	6	0.8	0.03	8.7	7	10 pm - 8 am	10	15
3510	Vehicle Maintenance Shop	Existing	Tertiary	1	0.0	0.00	0.4	7	10 pm - 8 am	10	1
3535	Headquarters	Existing	Tertiary	15	2.3	0.07	23.9	7	10 pm - 8 am	10	40
3535	Off-Site (Rosamond Blvd).	Existing	Tertiary	19	2.9	0.09	30.6	7	10 pm - 8 am	10	51
3804	Jet Test Cell	Existing	Tertiary	4	0.4	0.01	3.7	7	10 pm - 8 am	10	6
3810	Jet Maintenance Facility	Existing	Tertiary	31	4.5	0.15	47.4	7	10 pm - 8 am	10	79
3920	Altitude Chamber	Existing	Tertiary	4	0.6	0.02	6.5	7	10 pm - 8 am	10	11
3940	Programs	Existing	Tertiary	3	0.4	0.01	4.5	7	10 pm - 8 am	10	8
3950	Office	Existing	Tertiary	3	0.5	0.02	4.9	7	10 pm - 8 am	10	8
3950A	Offices	Existing	Tertiary	8	1.2	0.04	12.4	7	10 pm - 8 am	10	21
Q	Dorms	Existing	Tertiary	207	30.8	0.99	323.2	7	10 pm - 8 am	10	539
R	Rosamond Blvd, So. Muroc Dr.	Existing	Tertiary	13	1.9	0.06	20.3	7	10 pm - 8 am	10	34
5201	Softball Field	Existing	Tertiary	12	1.9	0.06	19.5	7	10 pm - 8 am	10	33
5208	Wings Field	Existing	Tertiary	29	4.3	0.14	45.4	7	10 pm - 8 am	10	76

PWS-0200-0328

POTENTIAL RECLAIMED WATER USERS

User Node	User Name	Current Status	Required Water Treatment Level	Annual Demand (af/yr)	Peak Month Demand (af/mo)	Peak Day Demand		Operating Conditions During Peak Day			Peak Hour Demand (gpm)
						(af/dy)	(1000 gpd)	Days/ week	From - To	Total Hours	
5210	Youth Center	Existing	Tertiary	15	2.3	0.07	23.9	7	10 pm - 8 am	10	40
5211	Hap Arnold Park	Existing	Tertiary	10	1.4	0.05	14.9	7	10 pm - 8 am	10	25
5213	Robers Field	Existing	Tertiary	22	3.3	0.11	34.4	7	10 pm - 8 am	10	57
5214	Bowling	Existing	Tertiary	2	0.3	0.01	3.4	7	10 pm - 8 am	10	6
5215	Little League Field	Existing	Tertiary	7	1.0	0.03	10.6	7	10 pm - 8 am	10	18
5216	Softball Field	Existing	Tertiary	12	1.8	0.06	18.8	7	10 pm - 8 am	10	31
5220	Soccar Field	Existing	Tertiary	10	1.5	0.05	16.0	7	10 pm - 8 am	10	27
5221	Little League Field	Existing	Tertiary	13	2.0	0.06	20.6	7	10 pm - 8 am	10	34
5500	Hospital	Existing	Tertiary	23	2.6	0.08	27.5	7	10 pm - 8 am	10	46
5510	Hospital Barracks	Existing	Tertiary	5	0.8	0.02	7.9	7	10 pm - 8 am	10	13
5513	Dental Clinic	Existing	Tertiary	24	3.6	0.12	37.5	7	10 pm - 8 am	10	63
5550	Veterinary Clinic	Existing	Tertiary	3	0.4	0.01	4.0	7	10 pm - 8 am	10	7
5560	Fire Station	Existing	Tertiary	7	1.1	0.04	11.6	7	10 pm - 8 am	10	19
5600	Officer's Club	Existing	Tertiary	30	4.4	0.14	46.6	7	10 pm - 8 am	10	78
5601	VIP Billeting	Existing	Tertiary	11	1.7	0.05	17.3	7	10 pm - 8 am	10	29
5602	Billeting	Existing	Tertiary	10	1.5	0.05	15.2	7	10 pm - 8 am	10	25
5603	Billeting	Existing	Tertiary	10	1.5	0.05	15.2	7	10 pm - 8 am	10	25
5604	Billeting	Existing	Tertiary	10	1.5	0.05	15.2	7	10 pm - 8 am	10	25
5606	Billeting	Existing	Tertiary	10	1.5	0.05	15.2	7	10 pm - 8 am	10	25
6000	Commissary	Existing	Tertiary	12	1.8	0.06	18.5	7	10 pm - 8 am	10	31
6002	Branch Bank	Existing	Tertiary	6	0.8	0.03	8.8	7	10 pm - 8 am	10	15
6005	Baskin Robbins	Existing	Tertiary	6	0.9	0.03	9.4	7	10 pm - 8 am	10	16
6006	Burger King	Existing	Tertiary	10	1.5	0.05	15.6	7	10 pm - 8 am	10	26
6441	Preschool	Existing	Tertiary	2	0.3	0.01	3.4	7	10 pm - 8 am	10	6
6445	Social Actions	Existing	Tertiary	1	0.1	0.00	1.2	7	10 pm - 8 am	10	2
6447	Housing Chapel	Existing	Tertiary	15	2.3	0.07	23.9	7	10 pm - 8 am	10	40
6459	Child Care Center	Existing	Tertiary	4	0.7	0.02	6.8	7	10 pm - 8 am	10	11
7020	Old Youth Center	Existing	Tertiary	26	3.8	0.12	40.4	7	10 pm - 8 am	10	67
B	Park	Existing	Tertiary	25	3.7	0.12	39.3	7	10 pm - 8 am	10	66
C	Park	Existing	Tertiary	23	3.4	0.11	35.4	7	10 pm - 8 am	10	59
F	Park	Existing	Tertiary	62	9.2	0.30	96.9	7	10 pm - 8 am	10	162
G	Park	Existing	Tertiary	4	0.6	0.02	5.8	7	10 pm - 8 am	10	10
H	MH Park Playground	Existing	Tertiary	12	1.8	0.06	18.4	7	10 pm - 8 am	10	31
I		Existing	Tertiary	5	0.8	0.03	8.2	7	10 pm - 8 am	10	14

PWS-0200-0329

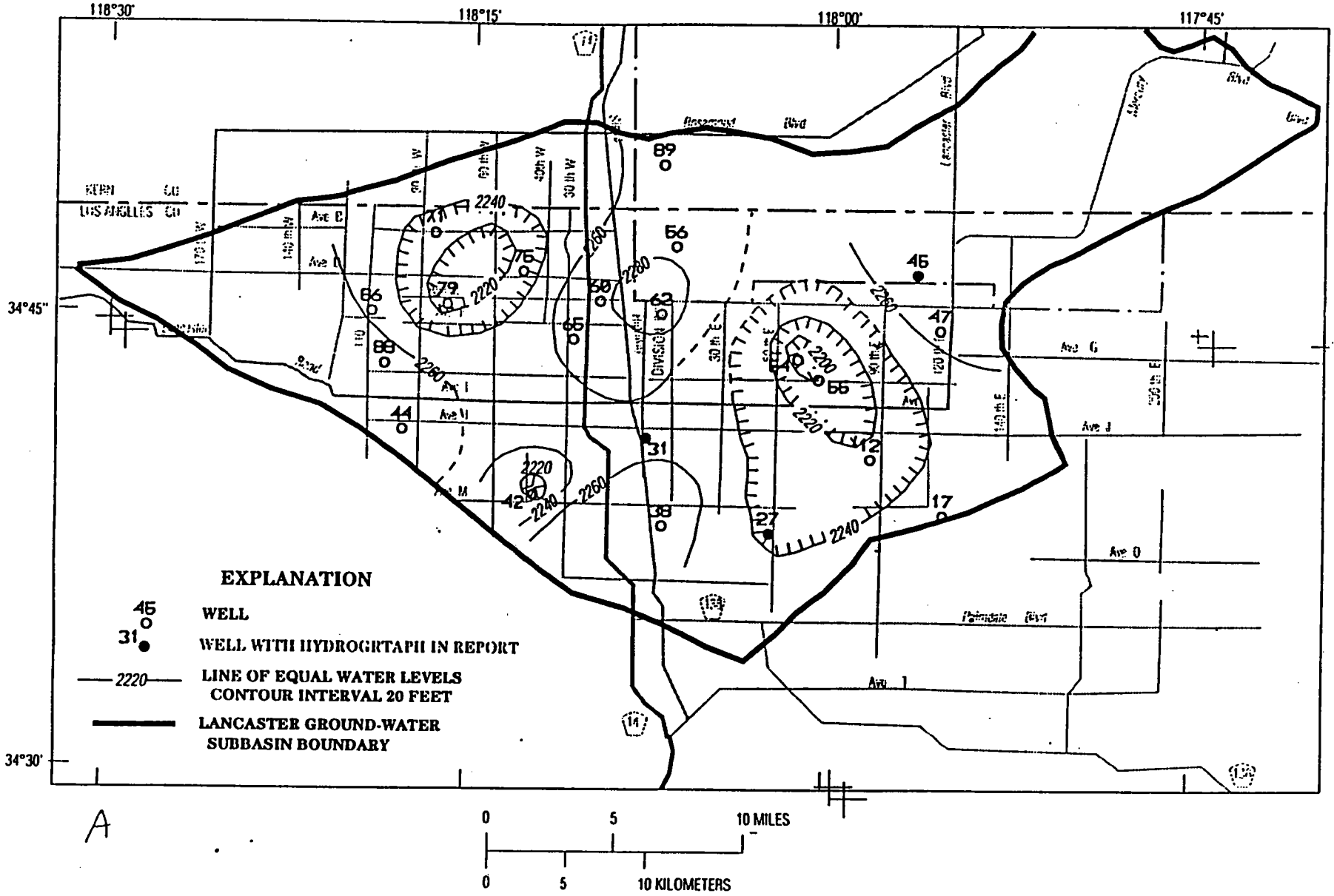
POTENTIAL RECLAIMED WATER USERS

User Node	User Name	Current Status	Required Water Treatment Level	Annual Demand (af/yr)	Peak Month Demand (af/mo)	Peak Day Demand		Operating Conditions During Peak Day			Peak Hour Demand (gpm)
						(af/dy)	(1000 gpd)	Days/ week	From - To	Total Hours	
J	Famcamp	Existing	Tertiary	33	4.9	0.16	51.1	7	10 pm - 8 am	10	85
K	Schools	Existing	Tertiary	156	23.2	0.75	243.7	7	10 pm - 8 am	10	406
L	Golf Course	Existing	Tertiary	934	139.6	4.50	1,467.0	7	10 pm - 8 am	10	2,445
M	Love Avenue	Existing	Tertiary	14	2.2	0.07	22.9	7	10 pm - 8 am	10	38
N	Miscellaneous Use	Existing	Tertiary	82	3.0	0.10	31.9	7	10 pm - 8 am	10	53
O	Industrial Use	Future	Tertiary	28	3.9	0.13	41.0	7	10 pm - 8 am	10	68
P	Irrigation Use	Future	Tertiary	307	43.2	1.39	454.0	7	10 pm - 8 am	10	757
	Edwards AFB Total			2,685	384.7	12.41	4,043.2				6,739
	GRAND TOTAL (MGD)			54,432 48.6	9,920.8	325.08	113,948.5				115,082

PWS-0200-0330

APPENDIX E

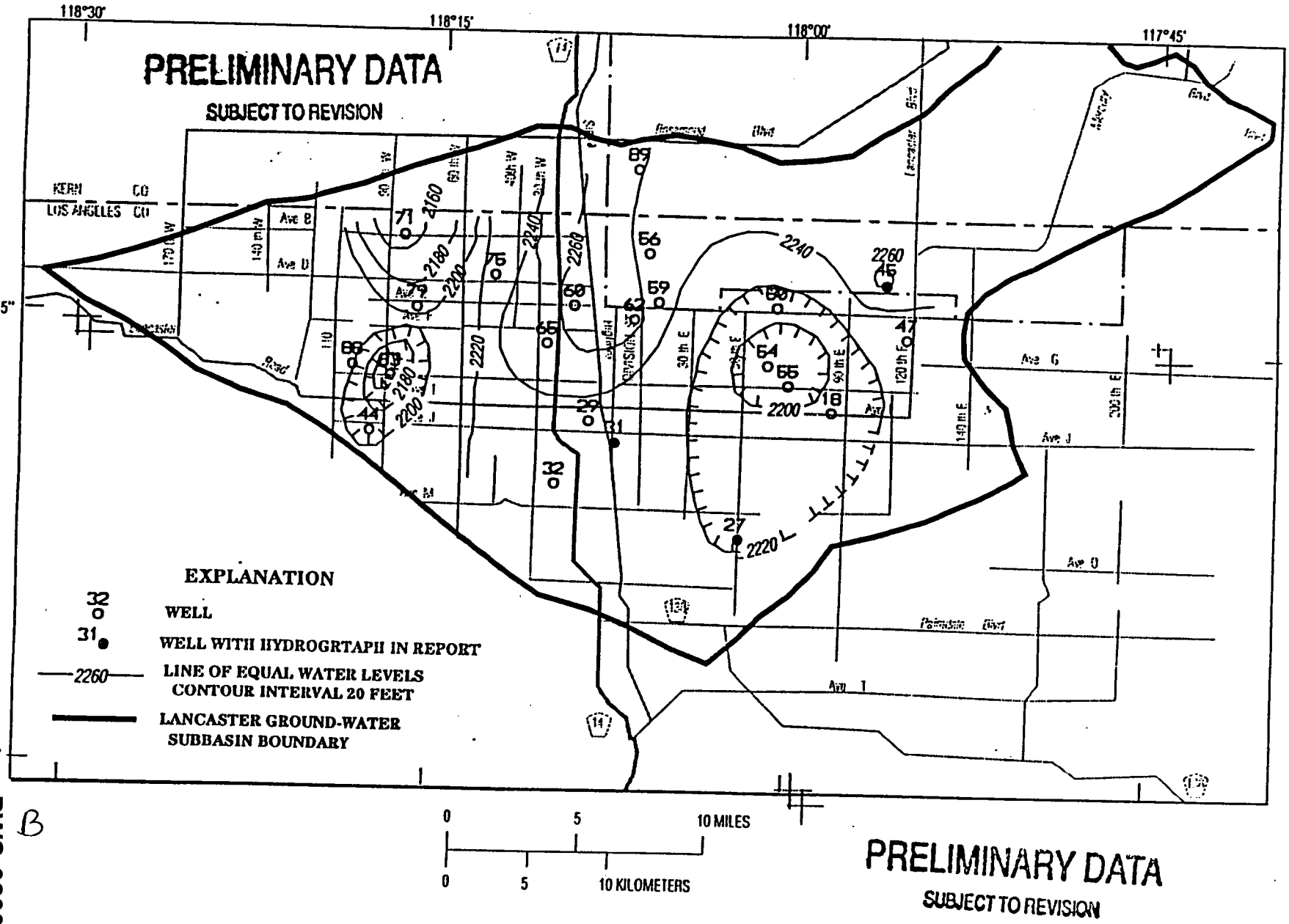
Historical Potentiometric Head in the Antelope Valley



A

Figure 13. Potentiometric surface of principal aquifer in Lancaster ground-water subbasin for (*A*) 1957, (*B*) 1962, (*C*) 1965, (*D*) 1972, (*E*) 1975, (*F*) 1981, and (*G*) 1992.

PWS-0200-0332



125a

B

PWS-0200-0333

Figure 13. Continued.

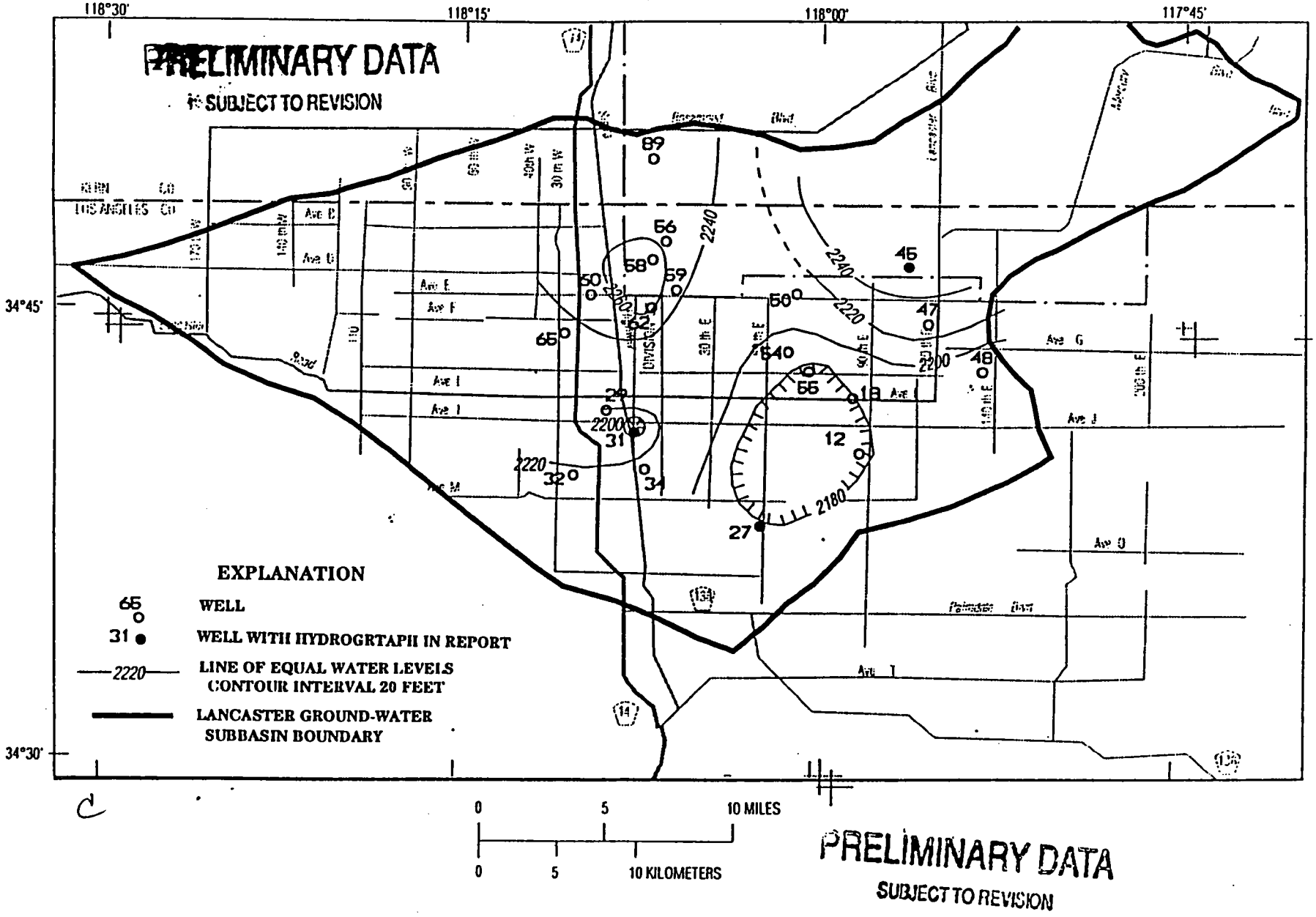


Figure 13. Continued.

PWS-0200-0334

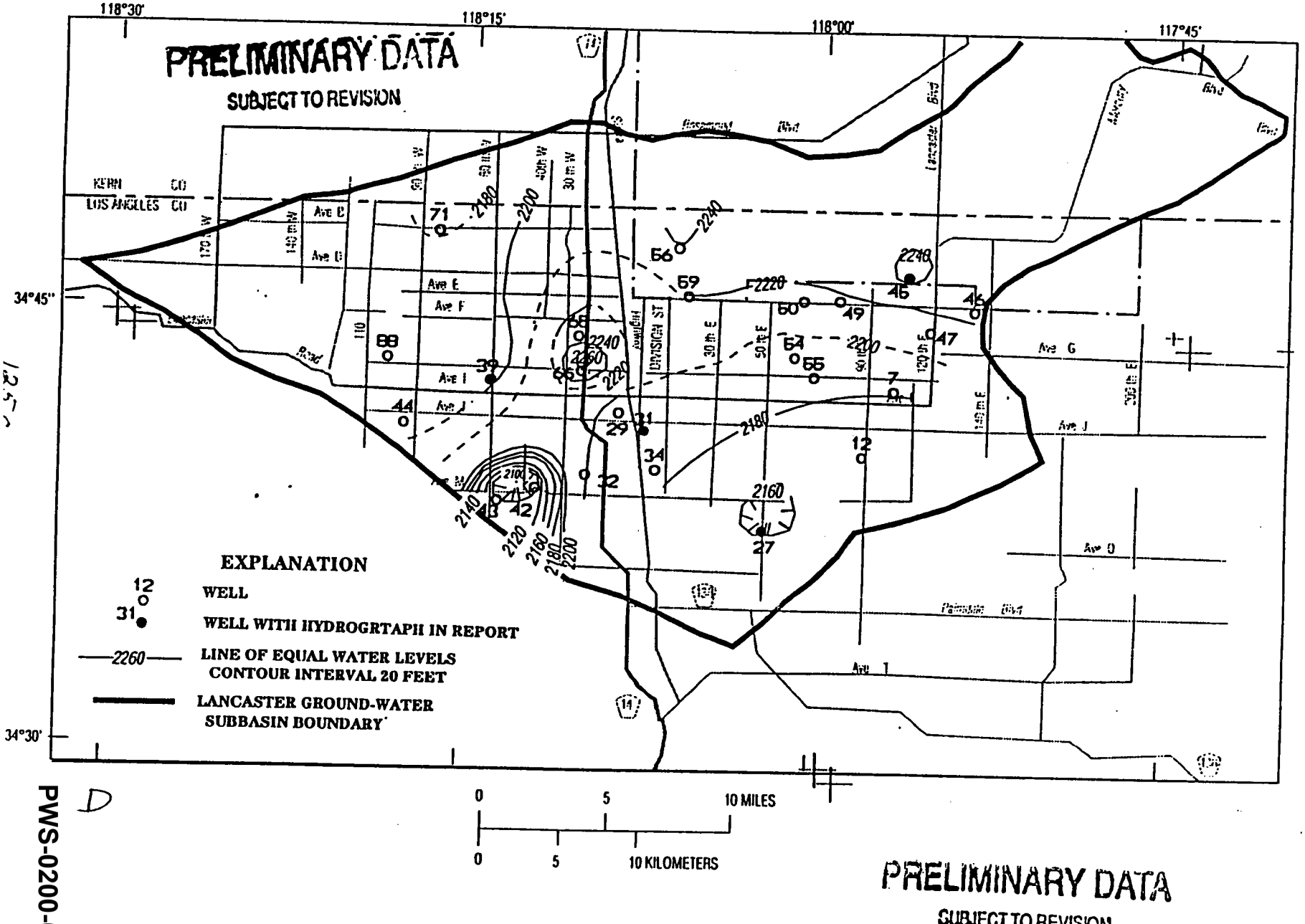
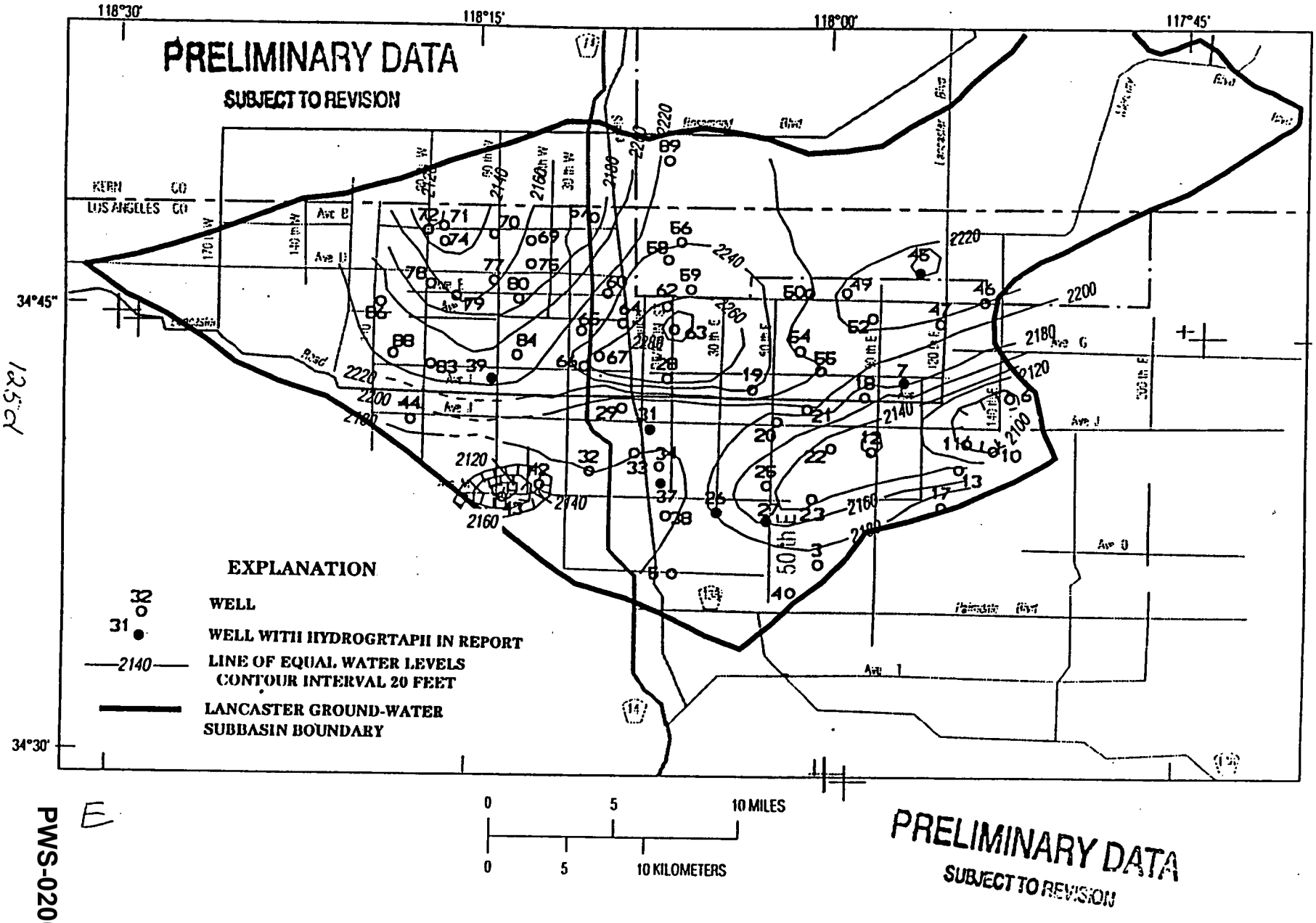


Figure 13. Continued.

PWS-0200-0335



125d

E

PWS-0200-0336

Figure 13. Continued.

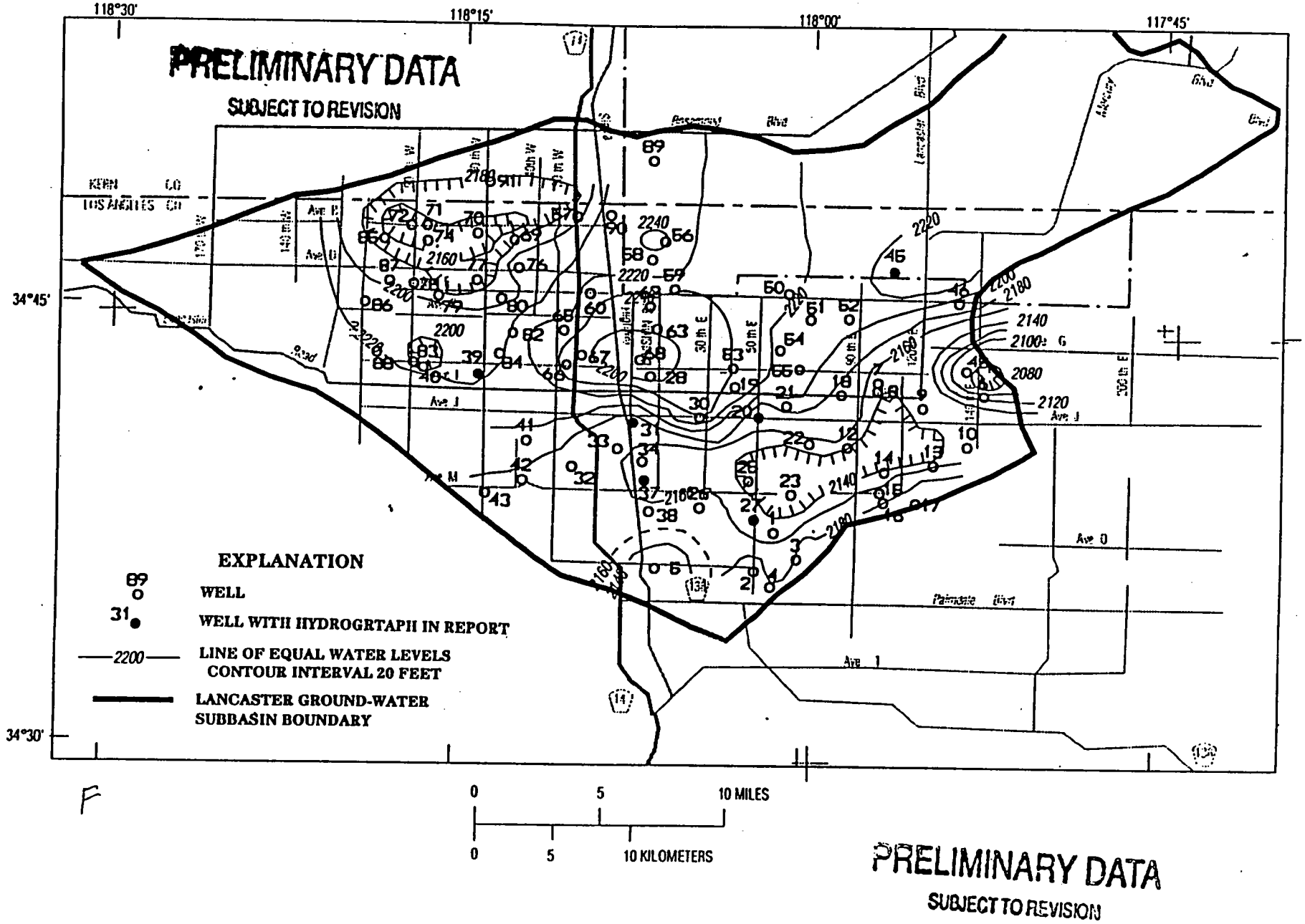


Figure 13. Continued.

PWS-0200-0337

JUN 29'94 13:06 No.004 P.02
ID:916-978-5529
PWS-0200-0338
OBJECTS

PRELIMINARY DATA
SUBJECT TO REVISION

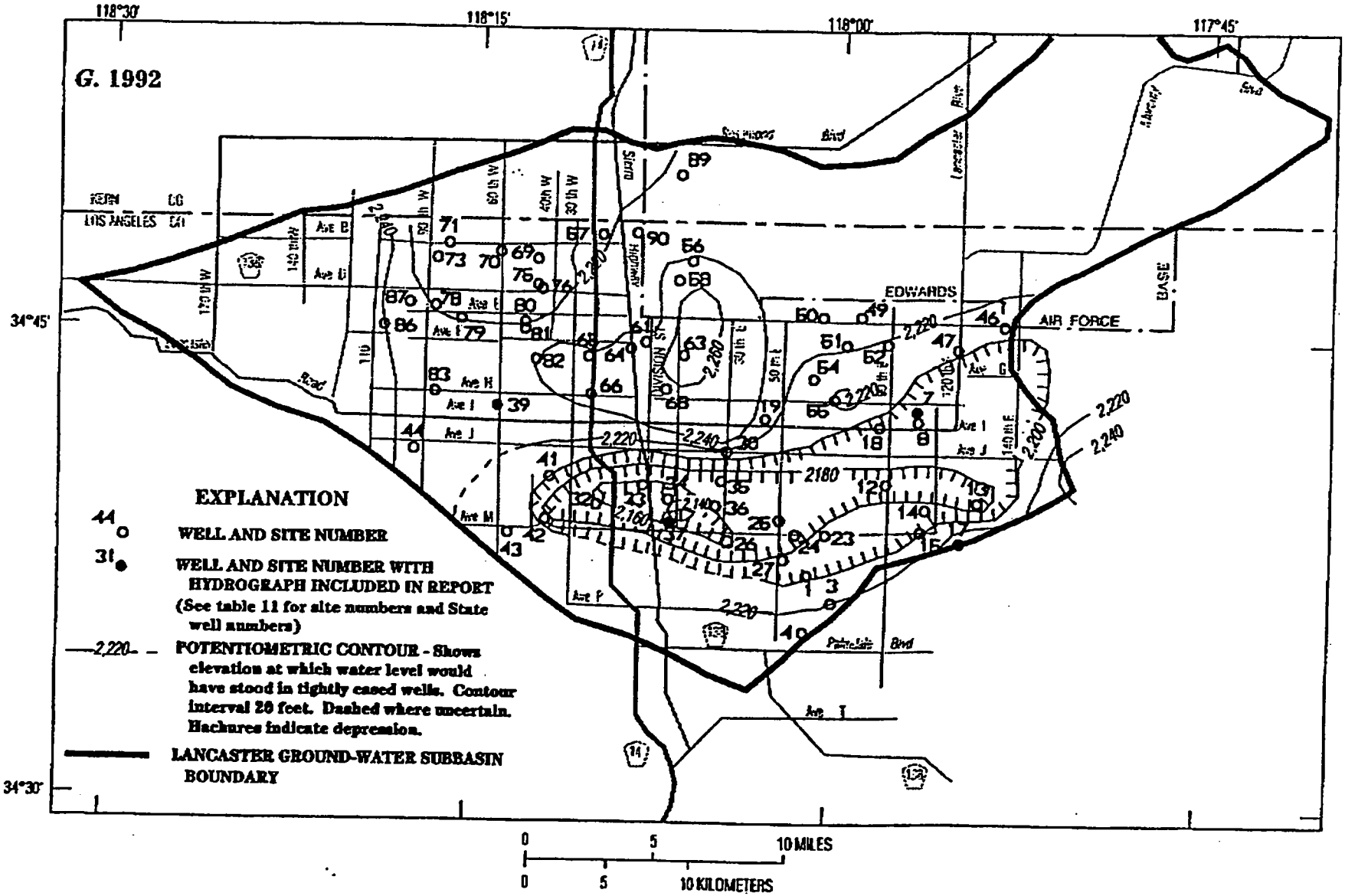
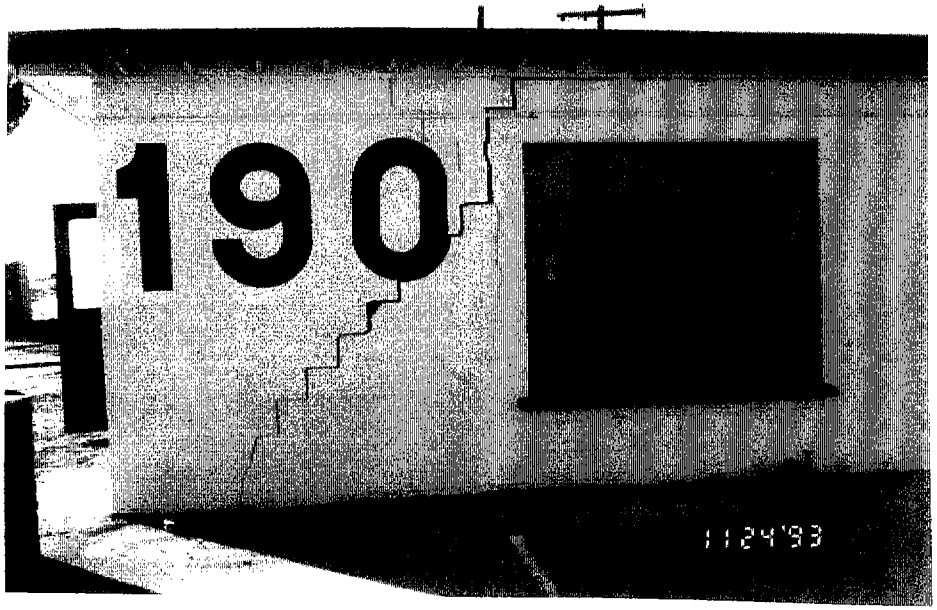


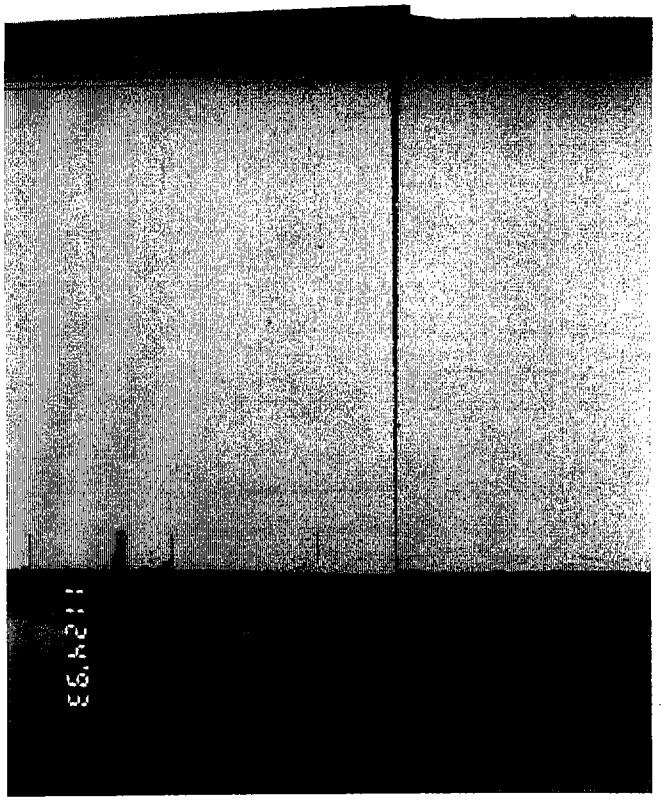
Figure 13. Continued.

APPENDIX F

Photographs of Subsidence Problems in the Antelope Valley



East Wall - Outside

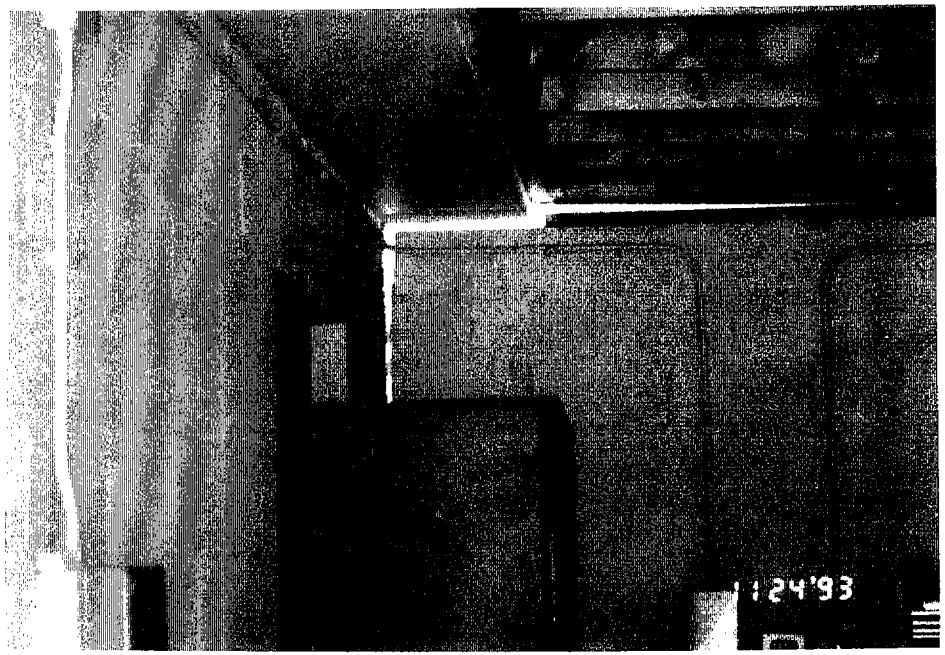


North Wall - Outside

PWS-0200-0340

Edwards Air Force Base Abandoned Wastewater Treatment Plant Building

East Wall - Inside

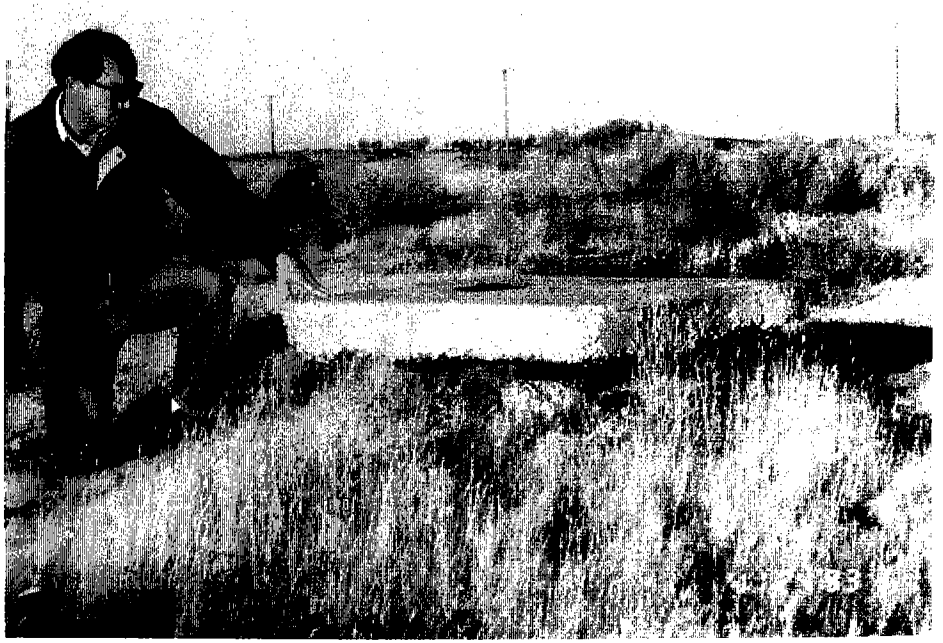


North Wall - Inside

PWS-0200-0341

Edwards Air Force Base Abandoned Wastewater Treatment Plant Building

Fissure On Rogers Lakebed



Protruding Well Casing Near Abandoned Broadcast Building

PWS-0200-0342

Looking Northwest

Looking Northwest

Fissures in Area Bounded by Avenues G and H, 30th Street West and Interstate-14

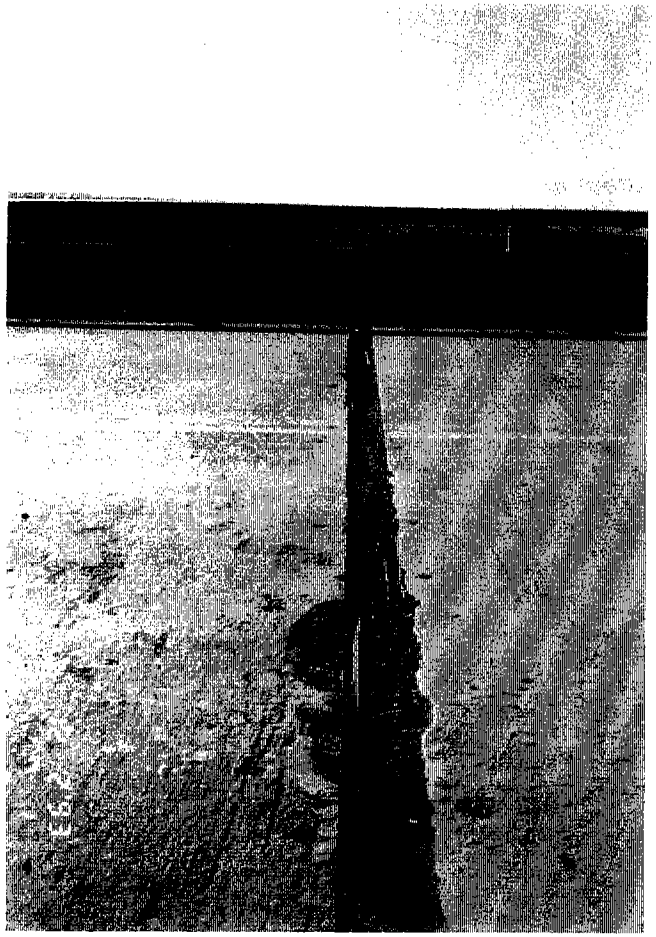
PWS-0200-0343

Looking East

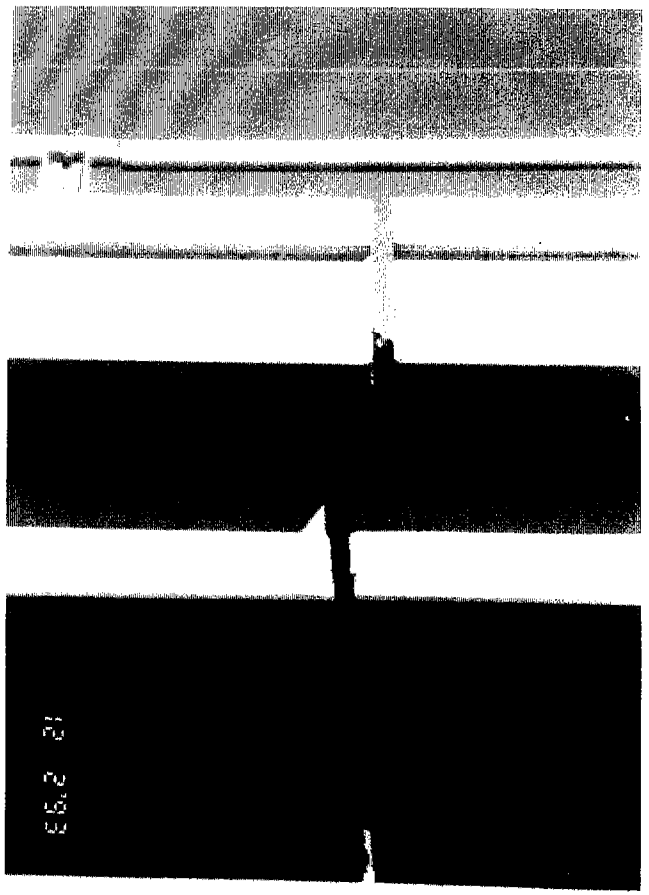
Looking West

Fissures in Area Bounded by Avenues G and H, 30th Street West and Interstate-14

PWS-0200-0344



Road Surface of Bridge



Underside of Bridge

Central Expansion Joint of the Avenue H Bridge over Amargosa Creek

PWS-0200-0345

APPENDIX G

Synopsis of AB 3030

SYNOPSIS OF AB 3030
(SWC Sec. 10750 et seq.)
Procedures and Technical Components

AB 3030 (Water Code Sections 10750 - 10767)

I. Purpose of AB 3030

A. Local agency

B. Management area and agency power

1. May exercise many of the powers of a Water Replenishment District (SWC §60220 AND §60300)

C. Procedures

1. Publish notice of public hearing
2. Conduct a hearing on whether to adopt a ground water management plan
3. May adopt a resolution of intention to adopt a ground water management plan
4. Must publish notice
5. Must prepare a ground water management plan within 2 years
6. If not, return to step 1
7. Hold a 2d hearing after the plan is prepared
8. Consider protests
9. A majority protest consists of more than 50% of the assessed value of the land within the agency
10. If a majority protest exists, the plan shall not be adopted
11. No new plan for the same area may be considered for 1 year
12. If there is no majority protest, the ground water management plan may be adopted within 35 days after the 2d public hearing

D. Rules and regulations

E. Finances

F. Proposed fees

G. Coordination with other agencies

II. Water Code Section 10753.7 states that a ground water management plan may include components relating to all of the following:

A. The control of saline water intrusion

B. Identification and management of wellhead protection areas and recharge areas

C. Regulation of the migration of contaminated ground water

D. The administration of a well abandonment and well destruction program

E. Mitigation of conditions of overdraft

F. Replenishment of ground water extracted by water producers

G. Monitoring of ground water levels and storage

H. Facilitating conjunctive use operations

I. Identification of well construction policies

J. The construction and operation by the local agency of ground water contamination cleanup, recharge, storage, conservation, water recycling and extraction projects

K. The development of relationships with state and federal regulatory agencies

L. The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of ground water contamination

III. Additional powers granted under SWC Part 4 starting with §60220 and Part 6 starting with §60300 include levying assessments, conducting technical studies, protecting ground water supplies, taking action outside the district to protect ground water, water replenishment assessments, and water measuring devices

IV. Section 3 requires DWR to publish a bulletin no later than 1 January 1998 that reports on the ground water management plans that have been adopted by local agencies.

V. Benefits of ground water management

A. The basin is managed efficiently as a ground water reservoir.
B. Water supply is maximized.
C. Long term water supply is assured
D. Costs, benefits and water shortages are shared equitably

Carl Hauge, Department of Water Resources (916) 327-8861
Steve Bachman, Integrated Water Technologies, Inc. (805) 565-0996

DRAFT OUTLINE FOR REPORT ON AB 3030 PLANS

Section 3, Chapter 947, Statutes of 1993: The Department of Water Resources shall, on or before January 1, 1998, prepare and publish, in a bulletin of the department published pursuant to Section 130 of the Water Code, a report on the status of ground water management plans adopted and implemented pursuant to Part 2.75 (commencing with Section 10750) of Division 6 of the Water Code.

Draft Table of Contents

I. Name of local agency

II. County

III. Name, number and description of ground water basin
- A. Size.
- B. Major stream.
- C. Water bearing material (s).

IV. Does the agency include the entire ground water basin?
- A. If not, how many other agencies are partially or wholly within the same basin?
- B. Map showing agency boundaries and ground water basin boundaries.

V. Status of Ground Water Management Plan
- A. Adopted a resolution of intention to develop a ground water management plan. Date.
- B.. Entered into Memorandum of Understanding, Joint Powers Agreement, or other agreement with 1 or more local water service entities to develop a ground water management plan.
- C. Ground water plan adopted. Date.
- D. Ground water plan voted down. Date.
- E. Date when new resolution of intention to develop a ground water management plan can be adopted.

VI. Contents of plan:
- A. Control of saline water intrusion.
- B. Identification and management of wellhead protection areas and recharge areas.
- C. Regulation of the migration of contaminated ground water.
- D. Administration of a well abandonment and well destruction program.
- E. Mitigation of conditions of overdraft.
- F. Replenishment of ground water extracted by water producers.
- G. Monitoring of ground water levels and storage.
- H. Facilitating conjunctive use operations.
- I. Identification of well construction policies.

PWS-0200-0349

J. Construction and operation by the local agency of ground water contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects.
K. Development of relationships with state and federal regulatory agencies.
L. Review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of ground water contamination.
M. Other.

VII. Rules and regulations adopted to implement and enforce the ground water management plan
A. Limitation on extraction and/or water purchasing requirements.
B. Other.

VIII. Fees and assessments propose
A. Date voted on.
B. Passed/failed.
C. Amount of fee.

IX. Purpose of the fee
A. Ground water extraction.
B. Replenishment water.
C. Administrative and operating costs.
D. Construction costs for capital facilities.

X. Time schedule for implementing the plan's objectives. Identify phases.

XI. Hydrogeologic characteristics of the basin.
A. Well yields in gpm: Maximum and average
B. Depth zone in feet
C. Storage capacity in acre feet
D. Usable storage capacity in acre feet
E. Extraction in acre feet per year
F. Perennial yield in acre feet per year
G. Overdraft in acre feet per year
H. Estimated pump lift in feet
I. Number of wells monitored: Water level and quality

XII. Degree of knowledge

XIII. Most recent study

XIV. Problems

XV. Management and status of basin

Carl Hauge, (916) 327-8861
DWR, June 3, 1994

PWS-0200-0350

California Department of Water Resources
2 February 1993

WATER RESOURCES CHECKLIST--

SUBJECTS TO CONSIDER IN WATERSHED AND BASIN STUDIES FOR

WATER MANAGEMENT PLANS

Includes surface water, ground water, and recycled water.

This checklist can be used when planning and undertaking studies of watersheds and ground water basins. The checklist includes all subjects that could be considered relevant in studies of water resources to ensure effective and efficient water management.

Some of the subjects on the check list may not be relevant in some areas of the state and therefore may not require the same degree of study as in other areas. All of the subjects are included on the checklist to allow water managers to decide whether to include all subjects in their study or to exclude some subjects because consideration of those subjects may not be necessary in that watershed and basin.

The checklist is organized into 5 phases for ease in contracting with government agencies or private vendors to complete the work, and to allow management decisions as portions of the work are completed. At the end of any one of the first 3 phases you may decide to change the scope of the following phase before beginning the work, or you may decide to go no further with the project.

Phase 1

I. Identify management goals

II. Water Management Plan (Local Water Purveyors' plans)
   - A. Conservation practices
   - B. Conjunctive use
   - C. Plans for future phase 2 and phase 3 activities

III. Institutional Issues
   - A. Water Rights
   - B. Water Quality
   - C. Water management jurisdiction
     1. Statutory authority
     2. Boundaries

PWS-0200-0351

IV. "Process" Issues
- A. Interagency Coordination
- B. Planning Process
- C. Staffing
- D. Funding

V. Data Availability
- A. Surface water
- B. Ground water
- C. Water quality
- D. Precipitation
- E. Geology
- F. Land use
- G. Land ownership
- H. Habitat designation

Phase 2

VI. Previous studies
- A. Surface water
- B. Ground water
- C. Water quality
- D. Protection of recharge areas
- E. Health
- F. Sewage treatment
- G. Waste water discharge
- H. Solid waste disposal
- I. Environmental projects
- J. Wetlands
- K. Habitat restoration
- L. Desalination

VII. Regional Water Budget (surface and ground water)
- A. Basin boundaries
- B. Precipitation
- C. Surface water runoff
- D. Ground water recharge
- E. Ground water outflow
- F. Evapotranspiration
- G. Inflow - outflow = change in storage

VIII. Hydrogeology
- A. Well inventory
  - 1. Drillers logs
    - a. Construction information
    - b. Lithology
  - 2. Canvass (field reconnaissance)
  - 3. Other sources
    - a. Local agencies
    - b. State, federal agencies
- B. Historical ground water data
  - 1. Ground water levels
  - 2. Ground water quality
  - 3. Change in ground water levels or quality
- C. Regional hydrogeology
  - 1. Recharge areas
    - a. Recharge characteristics
      - (1) Distribution
      - (2) Quality
    - b. Land use
    - c. Hydraulic continuity between recharge and discharge areas
  - 2. Discharge areas
  - 4. Aquifer geometry
  - 5. Aquifer characteristics
    - a. Transmissivity (T)
    - b. Storativity (S)

IX. Water demands
- A. Present
  - 1. Population
  - 2. Land use
  - 3. Water demand
- B. Projected
  - 1. Assumptions
  - 2. Land use
  - 3. Population
  - 4. Water demand

X. Existing surface water delivery, drainage, and sewage systems
- A. Locations
- B. Capacities

XI. Water Quality
- A. Surface
- B. Ground water
  - 1. Protection of recharge areas
    - a. Land use zoning
    - b. Well Head Protection Areas (WHPAs)

- C. Sources of contamination
  - 1. Non-point sources
    - a. Fertilizer
    - b. Sewer leakage
    - c. Other
  - 2. Point sources
    - a. Industrial
    - b. Sewage Treatment Plants
    - c. Mining
    - d. Others

XII. Recycled water
- A. Sources
  - 1. Amount
  - 2. Wheeling capability
- B. Facilities
  - 1. Treatment plants
  - 2. Pipelines
  - 3. Storage
    - a. Surface
      - (1) Location
      - (2) Capacity
    - b. Ground water recharge
      - (1) Location
      - (2) Capacity
- C. Potential uses
  - 1. Ground water recharge
  - 2 Landscape irrigation
  - 3 Industrial
  - 1. Agricultural
  - 2. Recreation
  - 3. Firefighting
  - 4. Construction
  - 5. Dual plumbing systems
    - a. Toilets/urinals in high rises
    - b. Cooling plants/towers

PWS-0200-0354

XIII. Environmental Impacts
- A. Enhancement
  - 1. Stream flow augmentation
  - 2. Habitat restoration
  - 3. Aesthetics
  - 4. Other
- B. Damage
  - 1. Causes
  - 2. Extent
  - 3. Mitigation

XIV. Economics of water management and conjunctive use
- A. Benefits
  - 1. Water demands (see item VIII)
  - 2. Direct and indirect impacts
    - a. Income
    - b. Employment
  - 3. Environmental value
  - 4. Mitigation of damages
- B. Costs
  - 1. Project scale
  - 2. Regional/local comparisons
  - 3. Project timing
    - a. Integration with local activities
    - b. Local project assistance
  - 4. Environmental damage
    - a. Foregone value
    - b. Mitigation costs
- C. Net project benefits

XV. Other study issues
- A. GIS capability
- B. Staffing or expertise in the following fields
  - 1. Ground water
  - 2. Surface water
  - 3. Urban/agricultural water demand economics
  - 4. Environment/ecology
  - 5. Social impacts
  - 6. Water recycling
  - 7. Public participation and workshops
  - 8. CEQA/NEPA documentation

Phase 3

Selection and design of a surface water allocation model and a ground water model. This phase can begin while phase 2 is underway. While conceptual and/or computer models are being developed they are useful in helping to increase the understanding of surface water and ground water flow in the basin and in helping to evaluate data collection programs for effectiveness at assessing the resource.

Phase 4

Selection of the preferred water management alternative(s)

A. Surface water
B. Recycled water
    1. Test program to prove the suitability of the recycled water for recharge
C. Ground water
    1. Conjunctive use
    2. Recharge
        a. In-channel
        b. Off-stream spreading basins
        c. Injection wells
        d. In-lieu use of surface water
    3. Identification of recharge sites that are available for a reasonable price
    4. Test programs to certify that available recharge sites have adequate:
        a. Infiltration rates
        b. Hydraulic continuity with discharge areas

Phase 5

Implementation of a water management program that will increase the amount of water available through more efficient use of all water supplies, including surface water, ground water, and recycled water.

PWS-0200-0356

AB 3030
GROUND WATER MANAGEMENT MANUAL

ELEMENTS OF A GROUND WATER MANAGEMENT PLAN

Produced by:

Ground Water Committee
Association of California Water Agencies

MARCH 1994

PWS-0200-0357

AB 3030
THE GROUND WATER MANAGEMENT ACT

GROUND WATER MANAGEMENT PLAN ELEMENTS

AB 3030, the Ground Water Management Act, authored by California State Assemblyman Jim Costa (D-Fresno) and signed into law in 1992, lists 12 components that may be included in a ground water management plan. Each component would play some role in evaluating or operating a ground water basin so that ground water can be managed to maximize the total water supply while protecting ground water quality.

Department of Water Resources' Bulletin 118-80 (pg. 9) defines ground water basin management as including planned use of the ground water basin yield, storage space, transmission capability, and water in storage. Ground water basin management includes:

(1) protection of natural recharge and use of intentional recharge;

(2) planned variation in amount and location of pumping over time;

(3) use of ground water storage conjunctively with surface water from local and imported sources; and,

(4) protection and planned maintenance of ground water quality.

The 12 components listed in Section 10753.7 of the Ground Water Management Act (AB 3030) form a basic list of data collection and operation of facilities that may be undertaken by an agency operating under this act.

Data collection will provide information to evaluate the water resources in the basin within the boundaries of the district. The construction of facilities will allow operation of the basin to protect ground water quality and to maximize the water supply by means of recharge of surface water and extraction of ground water at appropriate times and locations.

Specific comments about each of the 12 items listed in Section 10753.7 are included in the discussion that follows. For specific information about any issue, contact the Association of California Water Agencies, the California State Water Resources Control Board, the U.S. Environmental Protection Agency, or the California Department of Water Resources. Names and telephone numbers of appropriate experts are listed at the end of each discussion.

PWS-0200-0358

GROUNDWATER MANAGEMENT PLAN ELEMENTS AS SET FORTH IN AB 3030

10753.7 A groundwater management plan may include components relating to all of the following:

a) The control of saline water intrusion.

b) Identification and management of wellhead protection areas and recharge areas.

c) Regulation of the migration of contaminated groundwater.

d) The administration of a well abandonment and well destruction program.

e) Mitigation of conditions of overdraft.

f) Replenishment of groundwater extracted by water producers.

g) Monitoring of groundwater levels and storage.

h) Facilitating conjunctive use operations.

i) Identification of well construction policies.

j) The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects.

k) The development of relationships with state and federal regulatory agencies.

l) The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.

The Control of Saline Water Intrusion

Saline water can slowly degrade a ground water basin and ultimately render all or part of a basin unusable. Several sources can contribute to increased salinity in ground water. In addition to sea water intrusion, saline degradation of ground water can be caused by use and re-use of the water supply; lateral or upward migration of saline water; downward seepage of sewage and industrial wastes; downward seepage of mineralized surface water from streams, lakes, and lagoons; and interzonal or interaquifer migration of saline water (see illustration).

1. Increase in salt content dissolved from earth materials:
   Salts present in soil, sediment and rocks are dissolved by water that flows through those materials, increasing the salt content of that ground water.
   Control:
   This is a natural process and can not be prevented.

2. Lateral or upward migration of saline water:
   High quality ground water in an aquifer can be degraded if a ground water gradient is created that induces lower quality water to flow either laterally or vertically into the aquifer. This can occur through natural or manmade pathways. In some areas this may occur naturally when confining layers in the aquifer system are deposited in discontinuous lenses. The most common manmade pathway is a well. If wells are not built according to adequate standards, the ground water gradient may induce movement of lower quality water to flow into an aquifer with high quality water.
   Control:
   When the problem is naturally occurring, the method of control is to change the gradient so that the lower quality water does not flow into the aquifer containing high quality water. This can be accomplished by reduction of extraction from the aquifer, recharging the aquifer with good quality water, or by importing surface water to use in lieu of ground water. When the problem is caused by wells, enforcement of adequate well standards in well construction, renovation, and destruction can prevent such interzonal movement of lower quality ground water. Every ground water management plan should include provisions to ensure that wells in the basin do not become conduits for contamination of the aquifer.

3. Downward seepage of sewage, agricultural, or industrial waste:
   Sewage, agricultural and industrial waste that is disposed of indiscriminately will seep downward and eventually enter the aquifer and contaminate the ground water. By law such discharges must be permitted by the Regional Water Quality Control Boards under waste discharge permits. Discharges that occurred in the past, however, are revealing themselves today.
   Control:
   The first step in control is to be sure that such discharges are no longer taking place. Such steps include more rigorous enforcement of waste discharge permits on all industrial and agricultural operations, and a better understanding of the relationship between land use, discharge of pollutants, and ground water contamination.

4. Downward seepage of mineralized surface water:
Mineralized surface water from streams, lakes and lagoons can enter the aquifer and contaminate ground water.
Control:
If the mineralization is human-caused, better discharge control should be implemented. If the mineralization is natural, management options may include treatment, diversion, or replacement of the water.

5. Interzonal or interaquifer migration of saline water:
If wells are not built according to adequate standards, the ground water gradient may induce movement of lower quality water to flow into an aquifer with high quality water. In some areas this may occur because confining layers in the aquifer system were deposited in discontinuous lenses.
Control:
Enforcement of adequate well standards in well construction, renovation, and destruction can prevent interzonal movement of lower quality ground water through well borings. Every ground water management plan should include provisions to ensure that wells in the basin do not become conduits for contamination of the aquifer.

If discontinuous confining or perching layers in the aquifer provide openings through the clay layer that act as conduits for interzonal contamination, ground water managers should consider managing the basin to maintain interaquifer gradients that prevent or minimize such contamination."

6. Sea water intrusion (not shown in illustration):
Sea water intrudes inland into coastal aquifers when the head in the aquifer is reduced by ground water extraction inland (up-gradient) of the coast.
Control:
Three methods are available to control sea water intrusion. First, extraction of ground water up gradient can be reduced. In California, where the population is continuously increasing, this has proven to be unworkable. Second (and most common), a sea water intrusion barrier can be built that injects water into the aquifer. The barrier consists of fresh water at a higher head than the sea water so that the sea water can not flow inland into the aquifer. Some of the fresh water injected into the barrier flows seaward while some of the injected water flows inland and may be extracted by wells that are perforated in the aquifer. Third, a sea water intrusion barrier can be built that extracts water along the coast which lowers the ground water levels along the coast below sea level and below the level of nearby fresh ground water. The mix of fresh water and sea water is then pumped back to the ocean.

For more information on this topic, please contact:
State
Department of Water Resources, Carl Hauge 916/327-8861

PWS-0200-0361

Key to Illustration

1. **Degradation of Ground Water Through Use and Re-use**
   Example: Irrigation water applied to crops is increased in salinity through evaporation. The seepage, unconsumed by vegetation, returns to the ground water and is further degraded en route by leaching salts from the soil.

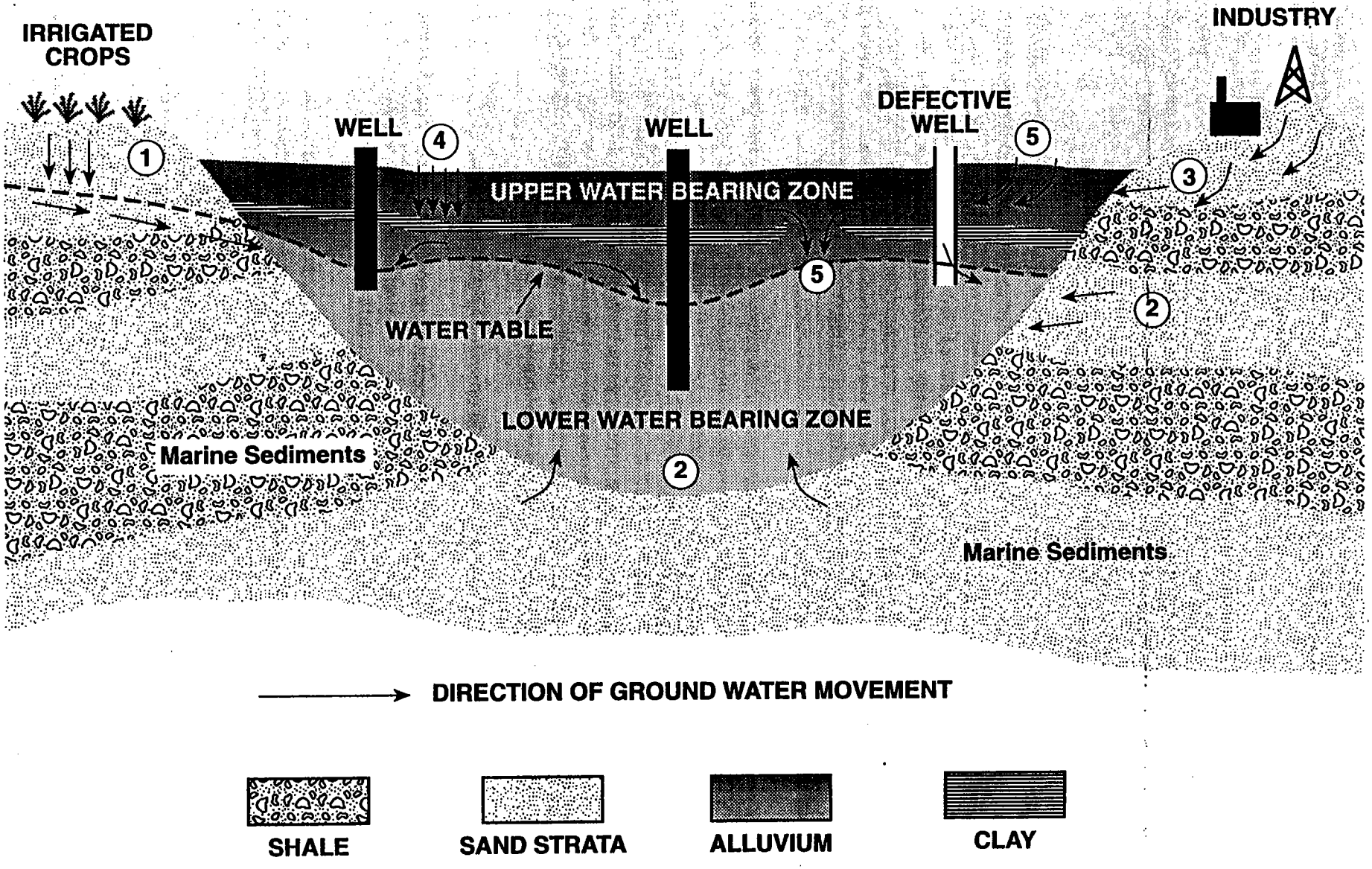
2. **Degradation of Ground Water Through Lateral or Upward Migration of Saline Waters**
   Example: The sand strata illustrated were deposited in the ocean and were subsequently elevated to their present positions. Sea water contained within these sediments since their deposition migrates to the alluvium under influence of the hydraulic gradient created by pumping of the wells. Prior to exploitation of ground water such migration was generally negligible.

3. **Degradation of Ground Water Through Downward Seepage of Sewage and Industrial Wastes**
   Example: Sewage and industrial waste seeping from cesspools or permeable sumps ultimately migrates to the ground water supply.

4. **Degradation Through Downward Seepage of Mineralized Surface Waters From Streams, Lakes and Lagoons**
   Example: Mineralized surface water migrates to the ground water supply.

5. **Degradation Through Interzonal Migration of Saline Waters**
   Example: Degraded water with the upper water-bearing zone enters the lower productive water-bearing zone through an opening in the clay layer that separates the two zones or through defective, improperly constructed or abandoned wells.

PWS-0200-0362



PWS-0200-0363

Schematic Section Across an Alluvium-Filled Ground Water Basin Underlain and Flanked by Less Permeable Sediments of Marine Origin

Identification and Management of Wellhead Protection Areas and Recharge Areas

The federal Wellhead Protection Program was established by Section 1428 of the Safe Drinking Water Act Amendments of 1986. The purpose of the program is to protect ground water sources of public drinking water supplies from contamination, thereby eliminating the need for costly treatment to meet drinking water standards. The program is based on the concept that the development and application of land-use controls (usually applied at the local level in California) and other preventative measures can protect ground water.

A Wellhead Protection Area (WHPA), as defined by the 1986 Amendments is, "the surface and subsurface area surrounding a water well or wellfield supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield". The WHPA may also be the recharge area that provides the water to a well or wellfield. Unlike surface watersheds that can be easily determined from topography, WHPAs can vary in size and shape depending on geology, pumping rates, and well construction. There are several different methods which can be used to delineate the lateral boundaries of a WHPA. These include simple fixed radius techniques, analytical equations, numerical modeling, and geologic mapping.

Under the Act, states are required to develop an EPA-approved Wellhead Protection Program. To date, California has no formal state-mandated program, but instead relies on local agencies to plan and implement programs. For this reason, AB 3030 was enacted. A number of local governments, including Santa Clara Valley Water District, Descanso Community Water District, West San Bernardino County Water District, and Monterey County Water Management District, are in various stages of developing local ground water management programs that include WHPAs. Wellhead Protection Programs are not regulatory by nature, nor do they address specific sources. They are designed to focus on the management of the resource rather than control a limited set of activities or contamination sources.

A complete Wellhead Protection Program should consist of seven elements:

1. Form a committee of participants and determine the roles of various state agencies, local governments, and public water suppliers. The committees should prepare a summary and purpose describing how the WHP goal will be achieved;

2. Delineation of Wellhead Protection Areas (WHPAs) based on reasonably available hydrogeologic information on ground water flow, recharge and discharge, and other information deemed necessary to adequately determine the wellhead protection area;

3. Identification of potential sources of contaminants within each WHPA. Current, past, and future land uses should be considered when developing the contamination source inventory;

PWS-0200-0364

4. Development of management approaches to protect the ground water from contaminants, including technical assistance, financial assistance, implementation of control measures, education, training, and demonstration projects;

5. Development of a contingency plan to provide alternate drinking water supplies in case a well or wellfield becomes contaminated;

6. Development of a plan to prevent new well drilling from contaminating or spreading the contamination of ground water; and,

7. Development of a public participation program so that local citizens can be involved throughout the planning process.

For more information on this topic, please contact:

State

Department of Water Resources
For California ground water information, call:
Carl Hauge at 916/327-8861

Federal

U.S. Environmental Protection Agency
For specific WHP information, call:
Sunny Kuegle at 415/744-1830 or
Susan Whichard at 415/744-1924

To obtain a listing of WHP documents, call 800/ 426-4791.

For California ground water information, call:
Tony Lewis at 415/744-1913 or
Susan Whichard at 415/744-1924

U.S. Geological Survey, Water Resources Division, Sacramento
For California ground water information.

PWS-0200-0365

Regulating Contaminant Migration In Ground Water

Ground water contamination originates from a number of sources or activities, such as leaking tanks discharging petroleum products or solvents, or the application of pesticides and fertilizers. Effective control and clean-up of contaminated ground water requires a coordinated effort between all regulatory agencies involved, source control, understanding of the hydrogeology, and delineation of the contamination.

Agencies with a role to play in mitigating ground water contamination generally include the Regional Water Quality Control Board (Regional Water Board), Department of Toxic Substances Control, U.S. Environmental Protection Agency, and now the ground water management agency (GMA). Each agency has a unique set of regulatory authorities and expertise to contribute. The degree to which they participate depends on the nature and magnitude of the problem. What ever role the GMA decides to play, it should insure its actions are in concert with those of the other involved agencies.

Typically, source control is the identification of current and past users of hazardous materials, and verification of the proper storage and disposal of these materials. In many cases the Regional Water Board conducts this activity. If, during the verification process, evidence of any uncontrolled discharge or spill of these materials is found, then the Regional Water Board can order investigation of the extent of contamination and its subsequent cleanup. Usually, these activities are conducted on a site basis and generally do not consider regional identification and control of contamination. The GMA should remain in close contact with the Regional Water Board during the source investigations and site cleanups.

In the event that the source(s) of contamination is not found, the GMA can have a role in finding, containing, and removing the contamination, usually on a regional scale. Controlling the migration of contamination requires an understanding of the hydrogeology of the basin and delineating the lateral and vertical extent of the contaminant plume(s). Technical information for many basins is available from a number of sources such as the United States Geological Survey and Department of Water Resources. The most common tool for delineating the boundaries of a plume is the monitoring well. Monitoring wells can tap one aquifer or many, depending on the design and need. Very often, monitoring wells used for contaminant control are made part of a larger data collection effort for the GMA (for example, a series of wells to monitor water levels throughout the basin).

Once the location of contamination is verified, the GMA can choose to monitor its migration, contain it from moving further into clean aquifers, or remove it from the aquifer. Containment is often an interim step to protect downgradient aquifers and drinking water supplies and/or to provide time to complete investigations and construct a more comprehensive long-term treatment system.

Complete removal of some contaminants, such as solvents and nitrates, is often difficult, if not impossible. The level of effort undertaken by the GMA to deal with the contamination depends on several factors, including available funds, risk to drinking water supplies and public health, the extent and concentration of contamination, the ability to use the ground water that is removed and treated, and state and federally mandated clean-up levels.

For more information on this topic, please contact:

Local

San Gabriel Basin Water Quality Authority
Jim Goodrich 818/859-7777

State

Regional Water Quality Control Board for your area.
Department of Toxic Substances Control District Office for your area.

Federal

U.S. Environmental Protection Agency, Region 9

PWS-0200-0367

The Administration Of A Well Abandonment And Well Destruction Program

All wells should be properly destroyed or decommissioned if they are not to be used in the future. Wells that are abandoned or improperly destroyed can pollute ground water to the point where it is unusable or requires expensive treatment. There are three general means by which this occurs: 1) pollutants enter the well from the surface, 2) the well establishes vertical communication and allows poor quality ground water and pollutants to move from one aquifer to another, and (3) the well is used for illegal waste disposal . Ground water contamination is not the only threat to public health due to abandoned wells. These wells also pose a serious physical hazard to humans and animals. A survey of wells in Fresno County found about 10% of abandoned wells were not properly destroyed.

Property owners or lessees who do not properly destroy an abandoned well on their land may be guilty of a misdemeanor (under Section 24400 of the Health and Safety Code). Wells do not have to be destroyed if future use is anticipated, but they must be properly capped and maintained, as specified in the Code. Criminal penalties do not apply unless the well presents a public health hazard or a probable preferential pathway for the movement of pollutants, contaminants, or poor quality water. In any case, the owner can be assessed clean-up costs if the well causes a ground water contamination problem.

Sections 13700 through 13806 of the California Water Code require proper destruction of wells. Minimum standards for the destruction of wells are specified in Department of Water Resources Bulletins 74-81 and 74-90. These standards apply to all water wells, cathodic protection wells, and monitoring wells. The only significant exception is oil, gas, and geothermal wells, which are regulated by the Department of Conservation. If a local agency does not have its own well standards ordinance, it must enforce the State's Model Well Ordinance (State Water Resources Control Board Resolution No. 89-98). Local agency requirements may exceed State standards.

For more information on this topic, please contact:

State

State Water Resources Control Board
Ken Harris 916/657-0876

For copies of DWR Bulletins call 916/653-1097.

Mitigation Of Groundwater Overdraft

Uncontrolled overdraft, long-term depletion of storage or groundwater mining in a ground water basin can cause several problems, including subsidence, degradation of ground water quality, and increased cost in pumping. In addition, if the storage in a ground water basin is depleted and not replaced naturally or by an artificial recharge program, this source of supply cannot be counted upon when surface water sources are limited, as in a prolonged drought. A Ground Water Management Plan under AB 3030 would provide a tool to assist in developing methods to control and manage ground water overdraft.

Mitigation of ground water overdraft can occur through the cessation or regulation of extractions and/or the increase of recharge to offset over extraction. This could take the form of restrictions through strict regulations of amounts extracted. Another form would be the use of financial incentives to control the amounts extracted, i.e. significant surcharges on quantities extracted in excess of a prescribed limit.

Controlling ground water overdraft may be accomplished through active replenishment of the basin. Surface water may be acquired by the ground water management agency and used to recharge the basin supplies. Some enhancement of natural replenishment may be appropriate, or a more intensive system of spreading grounds, off-stream recharge basins, and/or injection wells could be employed to introduce the recharge water into the basin.

Managing ground water overdraft may also be accomplished through conjunctive use. The establishment of a conjunctive use program would use surface water to recharge the basin in times of surplus, and rely more on ground water pumping in times of shortage of surface water. The use of surface water "in-lieu" of ground water, and the ability to extract ground water to replace limited or depleted surface water supplies, necessitates redundant systems and a certain investment in infrastructure to maximize the efficiency of this type of program.

For more information on this topic, please contact:

Local
Orange County Water District
William R. Mills Jr. 714/378-3200

State
Department of Water Resources
Carl Hauge 916/327-8861

PWS-0200-0369

Replenishment Of Ground Water Extracted By Producers

The replenishment of ground water extracted by producers is an important management technique of a ground water agency because it can increase the yield of the basin.

Replenishment of ground water can be achieved through recharge of either natural water supplies or water acquired from outside the basin by the ground water management agency. Maximizing the use of naturally occurring supplies can be accomplished through effective management of those resources. A ground water management agency may develop facilities to retain rainfall and runoff, and to capture surplus flows in natural streams or rivers, in order to have supplies to replenish the ground water basin.

An assessment of local geology is necessary to determine the areas or sites where surface water may be most efficiently percolated into the ground water basin. A careful examination should be performed of surplus quarry sites or abandoned excavations, which may have the requisite geologic characteristics and provide for a minimal cost opportunity for establishing recharge facilities.

A ground water management agency may also acquire water supplies, through purchase or diversion, to replenish a ground water basin. This method may require the securing of water rights to a supply. If the ground water management agency is unable to use naturally occurring stream beds for the delivery of surface water, the construction of facilities, such as canals or pipelines, may be necessary to deliver the water to other facilities used to replenish the basin.

Replenishment of a ground water basin may be in the following ways: 1) through natural percolation of surface water through the soil to the basin, 2) the delivery of surface water to spreading grounds or basins which are maintained to allow maximum percolation into the ground water; or 3) through injection of surface water into the ground water basin through injection wells.

The ground water management agency may have the need for funds to purchase surface water, construct facilities to deliver surface water, or purchase, construct or maintain replenishment facilities. A Replenishment Assessment (RA) is often levied by ground water management agencies to fund the purchase of replenishment water and to finance facilities for replenishment. A tiered assessment may be considered in which a lower RA rate is used for water pumped below the safe yield and a higher RA rate used to offset the additional burdens on the resource caused by overdraft.

For more information on this topic, please contact:

Local	State
Orange County Water District	Department of Water Resources
William R. Mills Jr. 714/378-3200	Carl Hauge 916/327-8861

Monitoring Of Ground Water Levels And Storage

The purpose of a ground water level monitoring program is to provide information that will allow computation of the change of ground water in storage. The information needed includes spring and fall ground water levels, the hydraulic properties of the aquifer(s) (such as permeability and specific yield), and the land area covered by the basin.

An adequate monitoring well network includes wells that are representative of the vertical and lateral dimensions of the aquifer(s). Establishing the network of monitoring wells requires that each well be designed to tap individual aquifers in the basin.

Data collected from each monitoring well should be entered into a computer data base. These data can then be used to create hydrographs, ground water elevation contour maps, and ground water change contour maps that will provide the tools to evaluate ground water levels and determine changes in ground water in storage.

While AB 3030 does not mention monitoring of ground water quality, monitoring for water quality should be included in any ground water management plan. Water quality and water quantity can not be separated. Changes in ground water quality can only be detected by comparison with earlier ground water quality data.

For more information on this topic, please call:
State
Department of Water Resources
Carl Hauge 916/327-8861

Identification Of Well Construction Policies

Improperly constructed wells can result in poor yields, but more importantly may result in contaminated ground water by establishing a pathway for pollutants entering a well for drainage from the surface, allow communication between aquifers of varying quality, or the unauthorized disposal of waste into the well.

Well construction policies should be identified which ensure that well drillers comply with local ordinances and State law. A county permit is required for drilling, deepening, modifying, or repairing a well. Whoever performs the work must have an active C-57 Contractor's license. In most cases, an inspection is required prior to sealing the well.

Sections 13700 through 13806 of the California Water Code requires proper construction of wells. Minimum standards for the construction of wells are specified in Department of Water Resources Bulletins 74-81 and 74-90. These standards apply to all water wells, cathodic protection wells, and monitoring wells. The only significant exception is oil, gas, and geothermal wells, which are regulated by the Department of Conservation. If a local agency does not have its own well standards ordinance, it must enforce the State's Model Well Ordinance (State Water Resources Control Board Resolution No. 89-98). Local agency requirements may exceed State standards.

For more information on this topic, please contact:
State
State Water Resources Control Board
Ken Harris 916/657-0876

For copies of DWR Bulletins call 916/653-1097

Construction and Operation of Ground Water Management Facilities

Effectively managing a ground water basin requires the planning and construction of projects that protect the quality of ground water and assures that the quantity of ground water in storage is managed to meet long-term demands. Where conjunctive use is practiced, water distribution facilities must be planned to deliver both ground water and surface water, depending on the hydrologic conditions in the region or state. Following are examples of facilities which aid in efficient management of ground water resources.

Ground Water Contamination Cleanup Projects

Contamination of ground water not only results in unusable water supply, but also poses a hazard for ground water supplies within the same basin caused by the migration of the contamination. In some cases, it may cause a decrease in operational storage and yield of the basin. Projects within the basin to cleanup contaminated ground water protect the entire basin from further contamination, and are also capable of producing water.

Ground Water Recharge Facilities

An agency may find it necessary to acquire, establish or construct ground water recharge facilities to quickly replace ground water extracted by producers. These facilities, which can increase the operational yield of the basin, may include: stream beds or spreading grounds, percolation basins, injection wells, and surface water delivery systems.

Water Recycling Projects

Demand management can be achieved by the replacement of irrigation supplies with non-potable, recycled water. Water recycling projects can relieve demands on the ground water basin by lowering the demand for ground water supplies for irrigation of landscaping, some agriculture and some industrial uses. Although water recycling projects are capital and O&M intensive, they do provide a reliable source of water.

Ground Water Extraction Projects

Conjunctive use programs deliver surface water in-lieu of ground water during surpluses, in exchange for increased extraction of ground water during dry periods. The trade off may result in users being asked to expand the capacity of their ground water extraction facilities. Ground water extraction projects may also be required by the shifting of extractions from one part of the basin to another as a result of contamination, hydrologic conditions, or recharge efforts. An agency may also construct extraction projects in order to entice the users to switch the source of their ground water.

For more information on this topic, please contact:

Local	State
Orange County Water District	Department of Water Resources
William R. Mills Jr. 714/378-3200	Carl Hauge 916/327-8861

PWS-0200-0373

The Development of Relationships With State and Federal Regulatory Agencies

The formation of a ground water management district involves the development of relationships and communication strategies with a variety of state and federal regulatory agencies. Working effectively with each of these agencies requires a local ground water management district to understand the role of these players in regulating and managing ground water resources.

Ground water planning, as defined in AB 3030, is a state led activity. The State Water Resources Control Board (State Water Board), as the lead state water agency responsible for maintaining water quality standards, provides the framework and direction for California's ground water protection efforts. Through its Regional Water Quality Control Boards, the State Water Board initiates state-wide planning and protection programs. Local communities should consider work with the State Water Board and Regional Boards in actually designing and implementing their ground water protection programs.

National policy direction and consistency in ground water protection efforts is provided by the Environmental Protection Agency (EPA). EPA provides both national guidance in state-led comprehensive ground water protection plans and a portion of the resources needed to carry out those planning efforts. While states are provided the flexibility to design programs that make sense on a regional and local basis, EPA guidelines ensure that all ground water protection plans and programs are preventive in nature, comprehensive in scope and consistent in maintaining a high level of protection across the nation.

For more information on these agencies and their roles and responsibilities, please contact:

State
State Water Resources Control Board
Ken Harris 916/657-0876

Federal
U.S. Environmental Protection Agency
Tony Lewis 415/744-1913

PWS-0200-0374

The Review Of Land Use Plans And Coordination With Land Use Planning Agencies To Assess Activities Which Create A Reasonable Risk Of Ground Water Contamination

An important component of developing a ground water management plan is the review of land use plans for the surrounding area or basin, and coordinating efforts with regional, sub-regional, and local land use planning agencies. In California, the majority of land use decisions are made by city and county government agencies. Undoubtedly, land activities and how they are managed can affect both ground water quality and quantity. The threat that a certain land use may pose to a ground water resource is a function of the ground water aquifer properties, management practices associated with the individual land use, and actual use of surrounding land (cumulative impact of all activities). As an example, hydrologic conditions may dictate that in certain areas, the aquifer is more vulnerable to pollution. This may be due to the permeability of the underlying soils and/or a shallower depth to the water table. To assure protection of ground water quality in the basin, this type of information may be taken into consideration when making land use decisions regarding zoning.

Examples of common land uses with a potential to adversely impact ground water supplies include large scale unsewered residential development, and industrial development without proper control measures or management practices. Cumulative impacts to a basin and relative land development density should also be evaluated. The use of shallow drainage wells to dispose of surface run off from streets, highways, parking lots, and agricultural areas, if determined to be of concern for the area, can also be addressed in the management plan. In this instance, the risk of a major roadway accident or spill, or the potential for the well being used as an illegal disposal site for hazardous substances, could be factored into the planning process.

A key aspect of ground water management is maintaining quantity or supply. Land use planning decisions that lead to covering up large portions of land with impervious surfaces can increase storm water runoff. This can lead to excessive down cutting and erosion in stream channels and flooding in the lower part of the watershed. The amount of natural recharge to the ground water basin can be significantly reduced. Land use decisions such as maintaining green space in areas of high recharge and encouraging the use of pervious materials will have a net benefit to the ground water basin.

The process of developing a ground water management plan can allow for information exchange between several parties, including agricultural and industrial water users, citizens, and resource, regulatory and planning agencies. The ground water management plan ultimately assists local planners, and local planners assist in the process of developing a comprehensive plan which can be realistically implemented resulting in effective protection and management of the ground water resource.

For more information on this topic, please contact:
State
San Francisco Bay Regional Water Quality Control Board, Dyan Whyte 510/286-1324

PWS-0200-0375

STEPS TO APPLY AB 3030

1) Local Agency holds noticed public hearing on Resolution of Intention to draft a Groundwater Management Plan.

2) After hearing, local Agency drafts Resolution of Intention to adopt a Groundwater Management Plan.

3) Publish Resolution of Intention.

4) Prepare a draft Groundwater Management Plan (within two years).

5) After draft Groundwater Management Plan is completed, Local Agency holds second noticed public hearing.

6) Land owners affected by Plan may file protests to the Plan.

7) If majority protest occurs (**representing more than 50% of assessed valuation of the land only, excluding structures**), the Ground Water Management Plan shall <u>not</u> be adopted.

8) Otherwise, Plan may be adopted.

9) A Local Agency may fix and collect fees and assessments for groundwater management costs associated with the implementation of the Groundwater Management Plan, **if such authority is approved by a majority of votes cast in a popular election.**

PWS-0200-0376

ACKNOWLEDGEMENTS

The following persons contributed to this report:

William R. Mills Jr.	Orange County Water District
James Goodrich	San Gabriel Basin Water Quality Authority
Dyan Whyte	San Francisco Bay Regional Water Quality Control Board
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Dana Wisehart	Association of California Water Agencies

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March 1994

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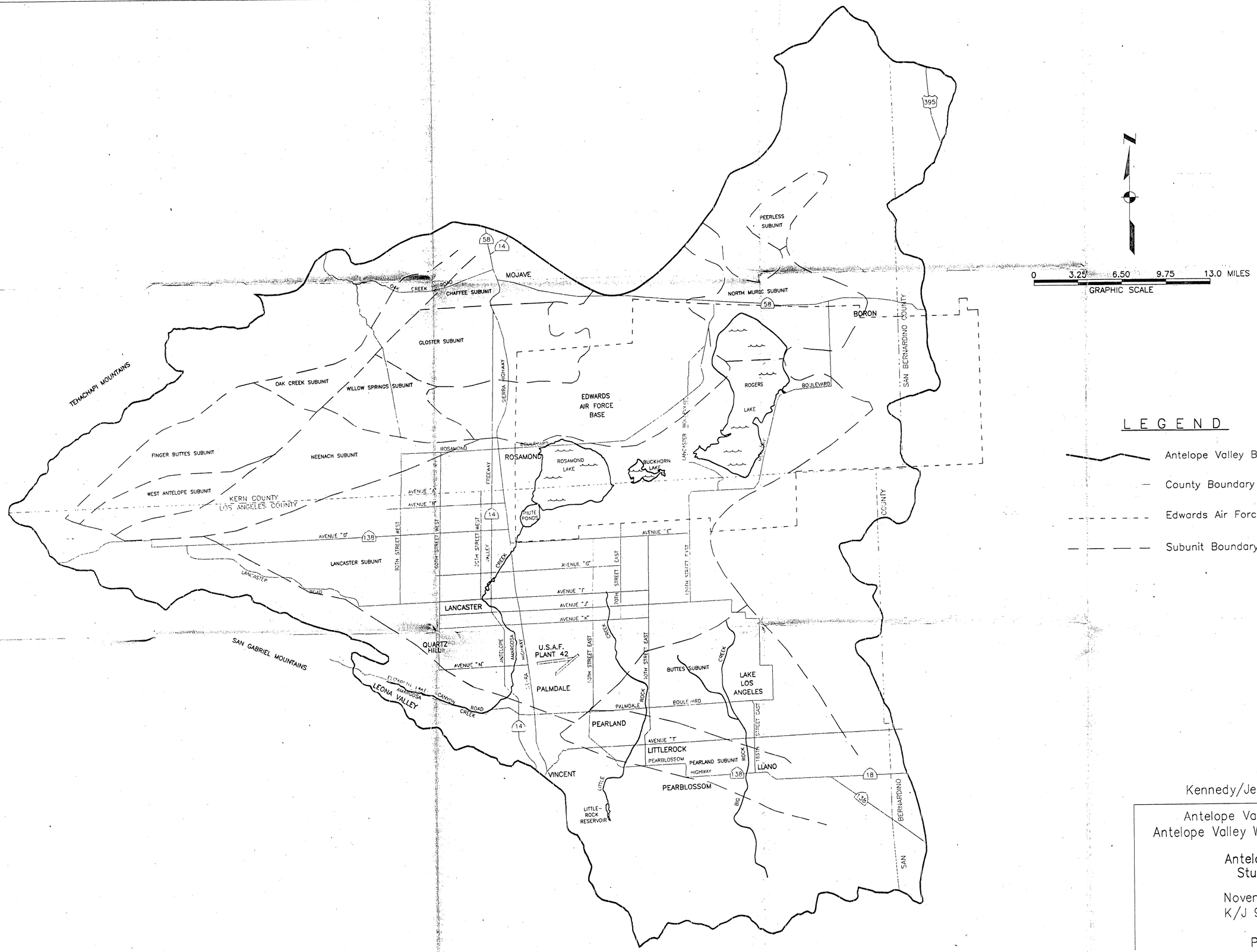


LEGEND

- Antelope Valley Boundary Line
- County Boundary Line
- Edwards Air Force Base Boundary Line
- Subunit Boundary Line

Kennedy/Jenks Consultants

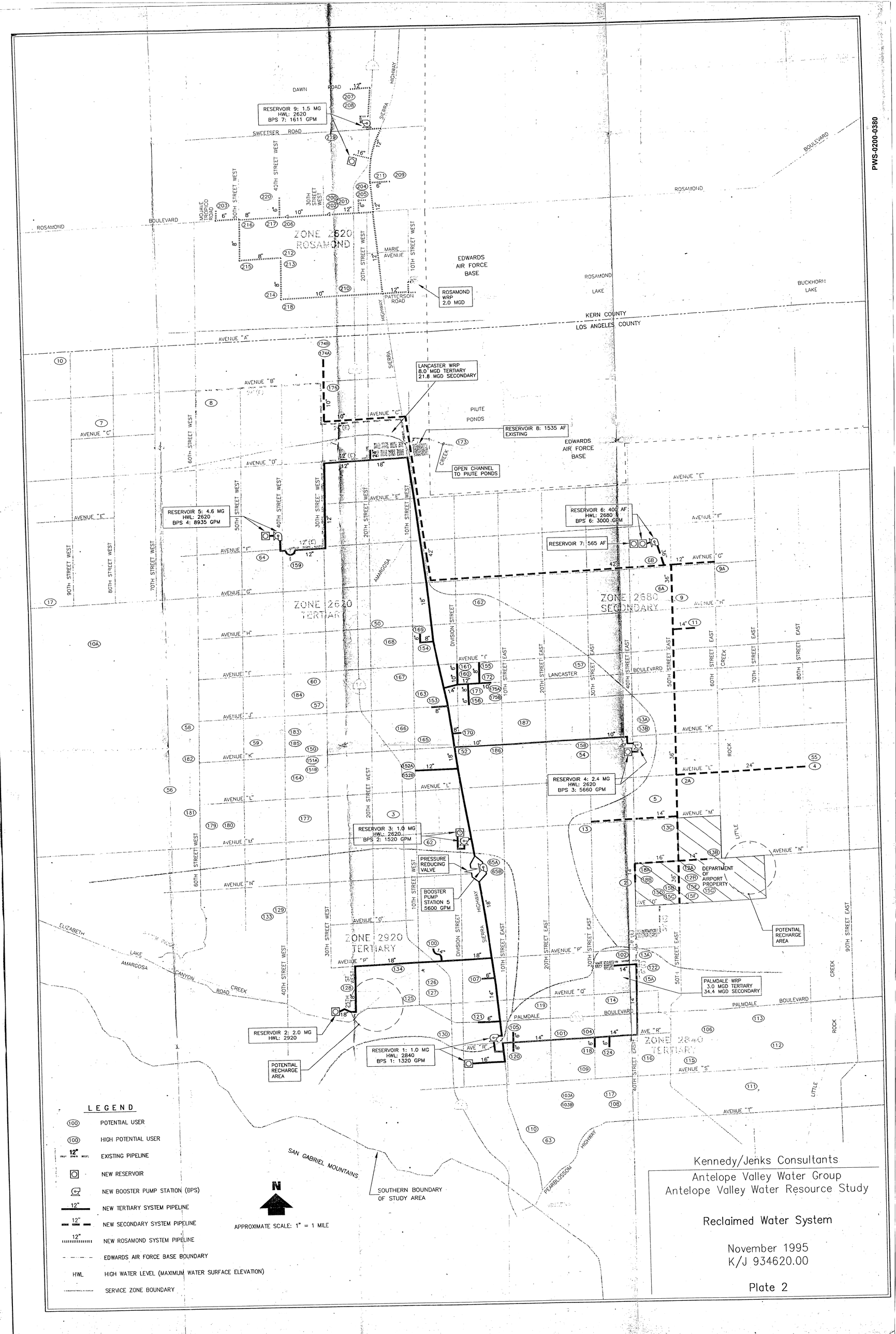
Antelope Valley Water Group
Antelope Valley Water Resource Study

Antelope Valley
Study Area

November 1995
K/J 934620.00

PWS-0200-0379

Plate 1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HWL: 2620
BPS 7: 1611 GPM
ZONE 2620
ROSAMOND
ROSAMOND WRP
2.0 MGD
LANCASTER WRP
8.0 MGD TERTIARY
21.8 MGD SECONDARY
RESERVOIR 8: 1535 AF
EXISTING
OPEN CHANNEL
TO PIUTE PONDS
RESERVOIR 5: 4.6 MG
HWL: 2620
BPS 4: 8935 GPM
RESERVOIR 6: 400 AF
HWL: 2680
BPS 6: 3000 GPM
RESERVOIR 7: 565 AF
ZONE 2680
TERTIARY
ZONE 2680
SECONDARY
RESERVOIR 4: 2.4 MG
HWL: 2620
BPS 3: 5660 GPM
RESERVOIR 3: 1.0 MG
HWL: 2620
BPS 2: 1520 GPM
PRESSURE
REDUCING
VALVE
BOOSTER
PUMP
STATION 5
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DEPARTMENT
OF
AIRPORT
PROPERTY
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TERTIARY
PALMDALE WRP
3.0 MGD TERTIARY
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ZONE 2840
TERTIARY
EDWARDS
AIR FORCE
BASE
ROSAMOND
LAKE
BUCKHORN
LAKE
KERN COUNTY
LOS ANGELES COUNTY
PIUTE
PONDS
SAN GABRIEL MOUNTAINS
SOUTHERN BOUNDARY
OF STUDY AREA
APPROXIMATE SCALE: 1" = 1 MILE
N
LEGEND
POTENTIAL USER
HIGH POTENTIAL USER
EXISTING PIPELINE
NEW RESERVOIR
NEW BOOSTER PUMP STATION (BPS)
NEW TERTIARY SYSTEM PIPELINE
NEW SECONDARY SYSTEM PIPELINE
NEW ROSAMOND SYSTEM PIPELINE
EDWARDS AIR FORCE BASE BOUNDARY
HWL HIGH WATER LEVEL (MAXIMUM WATER SURFACE ELEVATION)
SERVICE ZONE BOUNDARY
Kennedy/Jenks Consultants
Antelope Valley Water Group
Antelope Valley Water Resource Study
Reclaimed Water System
November 1995
K/J 934620.00
Plate 2