STATE OF CALIFORNIA - HEALTH AND HUMA RVICES AGENCY

GRAY DAVIS, Governor

DEPARTMENT OF HEALTH SERVICES
DRINKING WATER FIELD OPERATIONS BRANCH
Government Center
464 West 4th Street, Suite 437
San Bernardino, CA 92401
GEN (909) 383-4328
FAX (909) 383-4745

July 9, 1999

Thomas L Sutton
General Manager, County Special Districts
12402 Industrial Blvd., Bldg. D, Suite 6
Victorville, CA 92392

Subject: Service Connection Limitation-CSA#70 Zone L (System No. 3610120)

Dear Mr. Sutton:

In our Inspection Letter dated June 9, 1999, regarding the subject water system, we noted that the available source capacity of 3,483 gallons per minute (gpm) was marginally close to the 3,415 gpm of maximum day demand (MDD). In view of this, we indicated that written approval from our office is required for allowing additional service connections to keep the numbers of service connections consistent with the source capacity in accordance with California Water Works Standards. We also urged you to implement urgently needed capital improvements, in addition to paying attention to operation and maintenance records and issues.

As a result of the above communication, you issued a temporary moratorium on new connections and contacted this office and requested a meeting to discuss the situation. Accordingly, a meeting was held in our office on June 25, 1999. At the meeting you stated that the data for MDD that you reported was not accurate because the well production readings were not collected at regular intervals. You also provided us with the 1998 efficiency test results for the wells which amounted to 4,074 gpm, in the place of 3,483 gpm previously reported, and an analysis of the available source capacity (Enclosure 1). Your analysis (after correcting an error for total capacity of 4,074 gpm instead of 4,079 gpm used) showed that, with Well No. 4 off-line (capacity of 379 gpm) due to bacteriological problems, the available capacity was reduced to 3, 695 gpm (4,074-379) which was still adequate to meet the 1998 MDD of 3,415 gpm. However, in the event the largest producing well No. 10 (capacity of 886 gpm) were to fail for any reason, the reliable source capacity would be only 2,809 gpm resulting in a short fall of 606 gpm. In fact, Well No. 10 was off-line for re-furbishment at the time of the field inspection on May 15, 1999, and has since been back on-line.

Enclosure 2 provides a summary of data as reported by Zone L in its Annual Reports to the Department. The data contained some inconsistent values for maximum month and MDD (See 'Analysis' section below). Therefore, we determined that additional information is needed to reasonably estimate reliable data for MDD, since the value for 1998 was much lower than those in the previous three years. Additional information was also requested regarding an inter-connection with the neighboring Zone G and the reservoir levels both in Zone L and Zone G. We have received the additional information and met with your staff. We have completed a review and have compiled the following analysis and conclusions based on the available information:

Background

CSA#70 Zone L (Zone L) is a permitted domestic water supply system under the Special Districts of County of San Bernardino. Zone L has 10 active wells as sources of supply. These are, well Nos. 2, 3, 4, 5, 6A, 6B, 9A, 9B, 10 and 11. There are 32 storage tanks/reservoirs, with a storage capacity of 6.006 million gallons (MG) in eight pressure zones in the distribution system. According to Zone L's 1998 Annual report to the Department, a population of about 10,100 was served through 4,388 active service connections, with another 561 inactive service connections.

Our records indicate that an inter-connection with Sheep Creek Water Company is being planned, and is not yet complete. When the inter-connection is completed, availability of water from Sheep Creek Water Company will depend on its source capacity and MDD. However, there is an inter-connection with CSA#70, Zone G that is listed in our records as inactive. Zone L has provided additional information on this inter-connection with Zone G (Enclosure 3) according to which it is found to be a permanent and active inter-connection. We understand that water flows in both directions at the inter-connection, namely, water from Zone G will flow into Zone L and vice-versa. Zone G has two wells, with a total pumping capacity of 147 gpm and one 410,000 gallon storage tank. Because the same field staff operates all Special District water systems, use of the wells in Zone G is made based on operation needs in Zone G and Zone L. In the absence of any metering device between the two Zones, there is no record of how much of Zone L demand was derived from Zone G, or how much of Zone L water was served to Zone G at any time. Zone L provided a scenario of operation of Zone G (Enclosure 3) that suggested that its wells and the reservoir would be able to transfer water at the rate of 432 gpm for eight hours to Zone L without jeopardizing Zone G. However, it was assumed that both the wells and reservoir in Zone G would be available for transfer of water to Zone L, with demand in Zone G being met from the reservoir storage only. These assumptions make the suggested availability of 432 gpm of water from Zone G unrealistic and therefore, unacceptable (see 'Analysis' section below).

Zone L's domestic water supply permit issued in 1981 is no longer representative of the system as it exists currently, and therefore, the Department will initiate the process to issue a new permit as soon as possible.

Analysis

An examination of the information in Enclosure 2 shows that no MDD was reported for 1991 and 1992. The MDD for 1993 is found to be exactly the daily average of the maximum month production, and hence is not acceptable. The maximum month production for 1994 is erroneous, being even less than the average month based on the annual production. Therefore, the MDD for 1994 also is not acceptable. While the reported MDD for 1995 through 1997 appear to be consistent, Zone L reported that the production readings of hour meters and flow meters were not always taken at 24 hour or nearly 24 hour intervals leading to significant errors. In comparison, the 1998 MDD appears to be reliable. Therefore, the MDD for 1995 through 1997 is estimated on the basis of the ratio of MDD to annual average day demand for 1998. This ratio was found to be 2.2, and the MDD for 1995 through 1997 was estimated on the basis of the daily average of the respective annual consumption multiplied by the ratio of 2.2. The estimated MDD data were used in calculating the gpm/active service connection as shown in Enclosure 4. We used the active service connection instead of total service connections in view of the fact that there are many active meters at vacant lots in Zone L with no water consumption. This approach was taken to explore the possibility of allowing new connections while additional source capacity is being developed. The consumption, averaged over the four year period from 1995 through 1998, is found to be 0.843 gpm per active service connection, and based on the total number of service connections, the average consumption is 0.739 gpm per service connection (Enclosure 4).

It is necessary for a reasonable estimate of the water available from Zone G to be made to supplement the sources of Zone L through the inter-connection. Referring to Enclosure 3, it was noted above that Zone L's claim that 432 gpm of water from Zone G could be transferred to Zone L was unacceptable. This is based on the assumptions made, and further based on the normal hydraulic capacity of about 200 gpm for the 4-in inter-connection. Data provided by Zone L indicated that the two wells in Zone G produced a total of 22.29 MG of water in 1998, though the wells can potentially produce a lot more water if operated continuously. The consumption, based on billing, during the hot months of June-July 1998 was 3.7 MG, and the total consumption in Zone G in 1998 was 12.41 MG. When the inter-connection valve is opened, the Zone G wells serve some parts of Zone G with the remaining water going into Zone L. The rest of Zone G would then be served from the storage tank in Zone G. While this method of operation may be satisfactory for one day or so, occurrence of MDD or near MDD conditions for a few consecutive days would necessitate the ability of the Zone G wells to satisfy the Zone G demand and only the balance of well capacity

would be available for Zone L. Based on this situation, and using the ratio of 2.2 for the MDD to annual average daily consumption determined above, it is found that the MDD for Zone G is estimated to be 52 gpm. The MDD 42.6 gpm reported by Zone L in Enclosure 3 is not acceptable because it was based on average consumption in the two months of June-July 1998, and not a maximum day demand. Therefore, the reliable water available from Zone G to Zone L is estimated to be about 95 gpm (147-52).

Even though it is possible to arrive at a better estimate of MDD by taking into consideration the changes in storage as reflected in reservoir levels, the available data were not accurate for such an analysis to be useful. The error in not doing this adjustment to the MDD could be positive or negative, and is considered small.

It is noted that Zone L routinely receives requests for "Will Serve Letters" which may have accelerated of late due to impending rate increases. Further, Zone L must take into consideration the building plan approval process by the County Building Department to sell the meters to lots with approved plans. In our analysis we will only consider the active and total connections rather than any projected demand through "Will Serve Letters" which is an element of the planning process. The Department will not therefore impose any restriction on the Zone L's planning process. However, Zone L must ensure that the water system's capital improvement and staffing meet the planned expansion and growth. It appears that Zone L has not planned the system improvements needed to maintain standards and has not paid attention to the Department's concerns in this regard expressed in the past inspection reports.

Service Connection Limit

On June 29, 1999, Zone L provided us with the latest counts of service connections according to their status (Enclosure 5). It is observed that there is a total of 4,977 meters in ground as of June 1999. Of this total, there are 401 inactive meters on lots without improvement and there are 132 active meters on vacant lots without water consumption. Therefore, there are 4,444 (4977-401-132) locations with improvements that the water system must be currently capable of serving at any time. The other 533 meters (401 + 132) are on vacant lots with little or no water consumption. The request for service at these 533 locations can be expected only after improvements have taken place.

Any supply of water through a meter for the duration of approved construction on a property is not considered a permanent service connection, and is not included in the service connection limit. Such a connection will be considered a service connection, for the purpose of service connection limit, at the time of occupancy of the constructed improvement.

On June 25, 1999, Zone L provided us with more recent efficiency test results for 1998 of the source wells, which amounts to 4,074 gpm if all wells are in operation. A historical review of the well pumping rates from previous efficiency test results indicates that the total capacity in 1995 was 3,831 gpm, in 1996-1997 was 3,483 gpm, which shows significant variations. Currently, Well No. 4, 379 gpm capacity, is out of service due to bacteriological problems, reducing the capacity to 3,695 gpm, assuming the remaining wells will be in operation. Any well going off-line for any reason will further restrict the available water.

Conclusion

Based on the above, and until Well No. 4 is brought on-line, with all other wells in operation, it is estimated that the available total source capacity, including the water from Zone G, is 3,790 gpm (3,695 + 95). Therefore, the number of active service connections that can be reasonably served adequately is 4,495 (3,790/0.843), and the total number of service connections that can be allowed is 5,128 (3,790/0.739).

As noted above, currently there are 4,444 service connections to properties with active meters and improvements that Zone L must supply water at any time. Therefore, Zone L can add an additional 51 active service connections (4,495-4,444) at this time. When Well No. 4 is returned to service, there will be a total of 4,169 gpm (4074+95) of source capacity available. An additional 450 active service connections (379/0.843) can be added when Well No. 4 comes on-line, provided all ten wells in Zone L and two wells in Zone G remain in operation.

As to the situation of total service connections, already there are 4,977 service connections, which is under the 5,128 service connections limit that can be supplied from available source of supply, with Well No. 4 off-line. When the Well No. 4 comes on-line, the total number of service connections can be increased to 5,641 (4,169/0.739), and accordingly, an additional 664 service connections (5,641-4,977) can be added. The difference between the number of active service connections and total service connections arises because of the probability that a certain number of connections remain inactive.

Because of the assumption that all wells will be in service at all times, any loss of wells due to mechanical or water quality problems would lead to inadequate source to supply all service connections. Further, reasonable assumptions had to be made to reach realistic estimation of MDD and availability of water from Zone G. Therefore, the need for maintaining good records of well productions, and reservoir levels, and metering the inter-connection with Zone G cannot be over-emphasized. Also, periodically and particularly during maximum demand days, measurement of pressures in representative locations in all pressure zones will assist in the evaluation of the impact of the service connection limit on the service to your consumers. Please note

that pressures less than 5 psi implies potential contamination of water in the distribution system.

We understand that Zone L has plans to equip a new well No.12 that has already been drilled. The Department will extend all assistance to get the new well permitted upon submission of all required documentation. After the new well is on line, the service connection limit will be revised appropriately. It is important that Zone L keep good records to enable a better value for MDD to be determined in the future. Further, it is advisable for Zone L to educate its consumers about water conservation measures to maximize the use of available water resources. In the meantime, Zone L can request a review of the service connection limit if additional reliable data is available.

If you have any question, please call me at (909) 383-4327.

Sincerely,

Kalyanpur Y. Baliga, Ph.D., P.E.
Senior Sanitary Engineer

Enclosures

cc: SBCDEHS

ENCLOSURE 1

COUNTY SERVICE AREA 70 ZONE L
REVIEW OF WATER SYSTEM

SOURCE CAPACITY	3,483 gpm	*This was the 1997 figure.
	4,079 gpm	The 1998 capacity

MAXIMUM DAY DEMAND **3,415 gpm**

SOURCE CAPACITY ALL AVAILABLE WELLS =	4,079 gpm
Less Well #10 (largest)	-886 gpm
Remaining capacity	**3,193 gpm**
Maximum Day Demand	3,415 gpm
Remaining Capacity	-3,193 gpm
Shortfall	**222 gpm**
Well #4 out of service	379 gpm
TOTAL SHORTFALL	**601 gpm**

* Additional capacity from Well #12 (mid to end of August) 1,200 gpm

* Baldy Mesa Tie (first week in July) - 600 gpm

* Well #4 back on-line (July 1) 379 gpm

* Tank 2A - 1 mg. received bids of $360,000

* Smithson Springs Reservoir piping modification, telemetry conversion (by July) adds 400,000 gal. Storage (250 gpm)

* Reservoir 5C (L-1 tank) placed online by adjusting P.R. stations - adds 500,000 gal. (300 gpm)

TOTAL AVAILABLE CAPACITY: **978 gpm**

NOTES: Review Capital list and rates.

H20Net Program & Report - describe system improvements

Add staffing

COUNTY SERVICE AREA 70 ZONE L
PENDING CONNECTION ACTIVITY

Meters sold but not installed		**1**
Active Will-Serve Letters		**2**
Inactive Meters (in-ground but locked off)		**561**
Project Notices on File (see attached)		**156 with priority given to 142**
Active Meters (zero consumption)		268
Improved Properties	136	
Unimproved Properties	132	

PERMITS ISSUED

FOR CSA 70L

1999

January	3
February	7
March	6
April	4
May	6
June	
July	
August	
September	
October	
November	
December	
TOTAL	26

ENCLOSURE 2

CSA #70, Zone L

Historical Data
(Annual Reports)

June 25, 1999
Kalyanpur Baliga

Year	Active SC	Inac SC	Total SC	MDD	Max month	Annual
				MG	MG	MG
1998	4388	561	4949	4.92	125.36	814.11
1997	4281	599	4880	6.94	121.95	895.44
1996	4223	613	4836	6.35	116.64	891.79
1995	4191	599	4790	6.15	116.58	820.94
1994	4169	617	4786	1.21	37.63	1077.24
1993	4101	593	4694	4.4	136.69	1062.31
1992	4627	648	5275	N/A	141.73	946.81
1991	3894	631	4525	N/A	124.2	893.67

Note: Service connection information for 1992 is out of step from trend. N/A Not available

ENCLOSURE 3

CSA 70 ZONE G'S CONSUMPTION
FOR JUNE AND JULY, 1998
(TWO HIGHEST MONTHS)

Total 492,600 cubic feet multiplied by 7.48 = 3,684,648 gallons.
Divided by 60 days, gives a daily demand of 61,410 gallons per day,
Which equates to 42.6 gallons per minute for Zone G system demand.

Generally, when needed, the district transfers water 8 hours a day to Zone L. Zone G wells pump directly into the Zone L system at 147 gallons per minute. This rate combined with Zone G's 24 foot, 410,000 gallon reservoir will allow a total of 432 gallons per minute to be transferred. This totals 207,226 gallons per day transferred from Zone G to Zone L without jeopardizing the Zone G system. This allows 16 hours to recharge Zone G's reservoir.

During the 8 hour transfer period the Zone G reservoir level is maintained at approximately 15-16 feet.

ENCLOSURE 4

CAS #70, Zone L
Service Connection
Analysis

June 25, 1999
Kalyanpur Baliga

Year	Estimated MDD	Active SC	Total SC	gpm per	gpm per
	MG			Act-sc	total-sc
1998	3417	4388	4949	0.779	0.69
1997	4819	4281	4880	0.876	0.768
1996	4410	4223	4836	0.891	0.78
1995	4271	4191	4790	0.825	0.718
			Average	0.843	0.739

COUNTY SERVICE AREA 70
IMPROVEMENT ZONE L

Meters in Ground:			4,977
Active Meters:		4,416	
Active Meters w/o consumption		268	
Active - improved property	136		
Active - unimproved property	132		
Inactive Meters:		561	
Inactive - improved property	160		
Inactive - unimproved property	401		

Project Notices:

**See attached listing. Updated information is not available in district's files. Have requested information from Planning Department. District is requesting on-line access to Planning Department records to ascertain current status on all Project Notices within district boundaries.

Will Serve Letters:

Date	APN	Applicant	Expiration Date	
2/22/99	3064-221-13	The Group	8/22/99	
5/13/99	3098-521-04	Prince Mobile Homes	11/13/99	
5/26/99	3101-391-18	Michael & Joyce Cox	11/26/99	
6/28/99	3070-051-06	Deserada (Moore)	12/28/99	Meter issued
6/28/99	3037-221-20	TKP Const. (Stewart)	12/28/99	Meter issued
6/28/99	3066-481-07	TKP Const. (Greer)	12/28/99	Meter issued

Meters Sold:

6/28/99	3067-081-32	TKP Const. (Landy)	Meter issued
6/28/99	3102-381-16	TKP Const. (Wells)	Meter issued
6/28/99	3037-021-03	TKP Const. (Patterson)	Meter issued

System No. 36-120

STATE OF CALIFORNIA — HEALTH AND WELFARE AGENCY EDMUND G. BROWN JR., *Governor*

DEPARTMENT OF HEALTH SERVICES
2151 BERKELEY WAY
BERKELEY, CA 94704

ENGINEERING REPORT

In the Matter of the Permit Application

From

SAN BERNARDINO COUNTY SERVICE AREA NO. 70, ZONE L
SERVING THE PHELAN AND PINON HILLS AREAS
SAN BERNARDINO COUNTY

Report Prepared By

WILLIAM C. GEDNEY
ASSISTANT ENGINEERING SPECIALIST (SANITARY)

Approved

SAMUEL G. KALICHMAN
SUPERVISING SANITARY ENGINEER

Date

MARCH 4, 1981
Amendment 10-6-87
" 11-21-94
" 03-06-00

Sanitary Engineering Section

DEPARTMENT OF HEALTH SERVICES
2151 BERKELEY WAY
BERKELEY, CA 94704
(415) 540-2154

May 20, 1981

San Bernardino County Service
Area No. 70, Zone L
P. O. Box 221
Pinon Hills, CA 92372

WATER PERMIT NO. 81-023

Applications of San Bernardino County Board of Supervisors for County Service Area No. 70, Zone L, dated March 20, 1978 and August 11, 1980, made in accordance with Sections 4011 and 4019 of the California Health and Safety Code for a domestic water supply permit, have been considered by the State Department of Health Services. Enclosed is a copy of an Engineering Report, dated March 4, 1981, prepared by the Sanitary Engineering Section regarding your applications.

It is the Finding of the State Department of Health Services that Sections 4010 to 4037, inclusive, of the Health and Safety Code can be met by the water system after completion of the improvements proposed by the County. This finding is based on the cited report. A domestic water supply permit is hereby granted to San Bernardino County Service Area No. 70, Zone L, to serve domestic water to consumers in the areas of Phelan and Pinon Hills in San Bernardino County, subject to the following provisions:

1. Plans and specifications for the proposed improvements shall be submitted to the State Department of Health Services for approval prior to construction.

2. The State Department of Health Services shall be notified of the completion of the improvements to determine conformance with the approved plans.

3. A maximum of 1,000 service connections, including those in San Bernardino County Service Area No. 70, Zone L-1, shall be allowed to connect to the system until such time as additional proven source capacity is developed. Upon receipt of adequate data on new source capacity, the State Department of Health Services will modify the limit accordingly.

4. Upon completion of the proposed new wells and prior to their use in the domestic water system, a copy of the well log, drillers report, and required laboratory reports on the quality of water produced shall be submitted to the State Department of Health Services.

This permit supersedes any domestic water supply permits previously granted for any part of this system.

John M. Gaston, Chief
Sanitary Engineering Section

Enclosure
cc: San Bernardino County Dept.
of Environmental Health
Department of Water Resources

bcc: SES-San Diego, Mr. Kalichman
SES-San Bernardino, Mr. Anderson
WCG:dg

DEPARTMENT OF HEALTH SERVICES
2151 Berkeley Way
Berkeley, CA 94704
(415) 540-2154

Engineering Report
for Consideration of the Permit Applications from
San Bernardino County Service Area No. 70, Zone L,
Serving the Phelan and Pinon Hills Areas
San Bernardino County

March 4, 1981

Sanitary Engineering Section
State Department of Health Services
W. C. Gedney, Project Engineer

SUMMARY AND RECOMMENDATIONS

I. Purpose of Report

Application of the San Bernardino County Board of Supervisors to construct and operate the San Bernardino County Service Area No. 70, Zone L, water system for the Phelan and Pinon Hills areas was made on March 20, 1978. A second application was subsequently submitted on August 11, 1980 to construct two new wells, additional storage facilities, and provide a substantial expansion of the distribution system utilizing, in part, funds from the Safe Drinking Water Bond Law of 1976 loan program. The purpose of this report is to document the sanitary engineering review of the existing system and operation, to address the proposed improvements, and to make recommendations regarding issuance of a domestic water supply permit.

II. Summary Description of System

The sources of supply are two vertical wells, one horizontal well, and one spring. The distribution system is made of approximately 64 miles of 6-inch, 8-inch, and 12-inch Class 150 and 200 asbestos-cement pipe. Ten steel tanks, two concrete reservoirs, and one pressure tank provide approximately 1.58 mg of storage. Eleven booster stations raise the water from the wells to the different

zones and storage tanks in the distribution system. There is about 1700 feet of elevation difference between the wells and the highest storage tank.

III. Engineering Appraisal of Sanitary Hazards and Safeguards

The following deficiencies exist:

1. The gravity transmission main from the spring source is exposed to groundwater infiltration and there is some flooding hazard to a series of boxes that collect water from the spring source. These facilities are not presently in use and cannot be used until physical corrections and improved treatment are provided and approved by the State Department of Health Services.

2. There is no piped community water system serving a number of existing residences within the service area. This represents a potential health hazard since residents must haul drinking water and it is difficult to maintain drinking water in a suitable sanitary condition at all times. The water purveyor proposes to use Safe Drinking Water Bond Law funds to construct a domestic water system to serve these residents.

3. Roofs of the two concrete reservoirs are in need of repair and new roofs will be installed in the near future.

4. The system has limited source capacity and there is a potential for rapid growth in the area. A limit on service connections is needed to assure there will be adequate supply.

There are no other known significant deficiencies.

IV. Conclusions and Recommendations

The Sanitary Engineering Section finds that with the proposed corrections the existing and proposed sources, works, and operation as described in this report will be capable of producing a supply of water which is safe, wholesome, and potable under all circumstances and conditions. The quality of the water served and the system's facilities and operation adequately meet State Department of Health Services standards. Issuance of a new domestic water supply permit by the State Department of Health Services to the San Bernardino County Service Area No. 70, Zone L, is recommended subject to the following provisions:

1. Plans and specifications of the proposed improvements shall be submitted to the State Department of Health Services for approval prior to construction.

2. The State Department of Health Services shall be notified of the completion of the improvements to determine conformance with the approved plans.

3. A maximum of 1000 service connections, including those in San Bernardino County Service Area #70, Zone L-1, shall be allowed to connect to the system until such time as additional proven source capacity is developed. Upon receipt of adequate data on new source capacity, the State Department of Health Services will modify the limit accordingly.

4. Upon completion of the proposed new wells and prior to their use in the domestic water system, a copy of the well log, driller's report, and required laboratory reports on the quality of water produced shall be submitted to the State Department of Health Services.

ENGINEERING INVESTIGATION FINDINGS

I. Source of Information

Information was obtained from a preliminary engineering report done for the Farmers Home Administration dated September 1979 and from preliminary plans and specifications for construction of system improvements. A complete field review of the system was made on January 23, 1981.

II. Consumer and Production Data

Attachments Nos. 1A and 1B are maps of the area currently being served. The water system serves approximately 1800 persons through 700 metered service connections. Total production from the sources was 66 million gallons (MG). The maximum month of usage was October 1980 when 10.4 MG were used. The maximum daily consumption was 0.43 MG on August 23, 1980. There have been no water outages in the past; however, because of the rapid growth potential and large number and size of parcels in the service area, the system should be limited to a total of 1000 service connections until additional, reliable sources of supply are located and developed that allow a reasonable rate of growth. At that time, the Sanitary Engineering Section would review the limit placed on additional service connections based upon the proven capacity of the additional sources.

III. Proposed Facilities

The following improvements are planned:

1. Drilling and connection of two new wells to the system. 4,5

2. Construction of four new 210,000 gallon tanks.

3. Installation of approximately 61 miles of new 6-inch, 8-inch, and 12-inch asbestos-cement pipe.

Of these new facilities, one well, three 210,000 gallon tanks, and approximately 21 miles of new pipe will be given first priority and will be constructed with Safe Drinking Water Bond Law funds. Construction of the remaining facilities is not covered by the State loan and will depend upon the availability of additional funds.

IV. Description of the System

Attachment No. 2 is a schematic diagram showing the arrangement of physical facilities and the routing of water between sources, storage facilities, and the distribution zones. Also attached are data sheets giving detailed information on the wells, storage, distribution, transmission, chlorination, and booster station facilities.

A. Sources

1. Vertical Wells

The primary sources of domestic water for the system consist of two vertical wells drilled in 1976 and 1979. Both of these wells are satisfactorily located and free from sanitary hazards. Well No. 2 produces water at a rate of 320 gpm, and Well No. 3 produces 395 gpm. A third well (No. 1) was drilled near Well No. 2 in 1975, but because of subsequent problems of sanding and low production, it has not been used in the domestic water system.

2. Boneyard Spring System

The system also has an old developed spring and one horizontal well which feed into a series of seven collection boxes. All of these collection boxes are sealed, but there is some flood hazard. There is no

development above this source, and the surrounding area is owned by the County. In addition, the spring and collection boxes are all located in a fenced, secure area. The combined flow from these sources averages approximately 20 gpm. This system is not currently being used and will not be until needed improvements are made.

Currently, there are no supplemental sources of supply for the system. It is envisioned that with the completion of the project the system may be able to make connections with the neighboring Sheep Creek Water Company and County Service Area No. 70, Zone G, systems.

The chemical and bacteriological quality of the vertical well sources are in compliance with the State Department of Health Services Drinking Water Standards. The chemical quality of the spring source meets the Drinking Water Standards. The bacteriological quality of the water from the spring system has occasionally been unsatisfactory.

B. Treatment

Treatment is necessary because of the potential bacteriological problem at the spring, and to safeguard against any infiltration into the low-head transmission main. The only treatment currently provided is unreliable, manual drip-chlorination of all water from the spring and horizontal well sources. Chlorination occurs just before water enters the two concrete reservoirs. No power is currently available at this site, but the County is in the process of obtaining an easement to supply power to this location. In addition, the County has proposed to upgrade this facility and provide reliable treatment. This source will not be used in the system until needed improvements have been made.

C. Transmission

About 1600 feet of transmission main is a gravity line consisting of 1200 feet of 4-inch PVC and 400 feet of 3-1/2 inch steel pipe. The construction of the line is inadequate as evidenced by the growth of roots through the pipe joints into the pipe. This main delivers water produced by the spring and horizontal well to the concrete reservoirs. There are no sanitary hazards in the vicinity of the pipe, and all of the land around the main is owned by the County.

D. Storage

System storage consists of twelve storage reservoirs, ten of which are new steel tanks in excellent condition, and two are old concrete reservoirs which are currently being refurbished. The roofs of the two concrete reservoirs currently consist of wood and aluminum and are in need of repairs. The County is in the process of designing new steel roofs for both reservoirs which will be installed in the near future. The sanitary condition of all the remaining reservoirs is satisfactory. The total storage capacity of the system is 1.58 mg, which is designed to provide adequate water supply during peak demand for domestic needs and for fire protection. Four additional 210,000 gallon reservoirs are planned, three of which will be funded through the State loan. These tanks will provide adequate water storage for the proposed expansion.

E. Distribution

The distribution system consists of 13 pressure zones and sub-zones. Water from the vertical wells is pumped through 11 pump stations, each of which has two electric booster pumps. A portable gasoline pump which can be utilized at any of the 11 pump stations is available for emergency purposes. Four additional booster stations will be provided as part of the proposed project.

Construction of new and existing distribution system mains meets minimum State Waterworks Standards. The existing system consists of 64 miles of 6-inch, 8-inch, and 12-inch Class 150 and 200 asbestos-cement pipe and is in excellent condition since it was installed in 1975. Currently, there are over 60 dead-ends in the system, all of which have either blow-offs or fire hydrants. This number will decrease with the proposed project. The area is not sewered at this time. The proposed additions to the distribution system will consist of 61 miles of 6-inch, 8-inch, and 12-inch Class 150 and 200 asbestos-cement pipe, 21 miles of which will be funded by the State loan. Pressures range from 35 to 135 psi and are controlled by pressure regulating stations.

V. Maintenance and Operation

This system is operated by the San Bernardino County Special Districts Department which is responsible for managing and operating several other domestic water systems. Over-all operation of the system is the responsibility of the watermaster and superintendent, and the management and operation of this system has been acceptable.

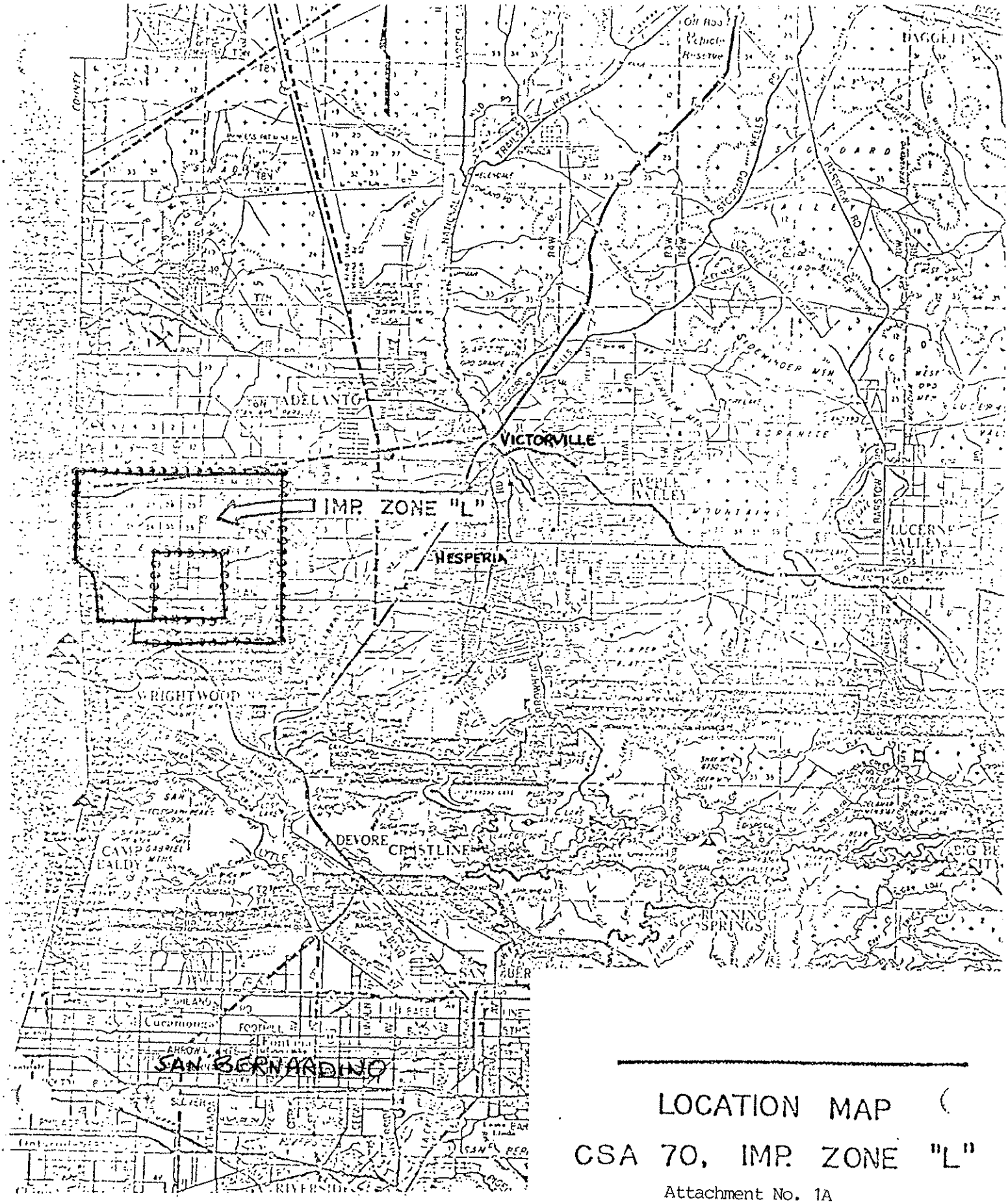
Routine maintenance is performed by one local full-time system operator who is assisted by other full-time operators as needed. All of the District's operations personnel hold State water treatment operator certificates and have good working experience in operating and maintaining water systems.

Bacteriological and chemical samples are collected from this system in conformance with the requirements of the Domestic Water Quality and Monitoring Regulations and the quality standards have been met consistently.

Complaints are responded to promptly and adequate records are maintained. The Special Districts Department has an active cross-connection control program, and all services are reviewed to determine the need for installation of backflow prevention devices. Mains are disinfected according to AWWA specifications, and dead-ends are flushed monthly. Gate valves are adequately located and maintained. Adequate maps of the distribution system are kept. Emergency Notification and Disaster Response Plans are also kept current.

The over-all operation and maintenance of the system has been very good.

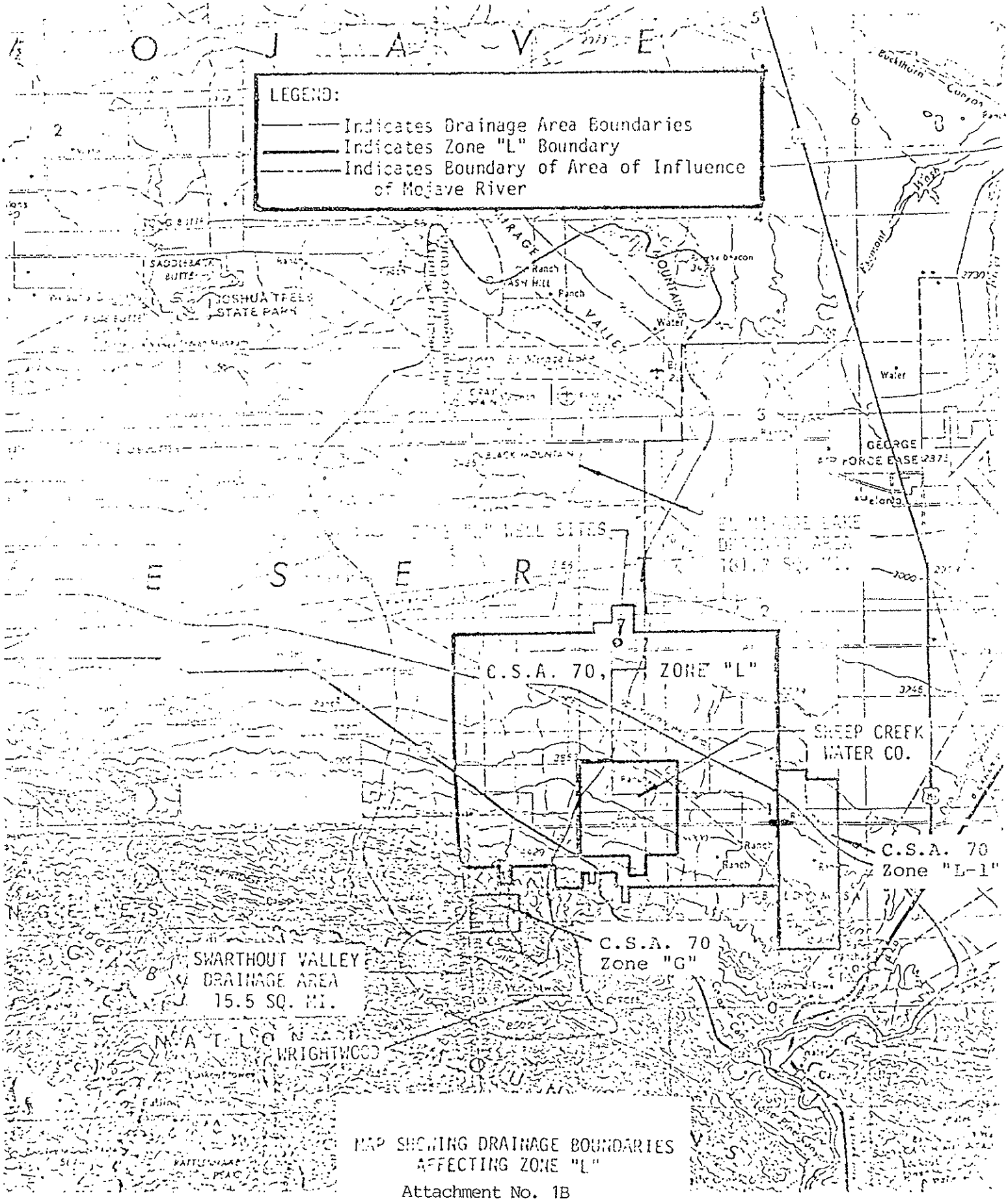
Attachments



LOCATION MAP

CSA 70, IMP. ZONE "L"

Attachment No. 1A



MAP SHOWING DRAINAGE BOUNDARIES AFFECTING ZONE "L"

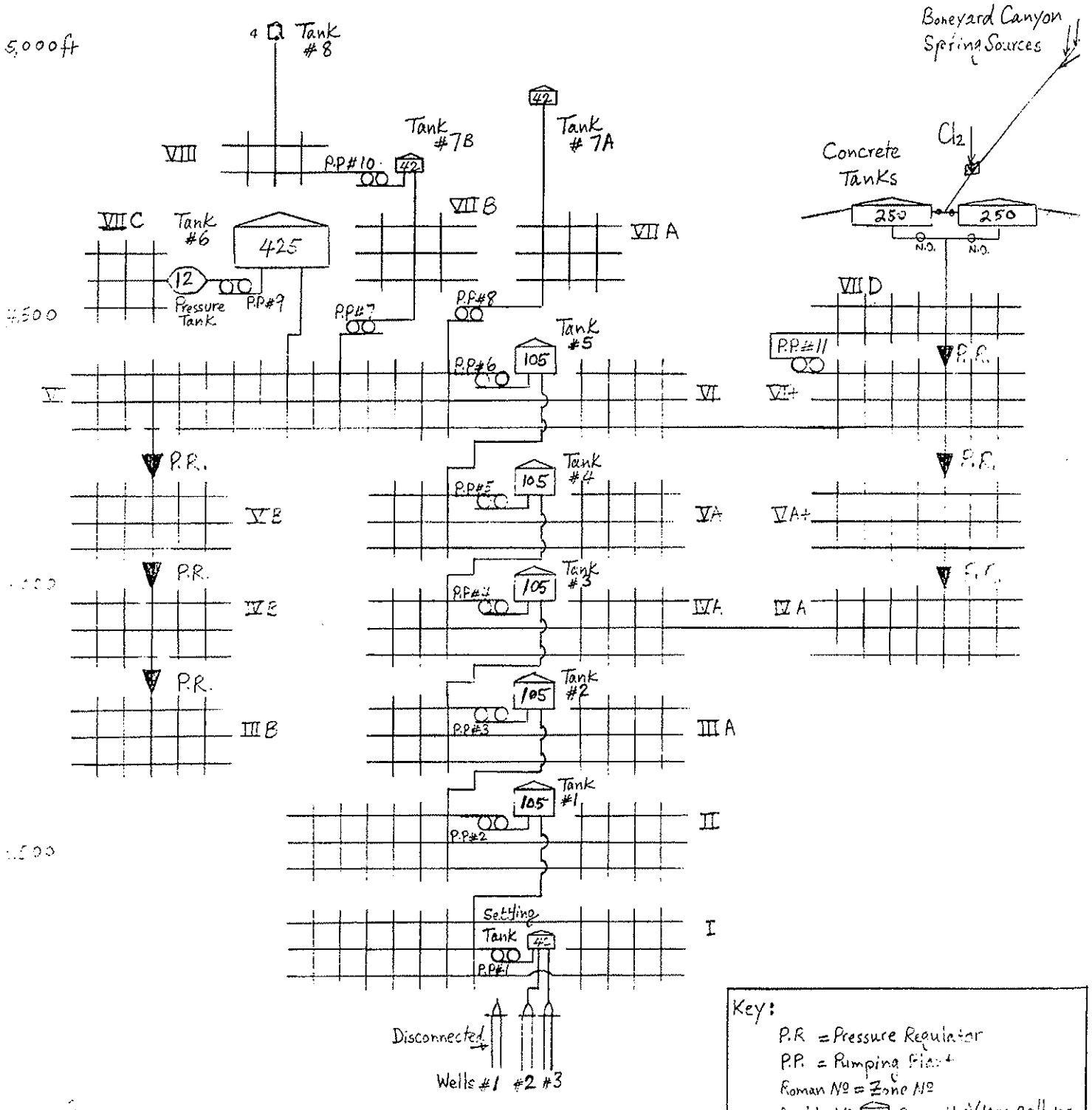
Attachment No. 1B

SAN BERNARDINO COUNTY SERVICE AREA NO. 70, ZONE L

SCHEMATIC DIAGRAM

SES

Feb 1981 W C Gedney



Attachment No. 2

DEPARTMENT OF PUBLIC HEALTH

WELL DATA

(1) Place and Owner: San Bernardino County Service Area No. 70, Zone "L"

(2) Source of Information: Bill Smillie, Watermaster and John Combs, Field Coordinator

Collected by: F. M. Rizk; W. C. Gedney Date: 6/28/79; 1/4/80; 1/23/81

	Well No. 1	Well No. 2	Well No. 3
(3) Number or Name			
Date drilled	1975	1976	1979
(4) Location: Neighborhood	Resid-rural	Resid-rural	Rural
Size of lot	132' x 331'	132' x 331'	132' x 330'
Distance to: Sewer	N/A	N/A	N/A
Sewage disposal	>500'	700'	>1000'
Abandoned well	None	None	None
Nearest property line	50'	50'	30'
(5) Housing: Type	None	Corrug. Metal	Block and Wood
Condition	N/A	Good	Good
Pit depth *(if any)*	None	None	None
Floor *(material)*	Concrete	Concrete	Conc.
Drainage	OK	OK	OK
(6) Well Depth	686'	660'	690'
(7) Casing: Depth	550'	550'	435'
Diameter	14"	14"	14"
Kind	1/4" single steel	1/4" sgl steel	1/4" steel
Height above floor	2'	18"	18"
Distance to highest perforations	571'	405'	435' to 680'
Surface sealed *(yes or no)*	Yes	Yes	Yes
Gravel pack *(yes or no)*	Yes	Yes	Yes
Second casing depth	50'	50'	50'
Second casing diameter	26"	20"	20"
Annular seal *(depth)*	50'	50'	50'
(8) Impervious Strata: Penetrated — Thickness	6'; 35'	20'	5'; 11'
(8) Impervious Strata: Penetrated — Depth to	260-266; 540-575	140-160	115'-120';375-86'
(9) Water Levels: Depth to — Surface			401
(9) Water Levels: Depth to — Static	390'	400'	402.5'
(9) Water Levels: Depth to — When pumping	475'	470'	416.0
(10) Pump: Make	--- (pulled)	U.S.Electric	Goulds Pumps-Newman Motor
Type	Subm.	DWT	DWT
Capacity, g.p.m.	85 (when pump was in	317	395
Lubrication	Water	Oil	Oil
Power	25 HP-Elec.	50 HP-Elec.	75 HP
Auxiliary power	None	No	No
Control	Auto-Manual	Auto-Manual	Auto-Manual
Discharge location	Abv ground	Abv ground	Abv ground
Discharge to	Settling Tank	Settling Tank	Settling Tank
(11) Frequency of Use	(Deactivated) Not used	Daily	Daily
(12) Flood Hazard	Low	Low	Low

(See Well Log.)

(13) Remarks and Defects (Use other side if necessary): Sand & turbidity problem. Serves as monitoring well.

(14) Show well log on other side. → In file → In file → In file

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

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AQUEDUCT AND TRANSMISSION MAINS DATA

(1) **Place and Owner:** San Bernardino County Service Area No. 70, Zone L

(2) **Source of Information:** Bill Smillie, Watermaster, and John Combs, Field Coordinator

Collected by: W. C. Gedney Date: 1/23/81

(3) **Date First Used:** 1940's

(4) **Joint Material:** Steel is welded, PVC is ring tite joints

(5) **Pipe Material:** About 1,200 ft. of 4" PVC and 400 ft. of 3½" steel

(6) **Gravity or Pressure:** Gravity

(7) **Ditch, Flume, or Pipe:** Pipe

(8) **Length** *(approximately)*: 1,600 feet

(9) **Sizes:** 4" PVC and 3½" steel

(10) **Capacity (m.g.d.):** 14,000 to 72,000 gallons/day (10-50 gpm)

(11) **Receives From:** Boneyard Spring and sources

(12) **Serves** *(delivers to)*: The two concrete reservoirs

(13) **Defects and Remarks:** Main is not pressurized and water flows down by gravity.

Water from the spring and the horizontal well is collected in a series of seven boxes. The collection line between the individual collection boxes needs routine maintenance to remove plant growth. Possibility of flood is very high in some of the boxes.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

CHLORINATION DATA

(1) Place and Owner: San Bernardino County Service Area #70, Zone "L" - Pinon Hills

(2) Source of Information: Bill Smillie, Watermaster and John Combs
Collected by: W. C. Gedney Date: 1/4/80 ; 1/23/81

(3) Application: At concrete tanks site
Water treated *(raw, filtered, etc.)*: raw ground water from spring.
Chlorine demand character: Low.
Point of application: Upstream from inlet to concrete reservoirs.
Mixing: In about 100 ft. of line to reservoirs and in reservoirs.
Contact time before use: 2 - 4 days.
Contact time before residual test: 2 - 4 days at outlet of reservoirs.
Water flow variation: Seasonal
How measured: (to be metered.)

(4) Machine:
Make: W & T
Type: Model 94-130
Capacity: 5 - 200 gal/day
Condition: New
Holds setting well? Yes.

(5) Housing:
Insulation: Yes
Heating: To be provided

(6) Chemical Added *(% available chlorine, form)*: Liquid chlorine - 17%
Cylinder or crock capacity: 30 gal.
Stock on hand: 5 - 10 gal.

(7) Operation and Maintenance:
Lapse during changes: 5 min.
Lapse during repairs: 30 min.
Spare parts on hand: Yes.
Ability to make repairs: Good
Visits to machine:
When or how often: Once per day , except during winter months.
Distance to travel: 5 miles round trip
Other duties: System operation
Residual Tests: Yes
Tests made *(O.T., O.T.A., etc.)*: DPD
Tester used: W & T
How often: Once per day
Where test made: At concrete tanks outlet
Results *(indicate free or combined)*: Free
Records: Flow, chlorine residual

(8) Condition of Scales *(if any)*: N/A

(9) Complaints: Yes, primarily taste and odor.

(10) Defects and Remarks:
1. Poor mixing of chlorine (manual drip chlorination).
2. Chlorine feed not proportioned to flow.

WATER SANITATION SECTION

CHLORINATION FACILITIES EVALUATION

SYSTEM: San Bernardino County Service Area No. 70, Zone L SYSTEM NO. 3 6 1 2 1

Facilities Location: Before inlet to conc. tank Date: 1/23/81

Person Interviewed: John Combs Evaluated by: W. C. Gedney

Source Hazards Evaluation: A (X): B ( ): C ( ): D ( ): E ( ):

Facilities Design - General	N.A.	O.K.	N.O.K.	Comments
1. Chlorine feeding equipment reliable and accurate.		X		
2. Chlorinator adequately sized.		X		
3. Chlorinator feeds accurately.		X		
4. Chlorine feed proportional to water flow.			X	
5. Chlorine On-Line supply adequate.		X		
6. Chlorine supply measurement - Accurate scales provided.	X			
7. Manual chlorine residual test equipment provided.		X		
8. Chlorine injection equipment properly designed.			X	
9. Adequate chlorine contact and mixing.			X	
10. Heating, temperature control, & ventilation adequate.		X		
11. Space and lighting adequate.		X		
12. Housing vandal-resistant.		X		
13. Accessibility year-round.			X	
14. Water flow meter is provided.		X		

Facilities Design - Gas Installations				
1. Chlorine container tiedowns provided.	X			
2. Mechanical hoists or hand trucks provided.	X			
3. Facilities above ground.	X			
4. Chlorine supply rooms separate from chlorination equt.	X			
5. Backflow protection for direct-feed chlorinators.	X			

Facilities Design - Hypochlorinators				
1. Strainers and anti-siphon valves provided.		X		
2. Sodium hypochlorite used with hard waters.		X		

Personnel, Operation, and Maintenance				
1. Personnel responsible, trained, and certified.		X		
2. A minimum reserve chlorine supply is maintained.		X		
3. Spare parts provided.		X		
4. Safety equipment provided.		X		
5. Routine maintenance performed.		X		
6. Chlorinating equipment inspected annually; and preventive maintenance performed.		X		
7. Plan for emergency action in event of chlorination failure posted.	X			
8. Repair service pre-arranged.		X		
9. An emergency portable chlorinator provided.			X	
10. Emergency plan for accidental chlorine release.	X			

Control and Monitoring				
1. Chlorination facilities inspected & daily records kept.		X		
2. A free chlorine residual maintained.		X		
3. Monthly reports submitted as required by the Health Department.			X	

Facilities Design - Additional Standards				
1. Audible or Visual Alarm (BCDE)	X			
2. Standby Chlorinators (CDE)	X			
3. Automatic Chlorine Supply Switchover (CDE)	X			
4. Turbidity Recorder (CDE)	X			
5. Treated Water Storage or Auxiliary Water Supply (CDE)	X			
6. Duplicate Chlorination Facilities (DE)	X			
7. Residual Chlorine Recorder (DE)	X			
8. Plant Shutdown or Water Supply Turn-out (DE)	X			
9. Residual Chlorine Controller (E)	X			

Name of Water System San Bernardino County Service Area #70, Zone L

BOOSTER STATION DATA

1/23/81

Name or Number	No. of Pumps	Capacity -- gpm Normal	Capacity -- gpm Maximum	Auxiliary Power	Zone(s) Served	Deficiencies and Remarks *
Pump Plant No. 1	2	450	-	40 H.P.	I	
P.P. No. 2	2	230	-	30 H.P.	II	
P.P. No. 3	2	230	-	30 H.P.	IIIA	
P.P. No. 4	2	200	-	25 H.P.	IVA	
P.P. No. 5	2	200	-	25 H.P.	VA	
P.P. No. 6	2	150	-	20 H.P.	VI	
P.P. No. 7	2	150	-	20 H.P.	VIIB	Plant is below ground.
P.P. No. 8	2	150	-	20 H.P.	VIIA	
P.P. No. 9	2	150	-	20 H.P.	VIIC	
P.P. No. 10	2	150	-	20 H.P.	VIII	Plant is below ground. Not in use currently.
P.P. No. 11	2	150	-	20 H.P.	VIID	Plant is below ground.

*None of these pump plants has a standby auxiliary power available. Special Districts has a gasoline driven booster which can be moved to any of these sites and put into use.

STATE OF CALIFORNIA

DEPARTMENT OF PUBLIC HEALTH

RESERVOIR *(Use for all distribution storage, chlorine contact tanks, sand traps, etc.)*

(1) **Place and Owner:** San Bernardino County Service Area #70, Zone "L", Pinon Hills

(2) **Source of Information:** Bill Smillie and John Combs

Collected by: W. C. Gedney Date 1/4/80; 1/23/81

	Eastern Concrete Reservoir	Western Concrete Reservoir
(3) **Number or Name**		
Date constructed:	1947 & 1948	1951 & 1952
Purpose (storage, sand trap, etc.):	Storage & balancing	Storage & balancing
Capacity:	250,000 gal.	250,000 gal.
(4) **Location:** *(specific)*	SW¼ Sect. 19	SW¼ Sect. 19
Neighborhood:	South Pinon Hills	South Pinon Hills
Size of lot:	13 acres	13 acres
Fencing:	5 ft. high	5 ft. high
(5) **Construction:**		
Material:		
Sides:	Concrete	Concrete
Floor:	"	"
Cover or roof:	Aluminum over wood frame	Aluminum over wood frame
Height top of walls above ground:	12"	12"
Surface drainage to reservoir possible?	No, possible from roof	No, possible from roof
Ventilation:	Yes	Yes
Screening:	Yes	Yes
(6) **Inlet and Outlet Arrangement:**		
Inlet:		
Location:	South side	South side
Distance above bottom:	About 8 ft.	About 8 ft.
Outlet:		
Distance from inlet:	North - 30' away	North - 30' away
Distance above bottom:	18"	18"
Drain to where:	Flood control	Flood control
Overflow to where:	" "	" "
Sewer or other hazardous connection (if so, make sketch on back)	None	None
(7) **Relation to System:**		
Receives from:	(Boneyard Canyon Spring Sources)	
Delivers to:	System	System
(8) **Defects and Remarks:** (Include statements on cleaning practices, condition of structure—particularly of roof, dimensions and shape of reservoir, leakage, kind and location of access openings, protection against insects, birds and rodents.)	Dia.=52' 8", Depth=16' 3" Cleaned Nov. 1978	Dia.=51' 6", Depth=16' 3" Cleaned January 1981.

Plans are underway to replace both reservoir roofs in 1981.

STATE OF CALIFORNIA

DEPARTMENT OF PUBLIC HEALTH

RESERVOIR *(Use for all distribution storage, chlorine contact tanks, sand traps, etc.)*

(1) **Place and Owner:** San Bernardino County Service Area #70, Zone "L", Pinon Hills

(2) **Source of Information:** Bill Smillie & John Combs

Collected by: W. C. Gedney Date 1/4/80 : 1/23/81

(3) **Number or Name**	Tank #1	Tank #2
Date constructed:	1978	1978
Purpose (storage, sand trap, etc.):	Storage & balancing	Storage & balancing
Capacity:	105,000 gal.	105,000 gal.
(4) **Location:** *(specific)*	Sheep Creek Road, 200' So. of R/R.	So. of Bear Valley Rd. E. of Blanco Rd.
Neighborhood:	Rural	Rural
Size of lot:	80'X 180'	80' X 135'
Fencing:	(Seven foot link fence with barbed wire)	
(5) **Construction:**		
Material:		
Sides:	Steel - bolted	Steel - bolted
Floor:	"	"
Cover or roof:	"	"
Height top of walls above ground:	16'	16'
Surface drainage to reservoir possible?	No	No
Ventilation:	Yes	Yes
Screening:	Yes	Yes
(6) **Inlet and Outlet Arrangement:**		
Inlet:		
Location:	West side	east side
Distance above bottom:	12"	12"
Outlet:		
Distance from inlet:	20' apart - SW side	10' apart - SE side
Distance above bottom:	12"	12"
Drain to where:	NE side to open ditch nearby	To open ditch nearby
Overflow to where:	" " "	" " " NE side
Sewer or other hazardous connection (if so, make sketch on back)	None	None
(7) **Relation to System:**		
Receives from:	Settling tank thru boosters	Tank #1
Delivers to:	Tank #2 thru system	Tank #3 thru system
(8) **Defects and Remarks:** (Include statements on cleaning practices, condition of structure—particularly of roof, dimensions and shape of reservoir, leakage, kind and location of access openings, protection against insects, birds and rodents.)	Dia. = 34 ft. Ht. = 16 ft. P.P. #2 (2 BP's - 30 HP) at same location.	Dia. = 34 ft. Ht. = 16 ft. P.P. #3 (2 BP's - 30 HP) at same location.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

RESERVOIR *(Use for all distribution storage, chlorine contact tanks, sand traps, etc.)*

(1) **Place and Owner:** San Bernardino County Service Area #70, Zone "L", Pinon Hills

(2) **Source of Information:** Bill Smillie & John Combs

Collected by: W. C. Gedney Date 1/4/80; 1/23/81

(3) **Number or Name**	Tank #3	Tank #4
Date constructed:	1978	1978
Purpose (storage, sand trap, etc.):	Storage & balancing	Storage & balancing
Capacity:	105,000 gal.	105,000 gal.
(4) **Location:** *(specific)*	At Desert Rd. S/Mond Rd.	At Winter Green Rd. N/Cholla Rd.
Neighborhood:	Rural	Rural
Size of lot:	145' x 145'	90' x 90'
Fencing:	(Seven foot chain link fence with barbed wire.)	
(5) **Construction:**		
Material:		
Sides:	Steel	Steel
Floor:	"	"
Cover or roof:	"	"
Height top of walls above ground:	16'	16'
Surface drainage to reservoir possible?	No	No
Ventilation:	Yes	Yes
Screening:	Yes	Yes
(6) **Inlet and Outlet Arrangement:**		
Inlet:		
Location:	West side	South side
Distance above bottom:	12"	12"
Outlet:		
Distance from inlet:	15' SW side	20' East side
Distance above bottom:	12"	12"
Drain to where:	East side to nearby open area.	NE side to open area " " " "
Overflow to where:		
Sewer or other hazardous connection (if so, make sketch on back)	None	None
(7) **Relation to System:**		
Receives from:	Tank #2	Tank #3
Delivers to:	Tank #4 thru system	Tank #5 thru system
(8) **Defects and Remarks:** (Include statements on cleaning practices, condition of structure—particularly of roof, dimensions and shape of reservoir, leakage, kind and location of access openings, protection against insects, birds and rodents.)	Dia.=34 ft., Ht.=16 ft. PP#4 (2BP's -25 HP) at same location.	Dia.=34 ft., Ht.=16 ft. PP#5 (2BP's-25HP) at same location.

STATE OF CALIFORNIA

DEPARTMENT OF PUBLIC HEALTH

RESERVOIR *(Use for all distribution storage, chlorine contact tanks, sand traps, etc.)*

(1) **Place and Owner:** San Bernardino County Service Area #70, Zone "L", Pinon Hills

(2) **Source of Information:** Bill Smillie and John Combs

Collected by: W. C. Gedney Date 1/4/80 ; 1/23/81

(3) **Number or Name**	Tank #5	Tank #6
Date constructed:	1978	1978
Purpose (storage, sand trap, etc.):	Storage & balancing	Storage & balancing
Capacity:	105,000 gal.	426,000 gal.
(4) **Location:** *(specific)*	South of Phelan Rd. and West of Silver Rd.	At Sheep Creek Rd. south of Snowline Road.
Neighborhood:	Rural	Rural-residential
Size of lot:	135' x 135'	140' x 180'
Fencing:	(Seven foot chain link with barbed wire.)	
(5) **Construction:**		
Material:		
Sides:	Steel	Steel
Floor:	"	"
Cover or roof:	"	"
Height top of walls above ground:	16 ft.	24 ft.
Surface drainage to reservoir possible?	No	No
Ventilation:	Yes	Yes
Screening:	Yes	Yes
(6) **Inlet and Outlet Arrangement:**		
Inlet:		
Location:	West side	North side
Distance above bottom:	12"	12"
Outlet:		
Distance from inlet:	15' SW side	30' SW side
Distance above bottom:	12"	12"
Drain to where:	E side to wash	SW side to wash
Overflow to where:	" "	" "
Sewer or other hazardous connection (if so, make sketch on back)	None	None
(7) **Relation to System:**		
Receives from:	Tank #4	Tank #5
Delivers to:	Tank #6 thru system	System & pressure tank
(8) **Defects and Remarks:** (Include statements on cleaning practices, condition of structure—particularly of roof, dimensions and shape of reservoir, leakage, kind and location of access openings, protection against insects, birds and rodents.)	Dia.=34 ft., Ht.=16 ft. PP#6 (2BP's—20 HP) at same location.	Dia.=55 ft., Ht.=24 ft. PP#9 (2BP's—20 HP) & 2000 gal. pressure tank at same location. 150 psi.

STATE OF CALIFORNIA

DEPARTMENT OF PUBLIC HEALTH

RESERVOIR *(Use for all distribution storage, chlorine contact tanks, sand traps, etc.)*

(1) **Place and Owner:** San Bernardino County Service Area #70, Zone "L", Pinon Hills

(2) **Source of Information:** Bill Smillie & John Combs

Collected by: W. C. Gedney Date 1/4/80 ; 1/23/81

(3) **Number or Name**	Tank #7A	Tank #7B
Date constructed:	1978	1978
Purpose (storage, sand trap, etc.):	Storage & balancing	Storage & balancing
Capacity:	42,000 gal.	42,000 gal.
(4) **Location:** *(specific)*	At Desert View south of Hill View.	South of Snowline Drive east of Skyline Avenue.
Neighborhood:	Open Desert	Open Desert
Size of lot:	100' x 100'	80' x 80' x 81' x 92'
Fencing:	(Seven foot chain link with barbed wire.)	
(5) **Construction:**		
Material:		
Sides:	Steel	Steel
Floor:	"	"
Cover or roof:	"	"
Height top of walls above ground:	8'	8'
Surface drainage to reservoir possible?	No	No
Ventilation:	Yes	Yes
Screening:	Yes	Yes
(6) **Inlet and Outlet Arrangement:**		
Inlet:		
Location:	SW side	North
Distance above bottom:	12"	12"
Outlet:		
Distance from inlet:	Common	North east
Distance above bottom:	14"	12"
Drain to where:	Nearby wash	Nearby wash
Overflow to where:	" "	" "
Sewer or other hazardous connection (if so, make sketch on back)	None	None
(7) **Relation to System:**		
Receives from:	Zone #6, thru PP#8	Zone #6, thru PP#7
Delivers to:	Floats on Zone 7A	Tank #8, thru system
(8) **Defects and Remarks:** (Include statements on cleaning practices, condition of structure—particularly of roof, dimensions and shape of reservoir, leakage, kind and location of access openings, protection against insects, birds and rodents.)	Dia.=30ft., Ht.=8 ft. Good condition.	Dia.=30 ft., Ht.=8 ft. PP#10 (2BP-20 HP) at same location.

STATE OF CALIFORNIA

DEPARTMENT OF PUBLIC HEALTH

RESERVOIR *(Use for all distribution storage, chlorine contact tanks, sand traps, etc.)*

(1) **Place and Owner:** San Bernardino County Service Area #70, Zone "L", Pinon Hills

(2) **Source of Information:** Bill Smillie & John Combs

Collected by: W. C. Gedney Date 1/4/80; 1/23/81

(3) **Number or Name**	Tank #8	Settling Tank, Well #2 Site
Date constructed:	1978	1978
Purpose (storage, sand trap, etc.):	Storage & balancing	Settling tank for wells & / storage.
Capacity:	4,000 gal.	42,000 gal.
(4) **Location:** *(specific)*	South of Snowline Drive, West of Beckley Road	Sheep Creek Road and Palmdale Road
Neighborhood:	Rural	Rural
Size of lot:	150' x 150'	132' x 331'
Fencing:	(Seven foot chain link with barbed wire.)	
(5) **Construction:**		
Material:		
Sides:	Steel	Steel
Floor:	"	"
Cover or roof:	"	"
Height top of walls above ground:	8'	8'
Surface drainage to reservoir possible?	No	No
Ventilation:	Yes	Yes
Screening:	Yes	Yes
(6) **Inlet and Outlet Arrangement:**		
Inlet:		
Location:	West side	E (Well #2); W (Well #1)
Distance above bottom:	12"	24"
Outlet:		
Distance from inlet:	Common	15' South side
Distance above bottom:	12"	24"
Drain to where:	To wash	To wash
Overflow to where:	"	"
Sewer or other hazardous connection (if so, make sketch on back)	None	None
(7) **Relation to System:**		
Receives from:	Tank #7B	Wells #1, #2
Delivers to:	Floats on Zone #8	Tank #1, thru system
(8) **Defects and Remarks:** (Include statements on cleaning practices, condition of structure—particularly of roof, dimensions and shape of reservoir, leakage, kind and location of access openings, protection against insects, birds and rodents.)	Dia.=9 ft., Ht.=8 ft.	Dia.=30 ft., Ht.=8 ft. PP#1 (2 BP's-40 HP) and Well #1 and 2 at same location.

STATE OF CALIFORNIA

DEPARTMENT OF PUBLIC HEALTH

DISTRIBUTION DATA

(1) Place and Owner: San Bernardino County Service Area No. 70, Zone L

(2) Source of Information: Bill Smillie, Watermaster

Collected by: Bill Gedney Date: 1/23/81

(3) Materials:

Mains: 6", 8" and 12" - class 150 and 200 A.C.

Condition: New. Installed 1975.

Lead, copper, brass (*extent*): Services connections are mainly brass and P.E.

Joints: Ring tite joints.

(4) Distance of Mains from Sewers: Area is not sewered.

(*Past practice, future policy*)

(5) Disinfection (*method*):

New Mains: Tablets per AWWA specifications.

After Repairs: Under pressure.

(6) Infiltration Hazard: None, except into collection line from spring sources.

(*Relationship to ground water table, underwater lines, etc.*)

(7) Pressure Range: 35 - 130 psi.

(8) Cross-Connection and Backflow Prevention:

Private supplies (*kind and extent*): One double-check valve to mobile home park.

Cross-Connections:

With Other Potable and Supervision: None

With Non-Potable, if so, What Protection: None

Plumbing Code or Regulations: San Bernardino County Building Code.

(9) Dead Ends (*extent*): Approximately 60.

Growths and Sludge in Mains: None.

Flushing: To be performed on a monthly basis.

(10) Defects and Remarks:

SUMMARY OF BACTERIOLOGICAL ANALYSES OF WATER SAMPLES

36-120

Name of system San Bernardino County Service Area No. 70, Zone L

Analysis performed by Clinical Lab of San Bernardino

MONTH and YEAR	Number of samples tested	Number of portions confirmed	Percent portions confirmed	Number of samples with three or more portions confirmed	Percent of samples with three or more portions confirmed
January 1980	11	0	-	0	
February	8	0	-	0	
March	12	0	-	1	
April	17	5	5.9	1	5.9
May	16	0	-	0	
June	16	0	-	0	
July	20	1	1.0	0	
August	12	2	3.3	0	
September	10	1	2.0	0	
October	8	0	-	0	
November	8	0	-	0	
December	10	0	-	0	
TOTAL	148	9	1.21	1.0	.67

Comments: System requirement: 4 samples per month

Special sampling requirment: None

State of California
Department of Health

073075
/ld Form 230-1166

SUMMARY OF CHEMICAL ANALYSIS

SYSTEMS	SAN BERNARDINO COUNTY SERVICE AREA NO. 70, ZONE L		
Sampling Point	Springs	Well 2	Well 3
Laboratory	Clinical Laboratory of San Bernardino		
Date Sampled:	7/17/79	9/25/78	7/17/79
CONSTITUENTS	Results - Expressed as milligrams per liter		
pH	7.28	8.3	8.65
EC ($\mu mhs\ m^3$)	900	460	440
TDS	542	272	260
Total Hardness	255	37	20
Total Alkalinity as $CaCO_3$	256	64	100
Carbonate as $CaCO_3$	-	-	35
Bicarbonate as $CaCO_3$	312	78	65
Hydroxide as $CaCO_3$	-	-	-
Fluoride	0.63	.18	.34
Nitrate NO_3	2	2	<1
Chloride	16	13	8
Sulphate	168	142	100
Calcium	74	13	6
Magnesium	17	1.2	.7
Sodium	90	79	93
Potassium	1.5	3.4	1.1
Iron	<.01	.29	.28
Manganese	<.01	<.01	.02
Copper	<.005	<.005	.02
Zinc	<.005	<.005	.06
Arsenic	<.005	<.005	<.005
Barium	<.03	<.03	<.03
Cadmium	<.005	<.005	<.005
Chromium	<.003	<.003	<.003
Lead	<.005	<.005	<.005
Mercury	<.001	<.001	<.001
Selenium	<.005	<.005	<.005
Silver	<.005	<.005	<.005
Color (Units)	0	1	0
Odor (Threshold)	1	0	1
Turbidity (NTU)	.23	.52	.96
MBAS	< .005	< .005	

(Domestic Water Supplies, Form A1, Municipal Corporation or Civil Subdivision) EXHIBIT B

STATE OF CALIFORNIA

DEPARTMENT OF HEALTH

Application from County of San Bernardino
(Name of municipality or civil subdivision)

organized under .....
(State whether special charter or under general law, giving class and date of incorporation)

To the State Department of Health
2151 Berkeley Way
Berkeley, California 94704

Pursuant and subject to all of the terms, conditions and provisions of Division 5, Part 1, Chapter 7, Sections 4010 to 4035 of the California Health and Safety Code and all amendments thereto, relating to domestic water supplies, application is hereby made to said State Department of Health for a permit to secure a loan for a proposed water system expansion to service residences where water service is not available in the area of Pinon Hills, San Bernardino County, California. (T4N, R7W, SBBM, CSA 70, Zone L) under the California Safe Drinking Water Bond Law of 1976.

Applicant must state specifically what is being applied for—whether to construct new works, to use existing works, to make alterations or additions in works or sources and state nature of improvement in works. Enumerate definitely source or sources of supply, kind of works used or considered (if known) and specify the locality to be served. Additional sheets may be attached.

Dated AUG 11 1980, 19.....

[Affix Official Seal Here]

County Counsel
Approved 8-11-80
By Edward Burley
Deputy

County of San Bernardino
(Name of municipality or civil subdivision, in full)

By .....
(Signature of chief executive officer with official title and post office address)
ROBERT L. HAMMOCK
Vice Chairman, Board of Supervisors

Attest.
Earlene Sprout
(Signature of clerk or corresponding official with title and post office address)
Deputy Clerk
175 W. Fifth, San Bernardino 92401

Governing Body of CSA 70, Zone L

NOTES

Before making application for permit, such action must be authorized by resolution of the governing board, substantially in the form furnished by the State Department of Health (Domestic Water Supplies, Form A2) and a copy of such resolution, duly certified by the clerk of such board, must accompany the application.

EXHIBIT C

(Domestic Water Supplies, Form A2, Municipal Corporation or Civil Subdivision)

STATE OF CALIFORNIA

DEPARTMENT OF HEALTH

Certified Copy of Resolution

(To accompany application on Form A1)

"Resolved by the Board of Supervisors as Governing Board
(City council, board of trustees or other governing body)

of the County Service Area 70, Zone L, County of San Bernardino
(City, town or county, etc.)

that pursuant and subject to all of the terms, conditions and provisions of Division 5, Part 1, Chapter 7, Sections 4010 to 4035 of the California Health and Safety Code and all amendments thereto, relating to domestic water supplies, application by this County Service Area
(City, town or county, etc.) be made to the State Department of Health, for a permit to

Secure a loan for a proposed water system expansion to service the
Applicant must state specifically what is being applied for—whether to construct new works, to use existing works, to make alterations or additions in

residents where water service is not available in the area of
works or sources and state nature of improvement in works. Enumerate definitely source or sources of supply, kind of works used or considered (if known)

Pinon Hills, San Bernardino County, Calif. (R4W, R7W, SBBM, CSA 70,
and specify the locality to be served. Additional sheets may be attached.

Zone L) under the California Safe Drinking Water Bond Law of 1976

that the James Mayfield, Chairman of said San Bernardino County, Board of Supervisors
(Title of chief executive officer) (City council, board of trustees or other governing body)

be and he is hereby authorized and directed to cause the necessary data to be prepared, and investigations to be made, and in the name of said CSA 70, Zone L
(City, town or county, etc.) to sign and file such application with the said State Department of Health.

Passed and adopted at a regular meeting of the County Board of Supervisors
(Governing body)

of the County of San Bernardino
(City, town or county, etc.) on the 11th day of August, 19 80.

Earlene Sprout

[Affix Official Seal Here]

Deputy Clerk of said County of San Bernardino
(City, town or county, etc.)

(Domestic Water Supplies, Form A1, Municipal Corporation or Civil Subdivision)

STATE OF CALIFORNIA
DEPARTMENT OF HEALTH

Application from San Bernardino County Service Area 70, Improv. Zone L
(Name of municipality or civil subdivision)

organized under Section 25210 et seq of the Government Code of the State of CA
(State whether special charter or under general law, giving class and date of incorporation)

To the State Department of Health
2151 Berkeley Way
Berkeley, California 94704

Pursuant and subject to all of the terms, conditions and provisions of Division 5, Part 1, Chapter 7, Sections 4010 to 4035 of the California Health and Safety Code and all amendments thereto, relating to domestic water supplies, application is hereby made to said State Department of Health for a permit to operate a water distribution system. Water distribution system consists of two water wells, nine water tanks with a combined total capacity of 1,105,000 gallons. The upper portion of the district in the South ½ of Section 25 T4N R7W is served by two booster pumps and a hydro-pneumatic tank. All systems in this project are completely automated.

(Applicant must state specifically what is being applied for—whether to construct new works, to use existing works, to make alterations or additions in works or sources and state nature of improvement in works. Enumerate definitely source or sources of supply, kind of works used or considered (if known) and specify the locality to be served. Additional sheets may be attached.)

Dated March 20, 1978

[Affix Official Seal Here]

County Service Area No. 70,
(Name of municipality or civil subdivision, in full)
Improvement Zone L
By Robert O. Townsend
(Signature of chief executive officer with official title and post office address)

175 West Fifth St., Second Floor
San Bernardino, CA 92415

Attest.
Nancie L. Potter
(Signature of clerk or corresponding official with title and post office address)
Deputy Clerk of the Board

Notes

Before making application for permit, such action must be authorized by resolution of the governing board, substantially in the form furnished by the State Department of Health (Domestic Water Supplies, Form A2) and a copy of such resolution, duly certified by the clerk of such board, must accompany the application.

STATE OF CALIFORNIA

DEPARTMENT OF HEALTH

Certified Copy of Resolution

(To accompany application on Form A1)

RESOLUTION NO. 78-92

"Resolved by the BOARD OF SUPERVISORS
(City council, board of trustees or other governing body)

of the COUNTY OF SAN BERNARDINO
(City, town or county, etc.)

that pursuant and subject to all of the terms, conditions and provisions of Division 5, Part 1, Chapter 7, Sections 4010 to 4035 of the California Health and Safety Code and all amendments thereto, relating to domestic water supplies, application by this CSA 70, Zone L
(City, town or county, etc.)
be made to the State Department of Health, for a permit to

operate a water distribution system.
Application must state specifically what is being applied for—whether to construct new works, to use existing works, to make alterations or additions in

Water distribution system consists of two water wells, nine water tanks with a
works or sources and state nature of improvement in works. Enumerate definitely source or sources of supply, kind of works used or to be used (if known)

combined total capacity of 1,105,000 gallons. The upper portion of the district in
and specify the locality to be served. Additional sheets may be attached.

the South ½ of Section 25 T4N R7W is served by two booster pumps and a hydro-pneumatic

tank. All systems in this project are completely automated.

that the Chairman ..... of said Board of Supervisors
(Title of chief executive officer) (City council, board of trustees or other governing body)

be and he is hereby authorized and directed to cause the necessary data to be prepared, and investigations to be made, and in the name of said San Bernardino County Service Area 70, Zone L
(City, town or county, etc.)
to sign and file such application with the said State Department of Health.

Passed and adopted at a regular meeting of the Board of Supervisors
(Governing body)

of the County of San Bernardino
(City, town or county, etc.)
on the 20th day of March, 1978.

[AFFIX OFFICIAL SEAL HERE]

Nancie R. Potter

Nancie R. Potter, Deputy

Clerk of said Board of Supervisors of the County of San Bernardino
(City, town or county, etc.)

36-120
System Number

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF HEALTH SERVICES
Sanitary Engineering Section
606 East Mill Street, Suite 1011
San Bernardino, California 92408
(714) 383-4328

WATER QUALITY EMERGENCY NOTIFICATION PLAN

Name of Utility: San Bernardino County Service Area No. 70, Zone L

System & Location: Pinon Hills

The following persons have been designated to implement the plan upon notification by the State Department of Health Services that an imminent danger to the health of the water users exists:

	Name	Title	Telephone Day	Telephone Evening
1.	John Combs	Field Coordinator	(714) 245-6232	244-2462
2.	William S. Smillie	Water Facilities Mgr.	(714) 245-6232	244-2577
3.	John Heffron	System Operator	(714) 249-5072	249-3150

The implementation of the plan will be carried out with the following State and County Health Department personnel:

1.	C. E. Anderson	District Engineer	(714) 383-4328	886-2834
2.	W. C. Gedney	Assistant Engineer	(714) 383-4328	793-4495

Notification Plan

Describe methods or combinations of methods to be used (radio, television, door-to-door, sound truck, etc.). For each section of your plan give an estimate of the time required, necessary personnel, estimated coverage, etc. Consideration must be given to special organizations, particularly non-English speaking groups, and outlying water users. (Use the other side if necessary.)

1. The following radio stations would be contacted:
   KAVR (714) 247-7251
   KCIN (714) 245-8635

2. There is a full-time district secretary that can handle notification (Mary Magnusson).

3. Door-to-door contact will be made by District personnel, both in English and Spanish. Required time to complete notification is 8 hours.

Report prepared by:

Signature and title
Water Facilities Manager
3/14/80
Date