1996-12

RESOLUTION NO. 1996-12

RESOLUTION OF THE BOARD OF DIRECTORS OF
NEWHALL COUNTY WATER DISTRICT
ADOPTING A GROUNDWATER MANAGEMENT PLAN

THE BOARD OF DIRECTORS OF NEWHALL COUNTY WATER DISTRICT, LOS ANGELES COUNTY, CALIFORNIA, DOES HEREBY RESOLVE, DETERMINE AND ORDER AS FOLLOWS:

Section 1: Water Code §10753 provides, among other things, that a local agency may by resolution adopt and implement a groundwater management plan within all or a portion of its service area.

Section 2: Water Code §10753 requires that before preparing a groundwater management plan, the local agency must hold a public hearing to consider whether or not to adopt a resolution of intention to draft a groundwater management plan.

Section 3: Following publication of notice as required by law, the Board of Directors from Newhall County Water District held a public hearing on May 2, 1996 to receive public comment on whether or not it should adopt a resolution of intention to draft a groundwater management plan.

Section 4: After considering the public comment and other information presented at the hearing, the Board of Directors of Newhall County Water District determined that it was in the best interest of the District to draft a groundwater management plan.

Section 5: Pursuant to the resolution of Intention, the Board of Directors caused the resolution of Intention to be published as required by law.

Section 6: Pursuant to the resolution of Intention, to the extent possible the Board of Directors has consulted with all producers and pumpers who depend on the

groundwater from the groundwater basins within the service area of the District to obtain their cooperation in connection with the preparation of a groundwater management plan.

Section 7: The Board of Directors of Newhall County Water District caused a groundwater management plan to be prepared and on November 14, 1996, after published notice thereof, held a public hearing on the proposed plan, at which time, comments were received. There were no written protests filed.

Section 8: The Board of Directors finds the adoption of the plan is statutorily exempt from the California Environmental Quality Act under the District's CEQA Guidelines.

Section 9: The Board of Directors hereby adopts the groundwater management plan in the form presented to the Board at its public hearing of November 14, 1996, a copy of which is attached to this resolution.

ADOPTED, SIGNED AND APPROVED this 12th day of DECEMBER, 1996.

Edwin A. Dunn

EDWIN A. DUNN, President of
the Board of Directors of the
NEWHALL COUNTY WATER DISTRICT

ATTEST:

Karin J. Russell

KARIN J. RUSSELL, Secretary of
the Board of Directors of the
NEWHALL COUNTY WATER DISTRICT

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

I, KARIN J. RUSSELL, Secretary of the Board of Directors of NEWHALL COUNTY WATER DISTRICT, DO HEREBY CERTIFY, that the foregoing Resolution was duly adopted by the Board of Directors of said District at the regular meeting of the Board of Directors held on December 12, 1996 and that it was adopted by the following vote:

AYES:	DIRECTORS: Dunn, Rapoport, Kotch Plambeck and Unger
NOES:	DIRECTORS: None
ABSENT:	DIRECTORS: None
ABSTAINED:	DIRECTORS: None

Karin J. Russell

Karin J. Russell, Secretary of the
BOARD OF DIRECTORS of the
NEWHALL COUNTY WATER DISTRICT

AB 3030 GROUNDWATER MANAGEMENT PLAN

For

Newhall County Water District

Prepared by
Steven B. Bachman, Ph.D.
Integrated Water Technologies, Inc.
Santa Barbara, California

November, 1996

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I. INTRODUCTION

A. GENERAL

Newhall County Water District ("District") was formed in 1953 under the provisions of Division 12 of the State Water Code. The District provides water services for a portion of the residences of the City of Santa Clarita, Canyon Country and the community of Castaic, and trunk sewer service to the Pinetree area of Canyon Country. The District covers 4.86 square miles in the Santa Clarita Valley in Los Angeles County, California (Figure 1). At this time, the District provides water to 6,559 service connections. The water provided comes from 11 active District owned wells (ground water) and 3 treated water turnouts from the Castaic Lake Water Agency (Agency water). The District currently has over 74 miles of water distribution lines in service and has 14 water storage tanks with the capacity to store 15.9 million gallons of water. Consumption of water varies during the year, with the peak delivery being 12.2 million gallons per day.

Historically, the District overlaid a shallow water table. In the early 1900's, the distance from the ground surface to the groundwater was ten feet, with numerous natural springs around the area. With each successive drought period resulting and an increase in the agricultural groundwater pumping, the water table has dropped. As agricultural land was abandoned either from costly pumping or urbanization, the competition for control of water resources among urban and municipal interests has significantly increased throughout the Santa Clarita Valley. The Santa Clarita Valley has a very limited agricultural base, with urbanization being the most prevalent.

B. PURPOSE AND GOALS

The Newhall County Water District has long recognized the importance of groundwater to the area. It has become more critical now as the District has grown from a few hundred customers in the early 1900's to early 1965, when the District began to grow rapidly to well over 6400 service connections to date. Within the last several years, national efforts by the US Environmental Protection Agency and state efforts in the Legislature have pushed for more comprehensive groundwater management plans. As an alternative to a Federal or State-mandated program, local agencies in California sponsored AB 3030, which is the basis for this Plan. AB 3030 provides a means of giving groundwater management responsibility and authority over local basins to local people. Therefore, the purpose of this Plan is to establish local management, and to ensure that the groundwater basins continue to be a reliable and uncontaminated source of groundwater in the future.

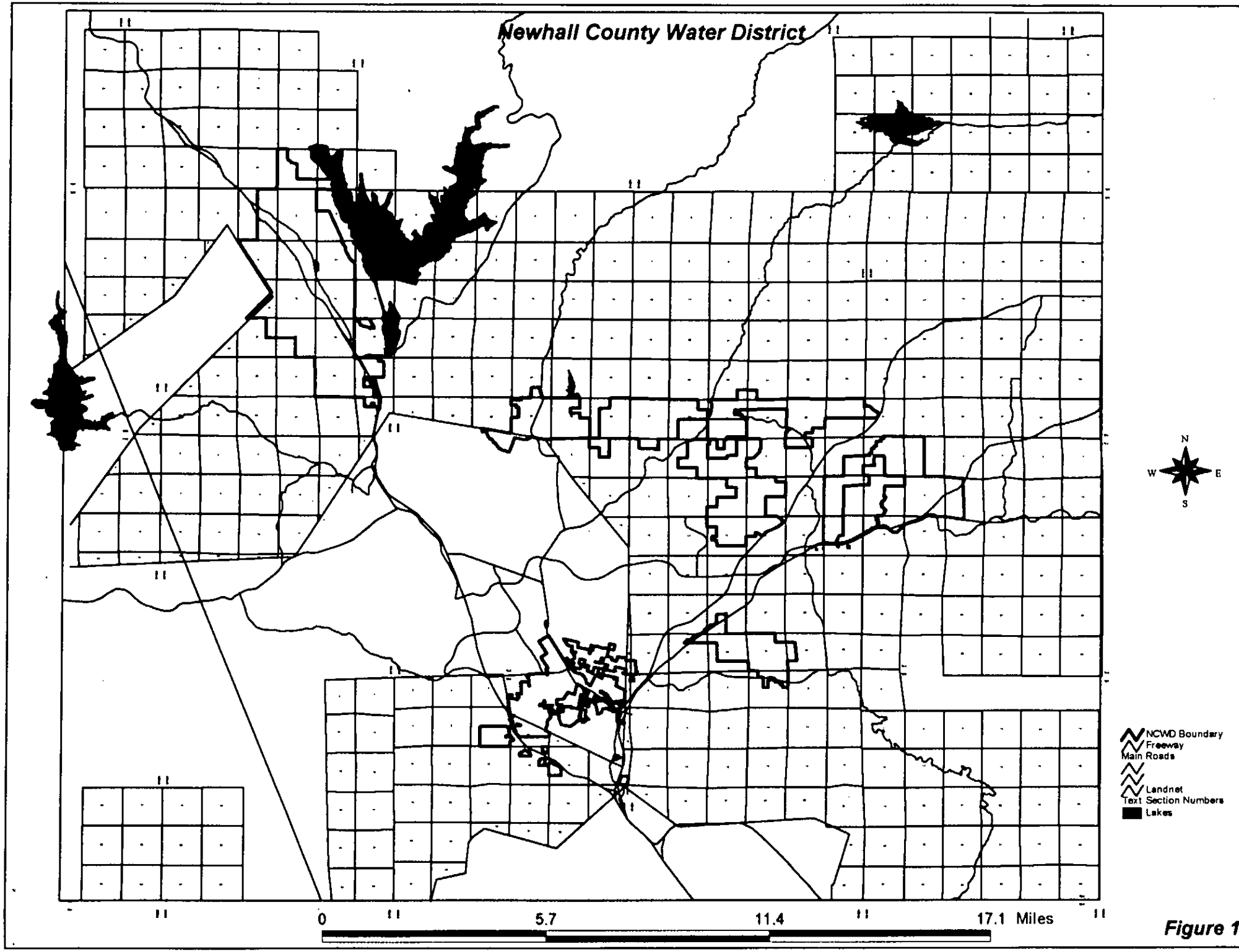

Newhall County Water District
N
W
E
S
NCWD Boundary
Freeway
Main Roads
Landnet
Text Section Numbers
Lakes
0
5.7
11.4
17.1 Miles

Figure 1

With the new State Legislation, AB 3030 (Part 2.75 of Division 6, Section 10750, *et. seq.* California Water Code), an opportunity was available to the District to prepare and implement a Groundwater Management Plan ("Plan"). This Plan was formulated to ensure local control of groundwater management and it is the intent of this Plan to foster this local control in as many aspects of the management of the basins as possible. There is common use of the groundwater resource in the Valley; although this Plan is the first formal management plan and applies only to areas within the District boundaries, it is expected that the other purveyors in the Santa Clara Valley may join the District's Plan via a Memorandum of Understanding, as provided in the AB 3030 legislation.

In the best interest of the residents, property owners, and water customers of the District, the District has adopted this Plan for the purposes of establishing a groundwater management program in order to protect groundwater supplies in the future and to ensure the safe production and quality of water. The Plan recognizes that a formal conjunctive use program should be explored and formulated.

The Plan was formulated through input from District staff and Directors, other agencies in the area, and during public information meetings and hearings. The principal action item in the Plan is the gathering and evaluating of additional data concerning the quality and quantity of the groundwater. Action items were also developed to enhance the valuable groundwater resource by promoting those actions necessary to protect the quality and quantity of the District's groundwater. Many of the action items are currently being conducted or have begun with the adoption of the Plan. Other action items will require further study prior to implementation.

The Plan is flexible, allowing updates to be made as needed, based on the additional information that is gathered through the monitoring programs.

The Plan preparation has been funded entirely by the District. Future activities required to fully implement the Plan may require funds derived by other means. AB 3030 allows for the levying of groundwater assessments or fees under certain circumstances and according to specific procedures. Prior to instituting any assessments or fees, the District must hold an election on whether or not to proceed with the enactment of the assessments. A majority of the votes cast at the election will be required to implement any additional funding assessment

Goals of Groundwater Management in the District: There are three basic goals for this Groundwater Management Plan:

- Maintain or improve the quantity and quality of groundwater in the basins;

- Maintain local control of local resources;
- It is extremely important to establish cooperative relationships with other organizations and agencies both within the groundwater basins that underlie the District and in adjacent basins.

C. AREA OF PLAN

The Plan includes all areas of the groundwater basins that is overlain by the service area of the District (Figures 1 and 2).

D. INSTITUTIONAL REQUIREMENTS

Historically, the use of groundwater within the State of California has not been regulated except in a few basins where the rights have been adjudicated by the courts or special management districts have been authorized by the state legislature. Groundwater accounts for approximately one-third of the water used within the state, and approximately 70% of the water used within the Santa Clara Valley. With the continued increasing demand being placed on the limited water supplies of the state, groundwater usage is being scrutinized to a much greater extent.

II. EXISTING CONDITIONS

A. GROUNDWATER BASIN

The District overlies a portion of a larger groundwater basin designated as the Upper Santa Clara River Basin which is comprised of two primary aquifers: 1) the Alluvial Aquifer and 2) the Saugus Aquifer (Figure 2). Separated from the Alluvial Aquifer by clay layers, the Saugus Aquifer is generally considered to be the larger of the two. In general, the Alluvial Aquifer is defined as the area in and adjacent to the river channels. It is relatively shallow with a maximum thickness of approximately 200 feet, is directly affected by local recharge, and is reported to have a storage volume that ranges from 107,000 acre-feet during dry cycles to 201,000 acre-feet during wet cycles (Slade, 1986). The perennial yield, which could be described as the recharge potential, has been estimated to be 32,000 acre-feet per year (Slade, 1986). It should be noted that the perennial yield is a long-term average; during dry years, water levels in the basin would decline if the basin was pumped at a rate of 32,000 acre-feet per year, and water levels

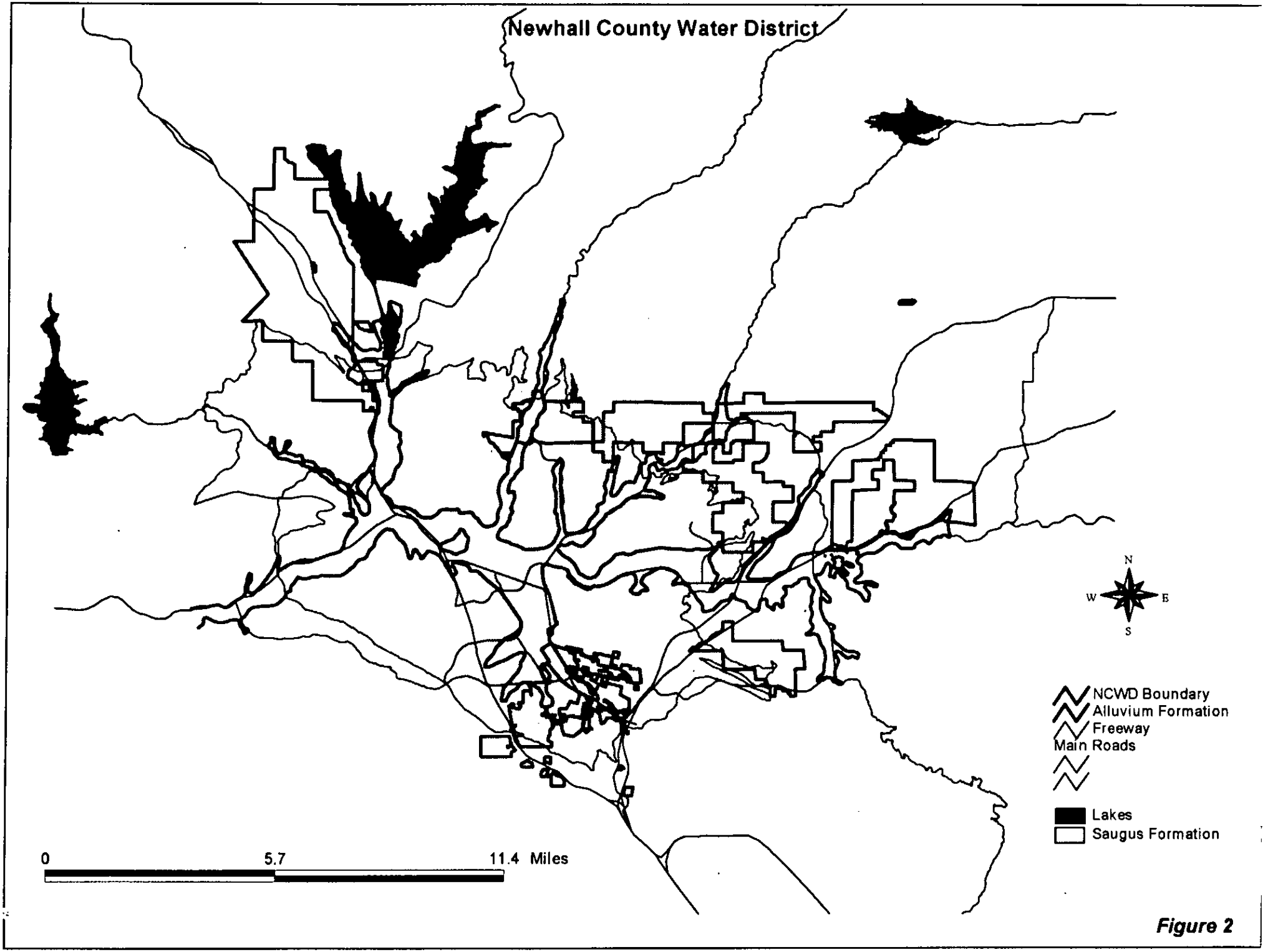

Newhall County Water District
N
W
E
S
NCWD Boundary
Alluvium Formation
Freeway
Main Roads
Lakes
Saugus Formation
0
5.7
11.4 Miles

Figure 2

would presumably recover in wet years.

The Saugus Aquifer, which underlies approximately 85 square miles of the Santa Clarita Valley, has a recoverable storage volume estimated to be between 1,400,000 (Slade, 1988) and 6,000,000 acre-feet (Robson, 1972). It is estimated that at least 1,000,000 acre-feet of the water is of good quality southerly of Bouquet Junction and at depths of up to 1200 to 1400 feet. The quality of the remaining water is either unknown or questionable. Calculations of long-term annual recharge to the Saugus Aquifer range from as low as 10,800 acre-feet in dry years to as high as 22,200 acre-feet in wet years (Slade, 1988). No perennial yield has been established for the Saugus Aquifer.

The District has been monitoring groundwater levels in the Newhall area for at least the last thirty years. The results have shown a gradual decline in the groundwater elevations within the District. Changes in groundwater levels that occur over a period of five years or less may be related to either wet or dry climatic cycles or temporary changes in supply source from groundwater to surface water; longer-term changes reflect the balance of pumping volumes against long-term recharge. For instance, following the latest wet cycle, there has been a two-year gradual increase in the groundwater levels due to the increased usage of surface water and decreased groundwater pumping. Most increases have occurred in the wells that have been off for one year or longer, with the average increase approximately 1 to 2 feet per year.

Declining groundwater levels alone do not indicate overdraft in a basin; many basins decline in water levels for some period of time before an equilibrium is reached. Overdraft occurs when groundwater usage exceeds recharge over a period of many years, and groundwater levels decline to an unacceptable level and/or there are unacceptable effects from pumping (e.g., uneconomic pumping lifts, subsidence, deterioration in water quality). Slade (1986) calculated that groundwater pumpage was approximately equal to recharge in the Alluvial Aquifer. Slade determined in 1988 that pumpage at that time was less than recharge in the Saugus Aquifer.

B. TOPOGRAPHIC ELEMENTS

Rolling hills, mountains, and relatively narrow alluvial valleys constitute the major physical features of the Santa Clarita Valley. The largest of the alluvial valley areas is along the main stem of the Santa Clara River which traverses the region in an east-west direction. Additional significant valley areas are the South Fork of the Santa Clara River in the Newhall-Valencia-Saugus area, the Castaic Valley, San Francisquito Canyon, and Bouquet Canyon. Smaller alluvial valleys occur along several other canyons. Elevations range from approximately 800 feet above sea level at the downstream (westerly) end of the region to a maximum of approximately 3,100 feet above sea level.

C. HYDROLOGY

The water table within the District is unconfined and typically flows in a northwesterly direction towards the ocean. Groundwater extractions are made for municipal and some industrial purposes. These extractions are very significant during periods when there is little Agency water available to augment the water needs within the District. The groundwater levels, during those periods, experience a decline. During the years when Agency water is abundant and pumping can be curtailed, the groundwater level has been positively affected. Groundwater recharge in the District is principally by deep percolation of precipitation and runoff from the mountains to the north, south, west and east of the District. Groundwater is stored chiefly in the unconsolidated Pleistocene alluvial deposits.

Based on the District's 1994 groundwater measurements, the average groundwater level was 132 feet below ground in Newhall, 32.5 feet below ground in Castaic, and 20.25 feet below ground in the Pinetree area.

D. CLIMATE

Characteristic Southern California climatic conditions prevail within the Santa Clarita Valley. Winter temperatures are slightly lower and summer temperatures slightly higher than in coastal areas. Temperatures range from maximums near 110 degrees Fahrenheit during the summer months to minimums near 20 degrees Fahrenheit during the winter. Average rainfall on the lower lying flat lands is in the range of 18 inches per year. Higher mountainous areas tributary to this reach of the Santa Clara River receive average annual precipitation rates up to slightly over 27 inches per year. Rainfall for the years 1973

through 1994 is shown on Figure 3.

E. SURFACE WATER SUPPLY

In October of 1977 the District signed an agreement with Castaic Lake Water Agency (CLWA) to purchase treated surface water. The water provided by CLWA flows from Castaic Lake through the Earl Schmidt Treatment Plant and the Rio Vista Treatment Plant. Following treatment, water is delivered to the District and other area water purveyors (CLWA does not deliver directly to domestic consumers). In the District, treated Agency water is blended with District well water and stored or delivered to District customers throughout the year.

III. WATER QUALITY

A. GROUNDWATER QUALITY

Overall, the quality of the groundwater in the District is very good (Figure 4). Annual and tri-annual water quality tests have always been below the Maximum Contaminant Level (MCL) for all constituents tested for, other than manganese at Well #10, which is 110 parts per billion higher than the MCL. The District's groundwater, like most of the groundwater in the valley, is moderately hard due to the large amounts of minerals in the groundwater. The District has installed point of source chlorination at District wells to ensure that bacteriological contamination is kept to a minimum within the service area. The chlorinators also ensure that the District maintains a residual of 0.2 parts per million of chlorine throughout our system, as required by the State when surface water is used to supplement well water.

Groundwater wells are prevalent throughout the Valley. The wells are mainly used by water purveyors but also by some individual homeowners. With the many water production wells, there is a risk of aquifer contamination due to the improper abandonment of old wells or improper sealing of existing wells. Therefore, it is necessary that proper sealing of existing wells and abandonment of old wells is always accomplished. At a minimum, the water well standards of Los Angeles County (see Appendix I) must be met, not only by the District but by other water purveyors in the Valley. In addition, it may be advantageous for the District to be present at both new well installations and old well abandonments to ensure that all requirements are met. It would also benefit the District to map the well locations of all old, new, and abandoned wells

NEWHALL COUNTY WATER DISTRICT

Figure 3

Summary of Annual Rainfall

Oct.1 Thru Sept. 30

(Totals in inches)

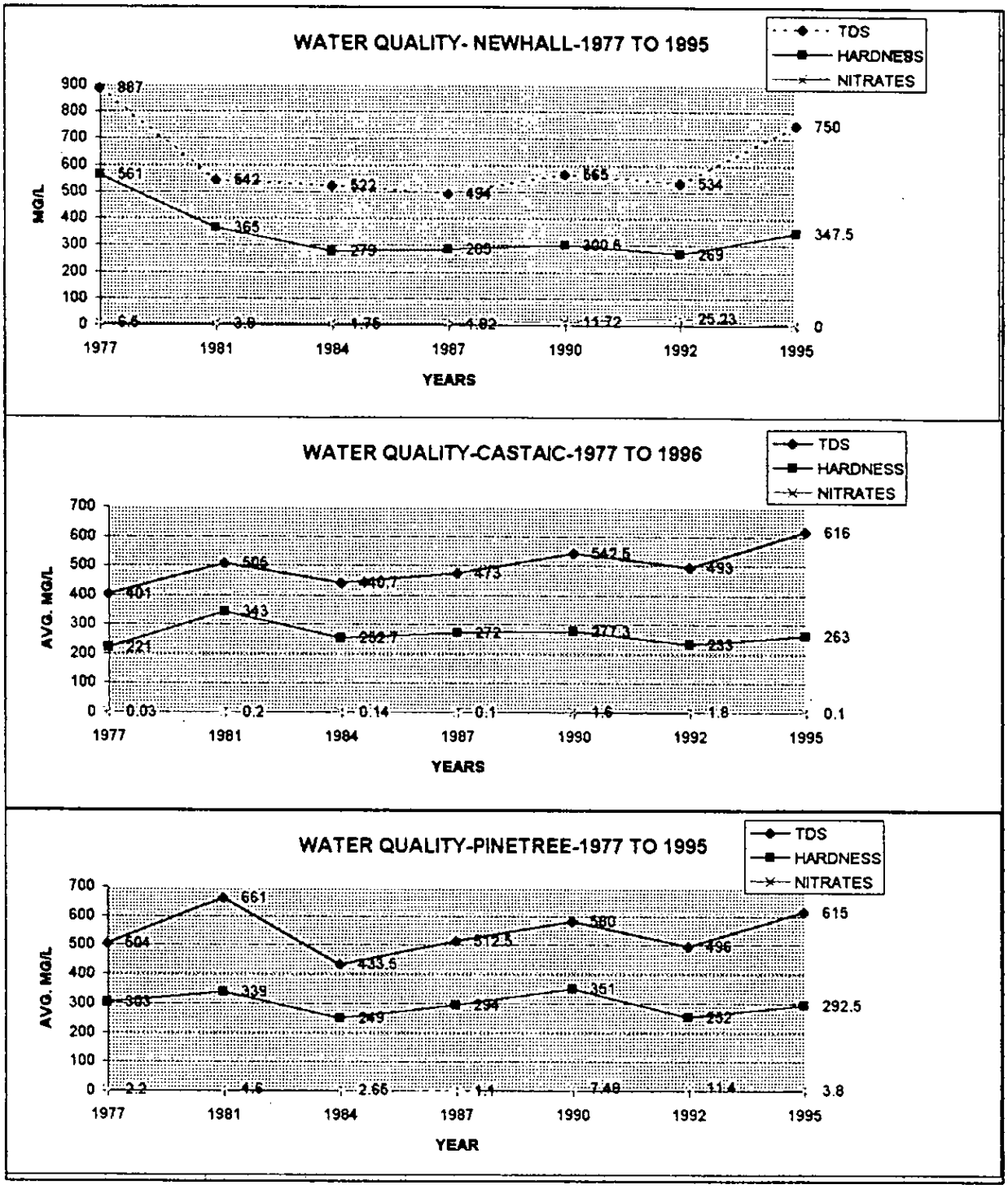
	1973-74	*1974-75*	*1975-76*	*1976-77*	*1977-78*	*1978-79*	*1979-80*	*1980-81*
Oct	0.20	1.24	0.38	0.48	0.04	0.10	0.00	0.00
Nov	1.63	0.25	0.00	2.11	0.05	3.03	0.89	0.00
Dec	1.21	4.32	0.21	0.92	7.11	1.89	1.19	0.00
Jan	10.24	0.28	0.00	5.98	11.21	12.44	10.36	4.76
Feb	0.00	3.70	6.43	0.07	14.39	3.20	14.63	1.66
Mar	4.55	5.68	1.14	2.03	11.48	6.01	4.84	5.50
Apr	0.02	3.72	0.53	0.00	2.86	0.00	0.36	0.46
May	0.00	0.00	0.16	4.41	0.00	0.02	0.40	0.00
Jun	0.00	0.00	0.53	0.01	0.00	0.00	0.00	0.00
Jul	0.08	0.00	0.03	0.00	0.00	0.00	0.00	0.00
Aug	0.00	0.00	0.00	2.89	0.00	0.00	0.00	0.00
Sep	0.00	0.02	3.01	0.00	2.24	0.00	0.00	0.00
TOTAL	17.93	19.21	12.42	18.90	49.38	26.69	32.67	12.38

	1981-82	*1982-83*	*1983-84*	*1984-85*	*1985-86*	*1986-87*	*1987-88*	*1988-89*
Oct	0.58	0.25	1.74	0.16	0.54	0.68	3.47	1.55
Nov	3.62	5.34	5.04	3.87	5.11	1.55	3.84	0.92
Dec	0.22	2.95	5.13	8.13	0.70	0.24	4.80	7.14
Jan	3.33	8.67	0.00	0.78	5.84	2.10	3.27	0.89
Feb	1.21	6.85	0.00	1.20	6.65	0.61	3.39	4.13
Mar	9.50	13.07	0.27	1.04	5.39	1.69	1.16	1.30
Apr	1.09	4.61	0.07	0.14	0.88	0.14	3.98	0.30
May	0.13	0.20	0.00	0.07	0.00	0.00	0.09	0.00
Jun	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jul	0.00	0.00	0.00	0.06	0.05	0.00	0.00	0.00
Aug	0.00	1.17	0.00	0.00	0.00	0.02	0.00	0.00
Sep	1.02	1.05	0.05	0.12	1.78	0.00	0.10	0.62
TOTAL	20.70	44.16	12.30	15.57	26.94	7.03	24.10	16.85

	1989-90	*1990-91*	*1991-92*	*1992-93*	*1993-94*	*1994-95*	*1995-96*	*1996-97*
Oct	0.86	0.00	0.50	1.55	0.57	0.78	0.00	
Nov	0.37	0.63	0.00	0.00	0.75	0.71	0.00	
Dec	0.01	0.01	5.59	7.25	1.76	1.94	2.33	
Jan	2.89	1.11	3.28	17.11	0.48	21.98	2.97	
Feb	4.23	5.72	16.64	11.73	5.31	1.93	6.73	
Mar	0.22	11.33	9.73	4.27	2.33	8.30	2.08	
Apr	0.48	0.00	0.15	0.00	0.42	0.72	0.13	
May	0.88	0.00	0.34	0.00	0.00	0.26	0.68	
Jun	0.00	0.00	0.00	0.65	0.00	0.76	0.00	
Jul	0.00	0.00	0.30	0.00	0.00	0.00	0.00	
Aug	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Sep	0.00	0.00	0.00	0.00	0.00	0.00		
TOTAL	9.94	18.80	36.53	42.56	11.62	37.38	14.92	

NEWHALL COUNTY
WATER DISTRICT

FIGURE 4



within the District. With the continual raising of standards for drinking water, maintaining the quality of groundwater becomes ever more important.

B. AGENCY WATER QUALITY

Treated water quality is the responsibility of the Castaic Lake Water Agency (CLWA). CLWA is required under State law to test their water and provide the results of such tests to the District on an annual basis. As a whole, the quality of water received from CLWA is good, other than some problems with Trihalomethanes (THMs).

C. WATER QUALITY REQUIREMENTS/OBJECTIVES

A primary objective of the Plan is to maintain the water quality within the District. This is of extreme importance because the District customers need a dependable high quality water supply.

The District is increasing its water quality testing interval from tri-annual to annual on some of the chemical-type contaminants, so as to ensure that groundwater quality is maintained within the District. The District is working closer with CLWA on the quality of their water to ensure that cross contamination does not occur so that the quality of both surface and groundwater within the District is maintained. The Plan provides a mechanism that will help achieve those long-term goals. The initial action of increasing the amount of monitoring will provide the additional data needed to proceed with future programs to maintain water quality.

D. WASTEWATER RECLAMATION

Wastewater reclamation and distribution will play a very important roll in the quantity of water needed in the future. The District is in the process of formulating a reclaimed water project in its Castaic service area. We are planning ahead to formulate rules and regulations for distribution of the water when it is available.

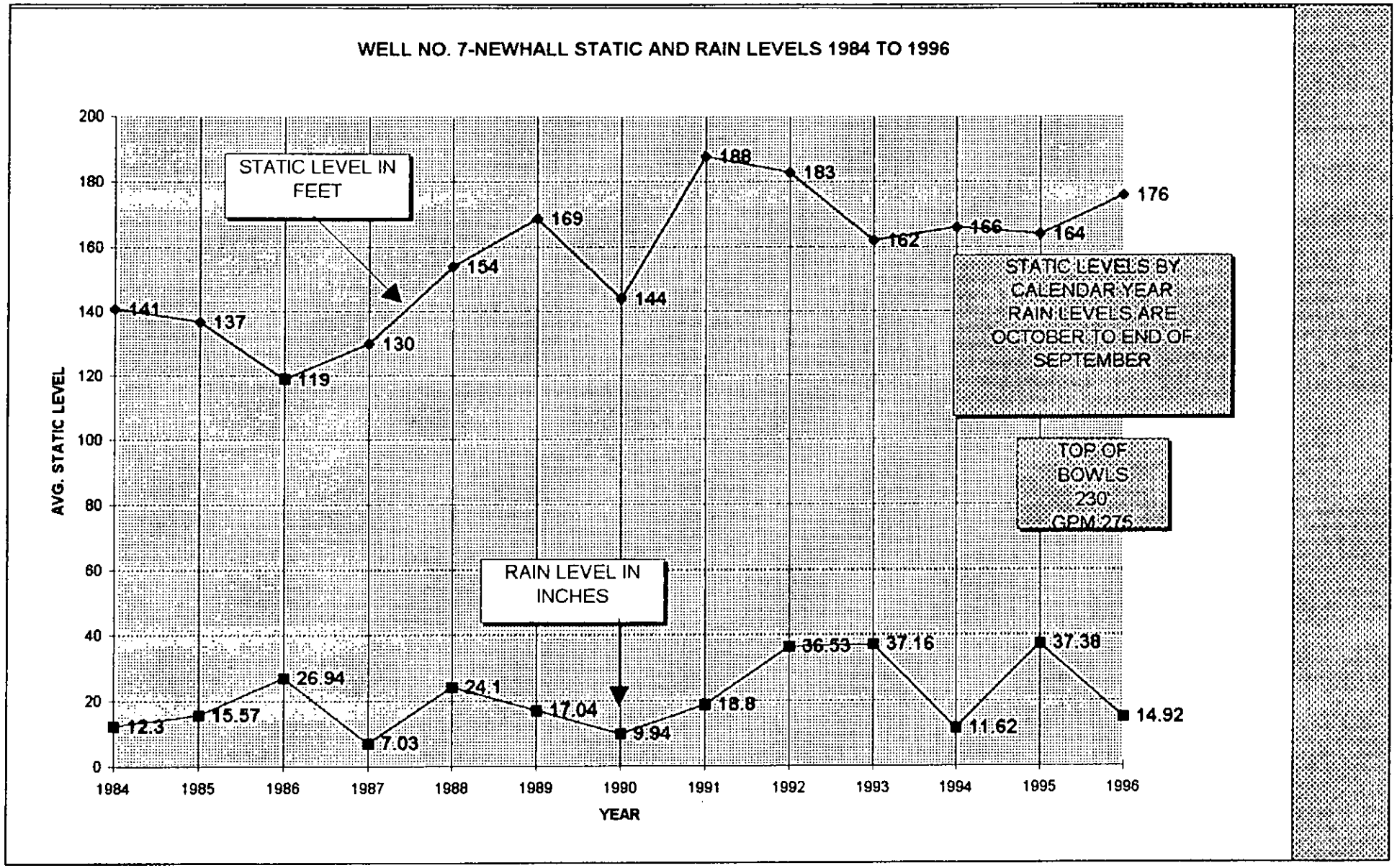
IV. GROUNDWATER CONDITIONS

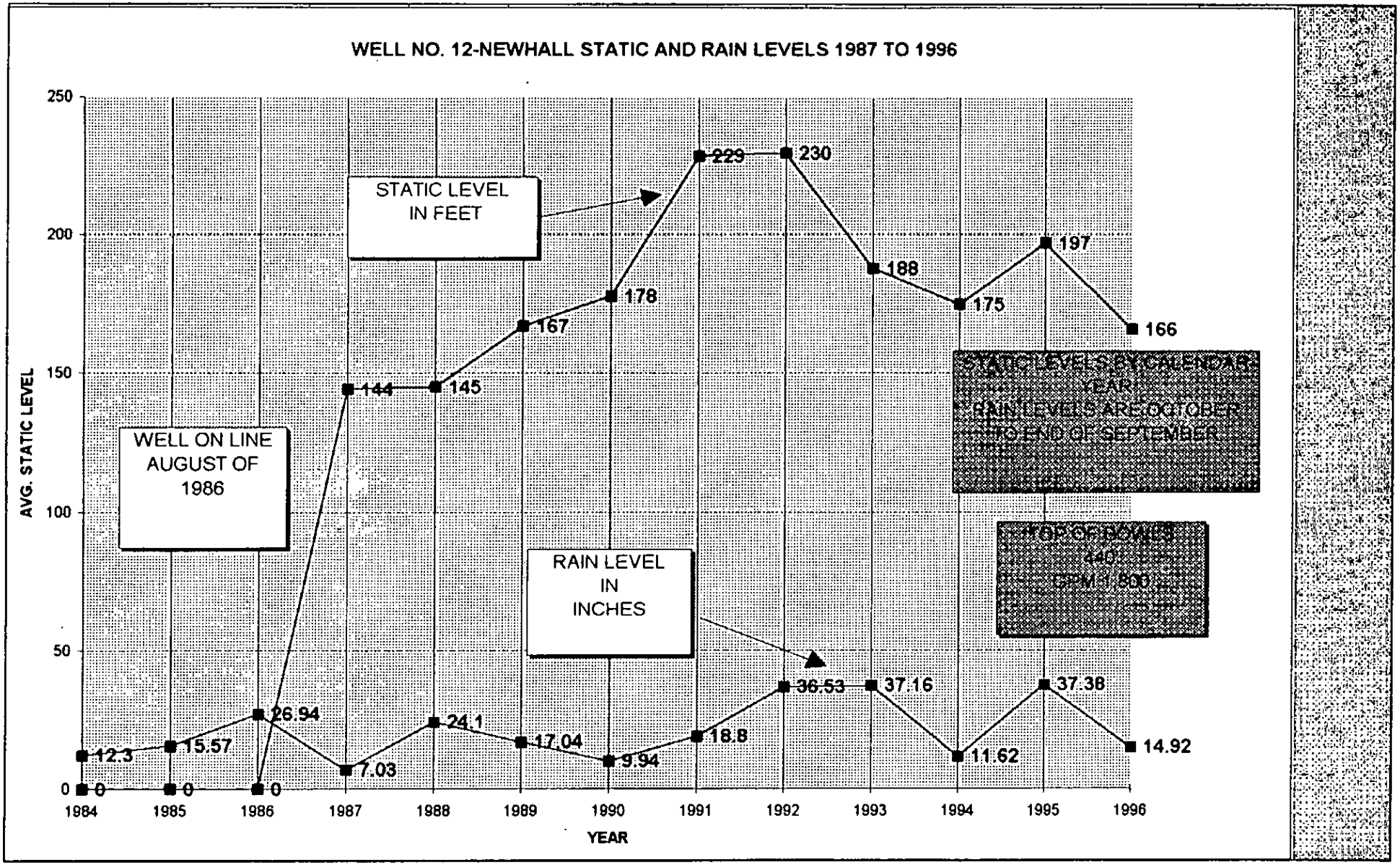
A. GROUNDWATER MAPPING

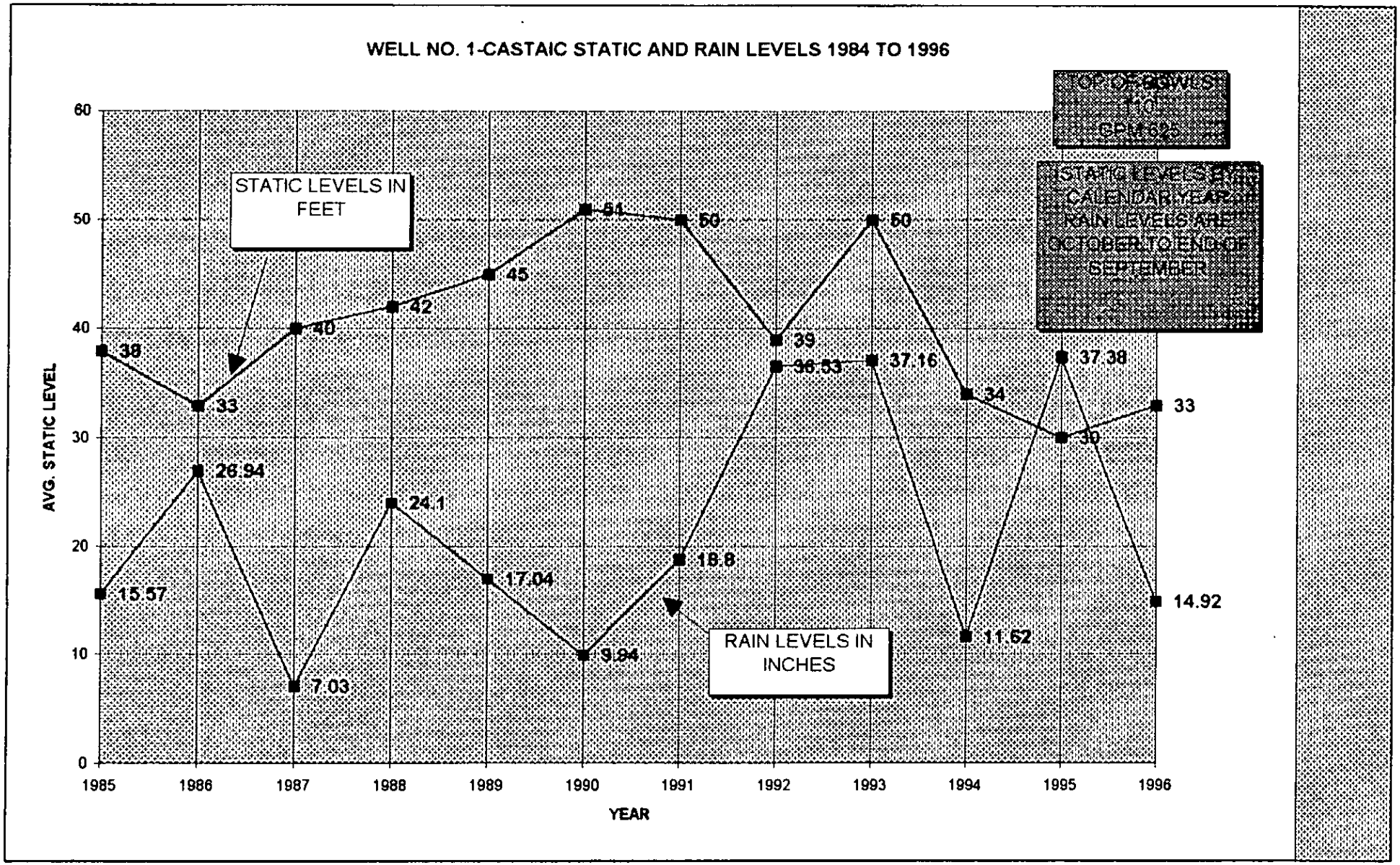
The District has been monitoring the groundwater levels in the area for over thirty (30) years. This is accomplished through water level measurements taken monthly at the District's wells. From these readings, groundwater logs have been made depicting both the water elevations and changes in groundwater levels.[Figure 5] The District is in the process of mapping all private wells in the District at this time. It is our hope that some, if not all, of the well owners will allow the District to monitor and record the levels of these wells. If this can be accomplished, the District can prepare a groundwater contour map, which would allow the District to track the groundwater levels in our area, giving the District a better understanding of the groundwater conditions. This is an important water management tool that is useful in developing long-term planning decisions.

B. GROUNDWATER RECHARGE

Groundwater is recharged from rainfall, either directly as the rainfall soaks through the soil or indirectly as the rainfall runs off into nearby streams and rivers, where it percolates into the sediments that underlie the stream. In the alluvial groundwater basins that underlie the District, groundwater from adjacent hills may also seep into the basins at some depth beneath the surface. Preliminary surveys (e.g., Slade, 1988) indicate that much of the recharge in the District is probably indirect recharge in streams and rivers. In order to enhance the natural recharge, the District will research avenues of artificial recharge. Means of recharge could be direct injection, or a joint effort of recharge or injection program by all of the large water purveyors in the Valley. This is an action item and will be discussed in more depth.


WELL NO. 7-NEWHALL STATIC AND RAIN LEVELS 1984 TO 1996
AVG. STATIC LEVEL
YEAR
STATIC LEVEL IN FEET
RAIN LEVEL IN INCHES
STATIC LEVELS BY CALENDAR YEAR RAIN LEVELS ARE OCTOBER TO END OF SEPTEMBER
TOP OF BOWLS 230' GPM 275
141
137
119
130
154
169
144
188
183
162
166
164
176
12.3
15.57
26.94
7.03
24.1
17.04
9.94
18.8
36.53
37.16
11.62
37.38
14.92


WELL NO. 12-NEWHALL STATIC AND RAIN LEVELS 1987 TO 1996
AVG. STATIC LEVEL
YEAR
250
200
150
100
50
0
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
STATIC LEVEL IN FEET
RAIN LEVEL IN INCHES
WELL ON LINE AUGUST OF 1986
STATIC LEVELS BY CALENDAR YEAR
RAIN LEVELS ARE OCTOBER TO END OF SEPTEMBER
TOP OF PUMPS
440'
GPM 1,800
0
0
0
144
145
167
178
229
230
188
175
197
166
12.3
15.57
26.94
7.03
24.1
17.04
9.94
18.8
36.53
37.16
11.62
37.38
14.92


WELL NO. 1-CASTAIC STATIC AND RAIN LEVELS 1984 TO 1996
STATIC LEVELS IN FEET
RAIN LEVELS IN INCHES
AVG. STATIC LEVEL
YEAR
60
50
40
30
20
10
0
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
38
33
40
42
45
51
50
39
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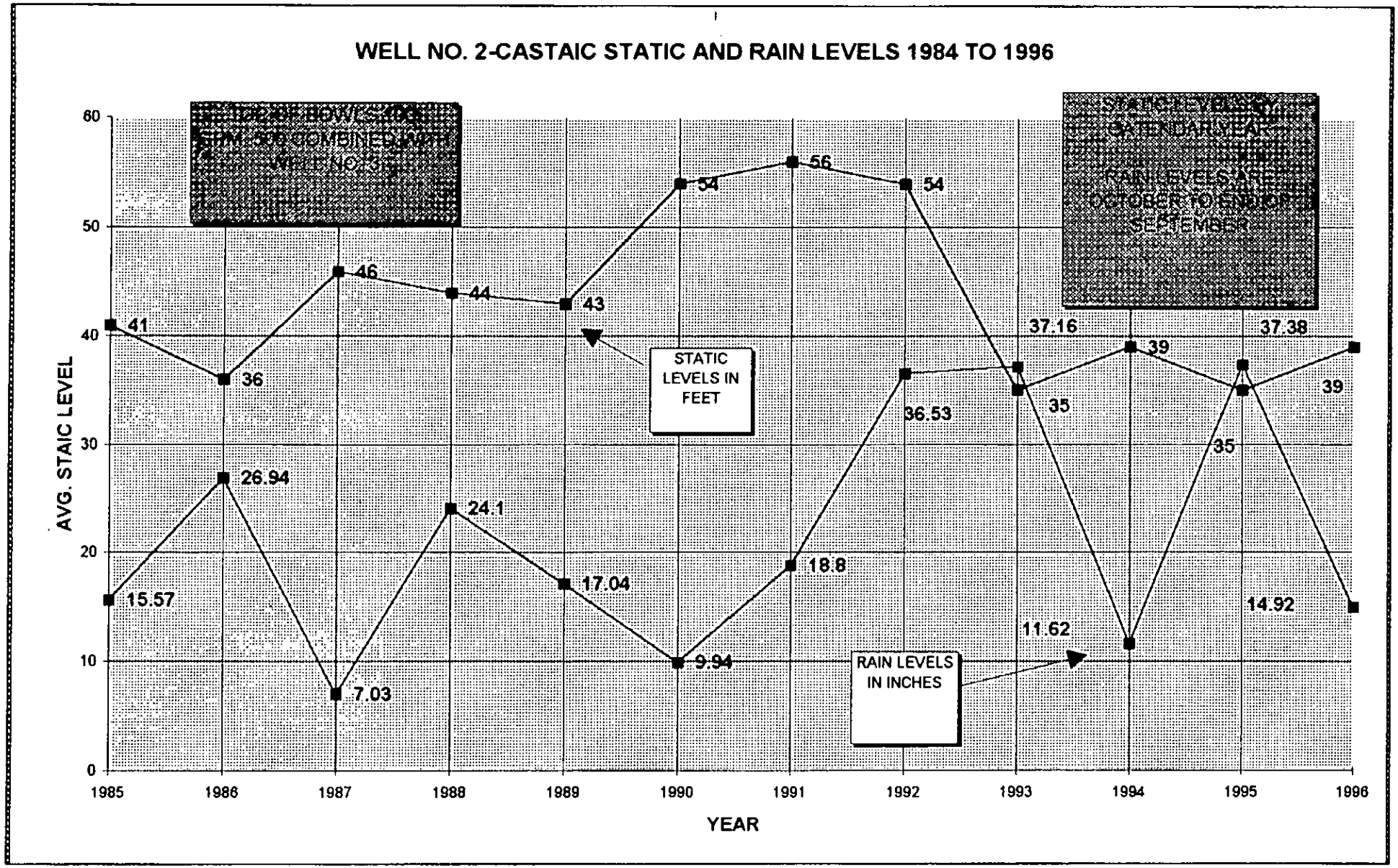
34
30
33
15.57
26.94
7.03
24.1
17.04
9.94
18.8
36.53
37.16
11.62
37.38
14.92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TOP OF BOWLS 400 GPM 500 COMBINED WITH WELL NO. 3
STATIC LEVELS BY CATENDAR YEAR
RAIN LEVELS ARE OCTOBER TO END OF SEPTEMBER
STATIC LEVELS IN FEET
RAIN LEVELS IN INCHES
AVG. STAIC LEVEL
YEAR
0
10
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40
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60
1985
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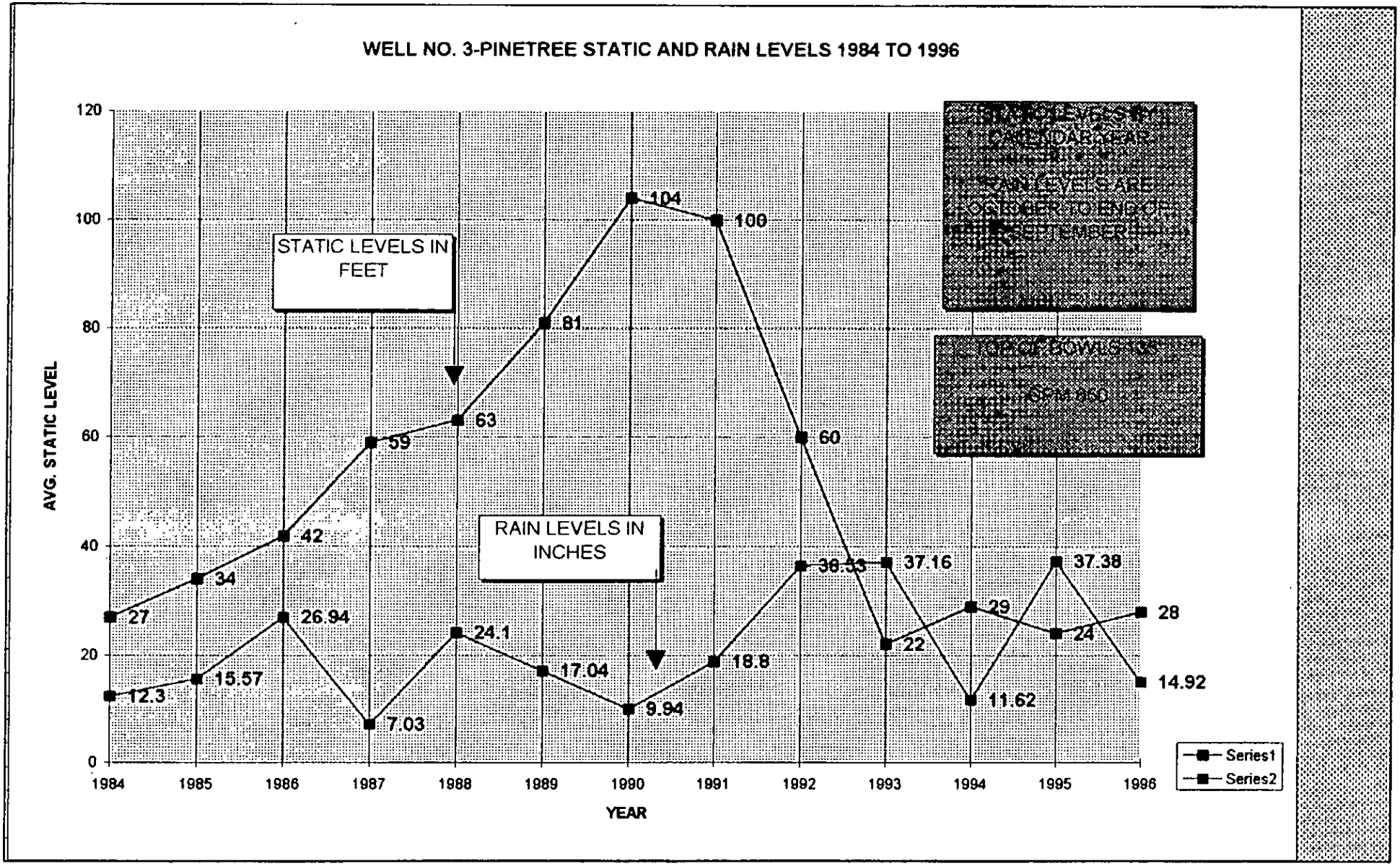
14.92


WELL NO. 3-PINETREE STATIC AND RAIN LEVELS 1984 TO 1996
AVG. STATIC LEVEL
YEAR
STATIC LEVELS IN FEET
RAIN LEVELS IN INCHES
27
34
42
59
63
81
104
100
60
22
29
24
37.38
28
12.3
15.57
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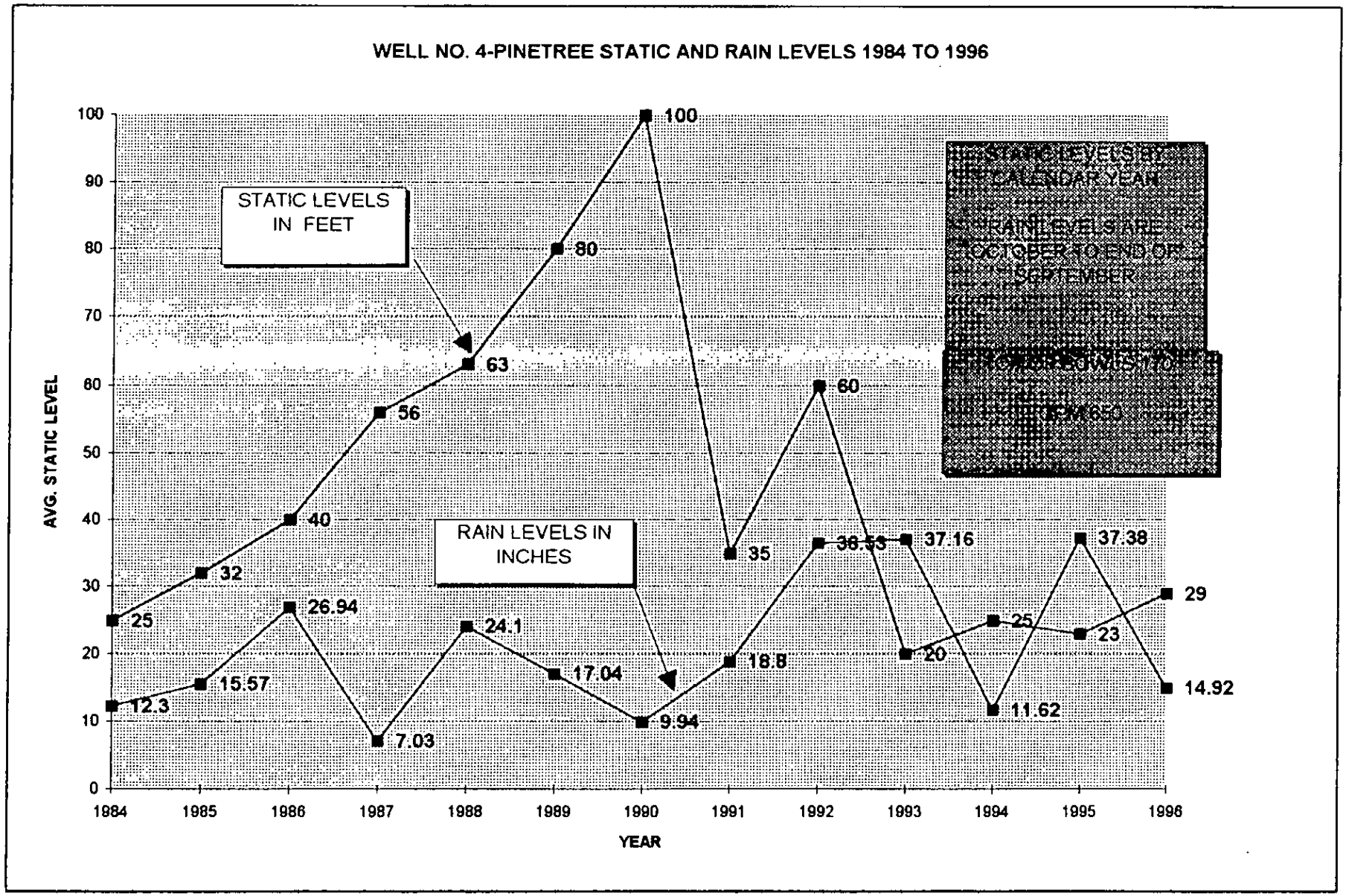
Series1
Series2


WELL NO. 4-PINETREE STATIC AND RAIN LEVELS 1984 TO 1996
STATIC LEVELS IN FEET
RAIN LEVELS IN INCHES
AVG. STATIC LEVEL
YEAR
0
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V. COMPONENTS OF THE PLAN

A. IDENTIFICATION AND MANAGEMENT OF WELLHEAD PROTECTION AREAS AND RECHARGE AREAS

The U.S. Environmental Protection Agency (EPA) has promoted a "Wellhead Protection" program (e.g., EPA, 1993) that seeks the protection of public water supplies through the identification of the area surrounding a well where groundwater contributes to the well's production. By identifying such an area around the well, the route and travel time of possible contaminants (such as surface spills) that may reach the well can be predicted. Newhall County Water District has delineated such protection zones, and will develop a wellhead protection plan as an action item of this Groundwater Management Plan.

In order to preserve the viability of the groundwater resources in the basins that underlie the Newhall County Water District, it is necessary to ensure that the basins receive regular recharge of good quality water. The recharge in the basins occurs primarily from infiltration along the Santa Clara River, San Francisquito Creek, Castaic Creek, Bouquet Canyon, Mint Canyon, and numerous tributary creeks (Figure 2). It is the intent of this Plan to protect these areas so that recharge will continue in the basins. This protection will be provided by the designation of these areas as "Aquifer Recharge Areas" in this Plan. This designation will be coordinated with county and city planning departments, as discussed in a later section. Some of these areas may be in the watershed of the basins, but outside of the boundaries of this Plan.

In addition, sources of contamination in both these primary recharge areas and outcrop areas surrounding the basins may adversely affect the groundwater quality of the Basins. As an action item of this Plan, areas of particular concern for potential contamination will be identified by the District.

B. REGULATION OF THE MIGRATION OF CONTAMINATED GROUNDWATER

For point sources of contamination (e.g., leaking tanks, seeping landfills), a variety of agencies, including the County of Los Angeles and the Regional Water Quality Control Board, have the responsibility to identify and supervise the cleanup of contaminated groundwater. It is the intention of this Plan to encourage such responsibility and to allow

the District to recommend necessary action if these regulatory agencies do not take adequate steps to prevent migration of contaminated groundwater.

For non-point sources of contamination, the Regional Water Quality Control Board sets basin goals for a variety of contaminants. It is the intent of this Plan to encourage working with the Regional Board in setting and meeting these goals, and to take appropriate action if there is a contamination threat that is not adequately addressed by a regulatory agency.

There are expansion plans for landfills within the watershed of the Newhall County Water District. Newhall County Water District is reviewing these plans carefully to ensure that there is adequate monitoring of groundwater in the vicinity of the landfills, and that the leachate collection systems reflect state-of-the-art design. It is the intent of this Plan to encourage these efforts. In addition, if there is evidence of leachate reaching the groundwater or waterways within the watershed, the District will actively encourage the Regional Board to require immediate mitigation to prevent further contamination and to clean up any contamination. It is the intent of this Management Plan to use the full powers of a water replenishment district, if necessary, to control such contamination (California Water Code, Section 10754). If the contamination source is outside the area of the Groundwater Management Plan, action to control such contamination may also be taken if: 1) the action is reasonably necessary to protect groundwater supplies within the Plan area; and 2) there is a direct, material relationship between the groundwater supply where the action is to be taken and the groundwater supply within the Plan area (Section 60225). Both injunctive relief and recovery of expenses from the person or persons responsible for the contaminants are available (Section 60226).

C. ADMINISTRATION OF A WELL ABANDONMENT AND WELL DESTRUCTION PROGRAM

The County of Los Angeles has adopted well abandonment and destruction requirements (Appendix I). In the present circumstances, these requirements appear to be adequate for the basins. However, there is no formal County program of tracking whether wells have been properly destructed or simply abandoned in place. Such abandoned wells could provide conduits for contaminated water to flow into the aquifer from surface waters or shallow groundwater. The District will work closely with the County to ensure that wells are properly destroyed. The District will solicit help from all purveyors and private pumpers to properly locate and destroy abandoned wells in conjunction with Los Angeles County. Ensuring proper destruction of wells is an action item of this Plan.

D. MITIGATION OF CONDITIONS OF OVERDRAFT

Overdraft occurs in a basin when pumping exceeds recharge over a long period of time, resulting in harmful conditions in the basin. The period of time used in such determination may vary, but should take into account both wet and dry cycles; a thirty-year period is commonly used in such determinations. The harmful conditions that could occur include general lowering of water levels to uneconomic pumping depths, degradation of water quality, and land subsidence. The basins in the District do not appear to be in overdraft at this time, based on the perennial yield and recharge calculations of Slade (1986, 1988).

Water levels in some portions of the basins have declined for a period of time; therefore, the basins will be actively monitored for signs of overdraft. Such signs might include 1) continuing lowering of water levels, even following wet cycles; 2) inadequate recovery of water levels following a drought; 3) lowered water levels over a long period of time that cause a widespread increase in pumping costs that create conditions for uneconomic use of the overlying lands; 4) degradation of water quality that is induced by lowered water levels in the Basins; or 5) land subsidence. The Annual Report on Groundwater, which is discussed as an action item as part of future water monitoring, will identify if any of these conditions exist in the future.

As part of the work of the local groundwater purveyors, the yield of the area's basins is being established and compared to projected future water demands. This work will be integrated with this Groundwater Management Plan as the information is developed. If it is determined in the future by the District that overdraft is threatened or present in the basins, the District and the local purveyors could consider steps to alleviate the overdraft. Such steps would likely focus on supplementing recharge to the basins, thus increasing the basin yield. These steps might include increasing artificial recharge, recharging reclaimed water, or buying supplemental water.

Any projects that pump groundwater from the basins for transfer outside of the basins could lead to overpumping of the basins and subsequent overdraft. Thus, to ensure that conditions of overdraft are not created in the basins, exportation of groundwater should be considered very carefully. This issue will be addressed as an action item of this Plan.

E. REPLENISHMENT OF GROUNDWATER EXTRACTED BY WATER PRODUCERS

The District does not currently have a program of artificial replenishment of groundwater. Artificial replenishment of the groundwater is a key element of increasing the yield of a basin and preventing overdraft, and is an investment in the future. An action item of this Plan will be to consider possible replenishment projects in the basins. The District's reclaimed water program is planned to include recharge of groundwater. In addition, possibilities of groundwater banking, both within the District and in other areas, can also be included in a program of replenishment of groundwater. Groundwater banking is addressed as an action item of this Plan.

F. MONITORING OF GROUNDWATER LEVELS AND STORAGE

Both the County of Los Angeles and Newhall County Water District monitor groundwater levels within the Plan area. In addition, the District tests for water quality as required by the State. As an action item in this Plan, the District will analyze this information and prepare maps depicting the information gathered through the monitoring phase. As part of the Annual Report on the Basins, the current status of the Basins will be analyzed and any potential problems will be identified.

G. FACILITATING CONJUNCTIVE USE OPERATIONS

Castaic Dam captures winter floodflows that run in Castaic Creek. This floodflow is then released into the creek during periods of lower natural flow to enhance infiltration of the water into the underlying aquifer. All captured floodflows are released by May 1 of each year. This conjunctive use of surface flows is fundamental to the long-term health of the basins. In addition to this conjunctive use, other indirect and in-lieu recharge operations will be considered as part of the management plan.

Reclaimed water that is released into the Santa Clara River from the two treatment plants in the Santa Clarita Valley partially infiltrated into the groundwater basins. This additional recharge effectively increases the yield of the basins.

H. IDENTIFICATION OF WELL CONSTRUCTION POLICIES

The County of Los Angeles has adopted well construction requirements, and requires a permit prior to drilling of a well. The County should be urged to have its inspector present to ensure that the specifications are adhered to, to reduce the potential for aquifer contamination. In the present circumstances, these requirements appear to be adequate for the Valley. However, this Plan reserves the right to address potential well construction policies in the groundwater basins in the future.

I. CONSTRUCTION AND OPERATION OF VARIOUS RECHARGE, STORAGE, AND EXTRACTION PROJECTS

Newhall County Water District presently has no recharge facilities of its own. The District oversees an in-lieu recharge program through purchase of CLWA treated surface water in lieu of groundwater pumping. Locating possible District recharge areas is an action item of this plan. In addition, the possibility of groundwater banking, both within and outside of the valley, is an action item of this plan.

J. DEVELOPMENT OF RELATIONSHIPS WITH STATE AND FEDERAL REGULATORY AGENCIES

It is the intent of this Plan to operate under the requirements set forth by the variety of State and Federal agencies that have jurisdiction over aspects of surface water and groundwater. Further development of relationships with some of these agencies through Newhall County Water District could be beneficial to the groundwater basins through assistance with studies and by grants from the agencies. It should be stressed, however, that this Plan was formulated to ensure local control of groundwater management and it is the intent of this Plan to foster this local control in as many aspects of the management of the Basins as possible.

It is also the intent of this Plan to encourage good relationships among the purveyors in the Santa Clarita Valley, who share the common groundwater resources.

K. REVIEW OF LAND USE PLANS AND COORDINATION WITH LAND USE PLANNING AGENCIES

The Groundwater Management Act allows review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination. Land use planning within the District is carried out by both the City of Santa Clarita and by Los Angeles County. It is the intent of this Plan for the District to play an active role in land use planning related to aquifer contamination, aquifer recharge, and water supply issues. As an action item in this Plan, the District will encourage the land use planning agencies to formally recognize the primary recharge areas for the groundwater basins, and provide for protection from future potential threats of contamination in these areas or elimination of the recharge potential of these areas. In addition, the District will encourage local planning departments to inform the District of proposed projects that could impact the recharge areas or overdraft the groundwater supplies of the basins, and the District will ensure that its name is on the list of appropriate organizations to be notified during environmental review of projects in the Plan area.

VI. IMPLEMENTATION OF THE PLAN

A. GROUNDWATER MANAGEMENT PROGRAM

There have been nine action items identified for the Plan: 1) Water monitoring; 2) Recharge of groundwater; 3) Water conservation; 4) No exportation of groundwater; 5) Well drilling and abandonment; 6) Groundwater banking; 7) Additional water supply; 8) Review land use planning; and 9) Wellhead protection plan. To have a successful Plan, it is not necessary to implement all of the action items identified. It is important that all the potential action items be identified and contingency plans be developed in case any one of them become necessary. It is felt that through management activities listed in the Plan, the District can preserve the groundwater resource and avoid the more costly steps identified in item seven (7).

Many of the action items can be funded through normal District revenues. If funding is necessary to implement a portion of the Plan, then an election will be required prior to instituting an assessment. The requirements for this election are set forth in the Groundwater Management Act (Section 10750, *et. seq.* California Water Code).

1. WATER MONITORING:

The District will monitor the District-owned water well levels every month, and privately-owned wells (with the owners' permission) within the District on an annual basis. In addition, water quality testing will continue as required by the State, unless test results indicate more frequent testing be completed. Further, the District will prepare maps depicting the information gathered through the monitoring phase, as well as continuing the reports quantifying water demands, surface water and groundwater supplies. These summaries will assist the District in evaluating the effectiveness of various elements of the program. In addition, an Annual Report will be prepared that summarizes the state of the groundwater basins in the District.

Through systematic monitoring, migration of contaminants can be detected early, allowing additional time for plans to be developed and implemented before additional portions of the District are impacted. Potential contamination from areas both inside and outside the District should be considered for monitoring.

2. RECHARGE OF GROUNDWATER:

In order to enhance natural recharge and protect the District's available water supplies, the District will investigate potential methods and feasibility of artificial recharge. The investigation will include recharge of District water and reclaimed water into the aquifer, and in-lieu recharge projects.

3. WATER CONSERVATION - WATER REGULATIONS:

The District already has a water conservation plan in the District's ordinances (Ordinance No. 101 as amended) which provides certain general requirements for the District. This plan needs to be re-evaluated and adopted to ensure that all concepts on conservation are incorporated to include, but not limited to, public education, conservation practices, and utilization of reclaimed water. The Plan should also incorporate a set of water regulations, which would enable the District to set certain laws or ordinances dealing with the waste or abuse of water, especially during drought periods.

4. NO EXPORTATION OF GROUNDWATER:

Even though the District is not located within an overdrafted basin, it will still be necessary for the District to make every attempt to prevent the extraction and removal of groundwater by others from the District's boundaries and sphere of influence. The District now provides a very minimal supply of water to customers outside the District. The District has allowed water exportation on a case by case basis. This type of exportation

should be reconsidered in the future. The District has the responsibility to ensure that it monitors the groundwater extractions from within our boundaries and surrounding areas if this plan is to succeed. The District should also take all steps necessary to stop the extraction and exportation of groundwater in close proximity to the District as the District may take responsibility for these areas in the future.

5. WELL DRILLING AND ABANDONMENT:

Contamination of the groundwater can be attributed in most cases to improper well installation or abandonment of old wells. Therefore, the District should work more closely with the County to ensure that both new and old wells are constructed per the County specifications. The County should be urged to have its inspector present to ensure that the specifications are adhered to, to reduce the potential for aquifer contamination. The District should also review plans for new developments to ensure that any wells that have been permitted in the past within the development area have been accounted for and unused wells have been properly destroyed.

6. GROUNDWATER BANKING:

Recharge of groundwater when surface water sources are plentiful, such as seasonal storage during the winter or as wet-year storage for drought years, can provide flexibility of water supply. With the scarcity of suitable surface spreading areas for groundwater recharge within the District, the Newhall County Water District may want to look outside of the District boundaries for suitable surface recharge areas. Within the District, direct injection into the aquifer is also a possibility; the District will undertake a study to identify potential storage projects.

For a project outside the District's boundaries, one approach would be to fund the project jointly with other water purveyors in the valley in areas suitable for such a project. This type of project would require that each purveyor or agency contribute to the cost of construction, water to be used for injection, and monitoring of the progress. If the project was to succeed, groundwater could be replenished and water banked for the future. There would have to be agreements made between all participants as to the use of the water once banked.

7. ADDITIONAL WATER SUPPLY:

The generation of additional water supplies would enhance the local groundwater. Enlargements of existing CLWA turnouts or additional turnouts would be a reasonable additional water supply, but there are limitations to this supply. The use of reclaimed wastewater will play an increasing role in the District's future water supply. The District

may consider the purchase of properties outside the District boundaries which have shown a dramatic increase in groundwater levels for future supplies, but additional water supplies will most likely come through conservation efforts and reclaiming water.

8. REVIEW LAND USE PLANNING:

The District will take steps to cooperate with local city and county planners to assist in establishing an exchange of information on possible threats that a certain land use may pose to the groundwater. The District should become a participant in the early stages of local planning to insure that local planners are aware of possible sources of contamination of the groundwater involved in certain land use, its effect on local watershed and recharge areas, and the limitation of future water supply. As part of this effort, the District will determine the location of the main replenishment areas for the groundwater basins, and ensure that planners have available this information and information on the limitation of future water supply when making land use decisions.

9. WELLHEAD PROTECTION PLAN:

The District has instituted steps to establish a Wellhead Protection Plan which will consist of the following seven steps:

a) Preparation of a summary and purpose describing how the Wellhead Protection (WHP) goal will be achieved.

b) Delineation of Wellhead Protection Areas (WHPAs) based on available hydrogeologic information on groundwater flow, recharge and discharge.

c) Identification of potential sources of contamination within each WHPA.

d) Development of management approaches to protect the groundwater from contaminants, including technical, financial, implementation of control measures, education and training.

e) Development of a contingency plan to provide alternate drinking water supplies in case a well or well field becomes contaminated.

f) Development of a plan to prevent new well drilling from contaminating or spreading the contamination of groundwater.

g) Development of a public participation program so that local citizens can be involved throughout the planning process. The District shall coordinate with local planning agencies to insure that WHPA's are identified and land uses are compatible with the groundwater protection program.

B. SCHEDULE

The following schedule will be used in implementing the Groundwater Management Program:

1) **Water Monitoring** - The evaluation of present monitoring will be conducted within six months of adoption of the Plan. All monitoring will continue to be accomplished on a regular basis. The first Annual Report will be prepared following the end of the District's Fiscal Year in which the Plan is adopted. Subsequent Reports will be prepared on an annual basis coinciding with the Fiscal Year..

2) **Recharge** - A study of potential recharge areas/projects will be conducted within one year after the adoption of this Plan. A target time for implementation of a recharge project is within the first five years after plan adoption.

3) **Water Conservation** - The District's present water conservation program will be reevaluated within the first year of adoption of this Plan.

4) **Exportation** - The evaluation of an export project will be evaluated on a case-by-case basis.

5) **Well Drilling and Abandonment** - Procedures for implementing this item will be formulated within the first year of adoption of this Plan.

6) **Groundwater Banking** - Banking will be evaluated as part of the study of potential recharge projects (item 2) during the first year of the Plan.

7) **Additional Water Supply** - Possible projects will be considered during the first year of the Plan. If needed, a project will be considered for implementation with the first five years of the Plan.

8) **Review Land Use Planning** - Procedures for implementing this item will be formulated within the first year of adoption of this Plan.

9) **Wellhead Protection** - Wellhead protection areas will be determined within one year of adoption of this Plan. Implementation of the remainder of the Wellhead Protection Plan will occur within three years of adoption of the Plan.

VII. REFERENCES

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