Ground Water Evaluation

City of Rio Vista

ENGEO INCORPORATED

GROUNDWATER EVALUATION

CITY OF RIO VISTA

RIO VISTA, CALIFORNIA

PREPARED BY:

ENGEO INCORPORATED

PROJECT NO. 5462.5.001.01

JUNE 21, 2002

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INTRODUCTION

The City of Rio Vista is situated on the west bank of the Sacramento River in Solano County, California. Hydrologically, the City is located at the southeastern limit of the Sacramento Valley Groundwater Basin (Figure 1).

The 2001 General Plan prepared for the City of Rio Vista describes potential build out of the community. There are currently approximately 5,100 residents in Rio Vista. The General Plan has reported that approximately 1,675 housing units existed within the City limits at the time of the 2001 General Plan report. The majority of these units are in the downtown core; however, recent development has resulted in construction of a significant number of homes to the west and north.

The General Plan recognizes that the anticipated growth in the City over the next 20 years will include approximately 8,221 dwelling units by the year 2020. The current population would gradually increase during this twenty-year time frame to a total of about 24,400 residents. Consequently, the Association of Bay Area Governments (ABAG) has reported that Rio Vista will experience the largest percentage increase in population and household in the region during the next 20 years.

The City of Rio Vista currently maintains a municipal water supply system consisting of a series of wells that are believed to be pumping from a deep groundwater aquifer (Figure 2). Because of the apparent purity of the deep groundwater aquifer source, the construction of a central treatment facility has not been necessary. The City currently maintains six operating wells with the groundwater distributed by a series of pumps and underground pipelines. The water is stored in a 2-million gallon central storage tank located in the southwestern section of the community. The age of the wells and the distribution lines range from many decades old, with the oldest lines servicing the downtown and historic neighborhoods. Water distribution lines less than 10 years in age have been constructed concurrent with the Trilogy development, located west of the downtown area.

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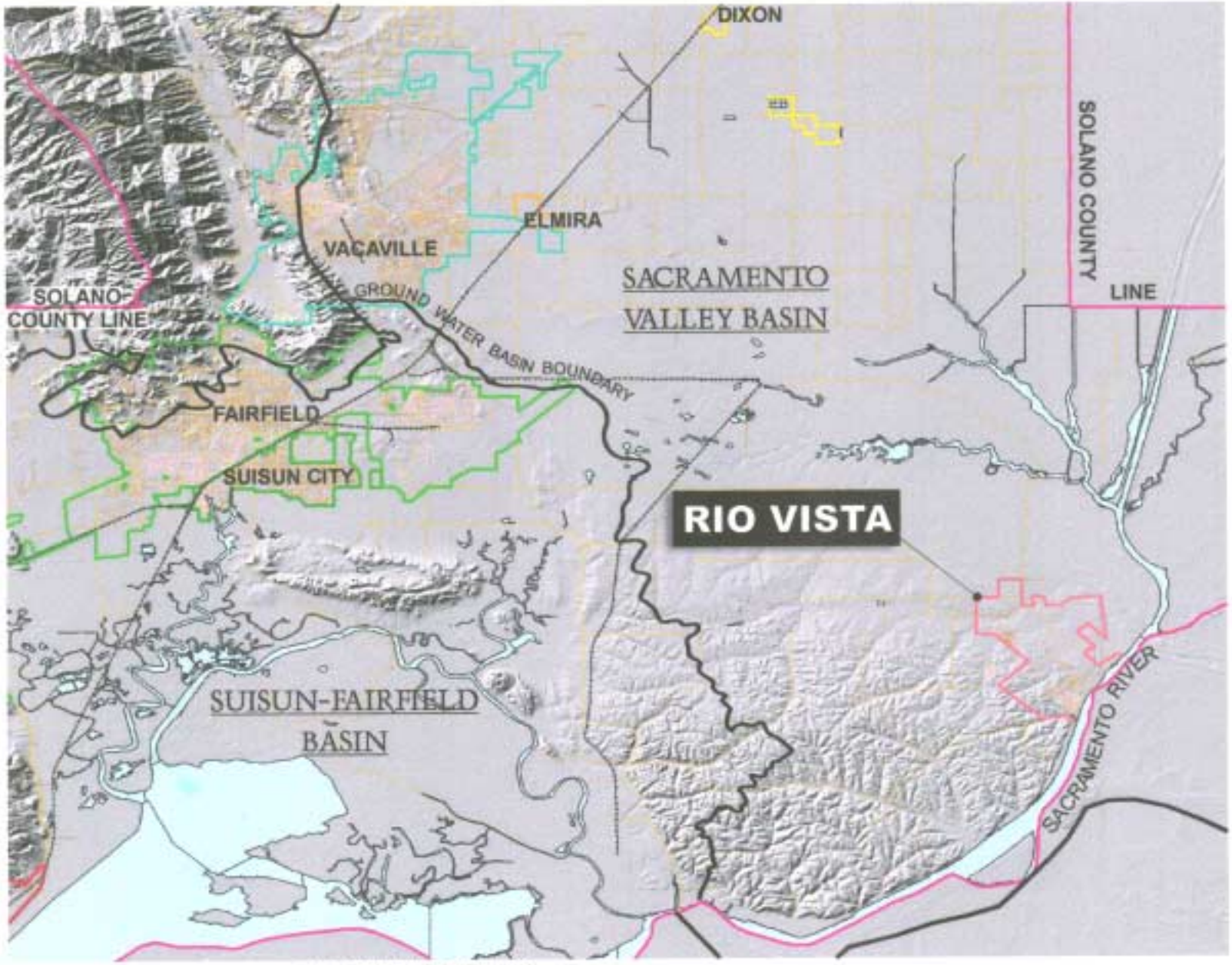

BASE MAP SOURCE: ENGEO-GIS

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SACRAMENTO VALLEY GROUNDWATER BASIN

RIO VISTA GROUNDWATER EVALUATION

RIO VISTA, CALIFORNIA

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DATE:	AUGUST 2002
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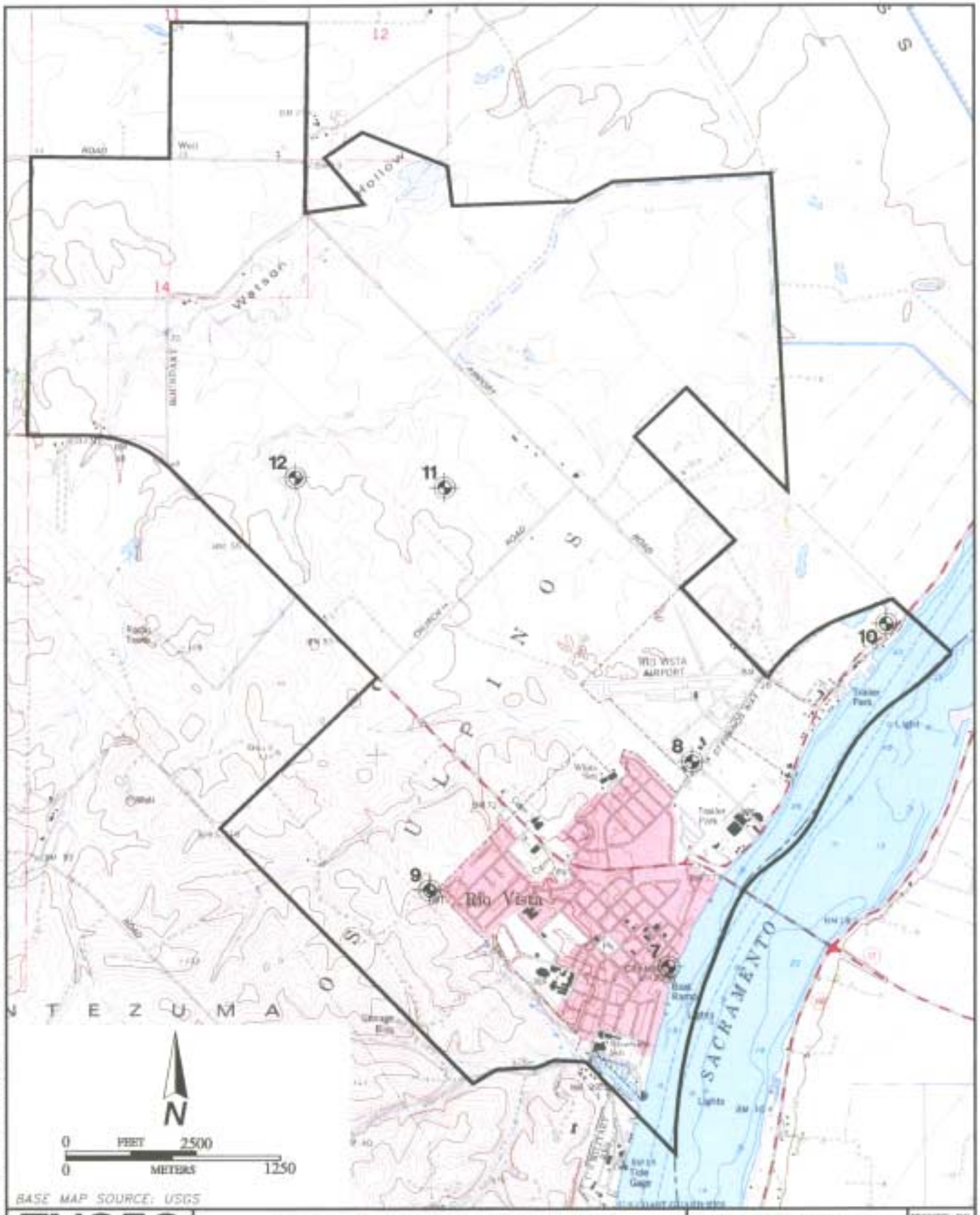

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WATER SUPPLY WELL LOCATIONS

RIO VISTA GROUNDWATER EVALUATION

RIO VISTA, CALIFORNIA

PROJECT NO.: 5462.5.001.01	FIGURE NO. 2
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PURPOSE AND WORK SCOPE

Studies in the early 1990s by the California Department of Water Resources suggested that the capacity of the local groundwater aquifer system was adequate based on the information and growth projections considered at that time. The purpose of this evaluation is to determine if the existing groundwater found in and around the City limits is capable of providing water for the existing and currently planned developments. This study focused on compiling the readily available and accessible hydrogeologic and water supply well data for the Rio Vista area.

Data Research and Compilation

City of Rio Vista

- Reviewed existing water supply well data including well construction, pumping and maintenance records, along with laboratory analyses from water quality testing.
- Reviewed the City of Rio Vista 2001 General Plan, environmental impact reports and geologic reports for both planned and completed large-scale residential projects.
- Interviewed City and Eco-Resources staff regarding water well maintenance and performance.
- Compiled pertinent data from Department of Water Resources and local water well drilling within the east-central portion of the Sacramento Valley Groundwater Basin.

Data Analysis

- Tabulated City of Rio Vista, DWR, Water Agency and local well drilling data.
- Plot spatial representation of selected wells.
- Develop geologic cross sections to attempt to identify groundwater basin limits and water-bearing zones.
- Tabulated potential characteristics of the aquifer with preliminary approximation of potential well yields.
- Project estimated impacts of groundwater withdrawal from the individual City water supply wells.

- Evaluated potential impacts from boundary limits including the influence, if any, of the Sacramento River.

- Assessed the potential long-term groundwater supply projected from the continued use of the existing well system.

GEOLOGY AND HYDROLOGY

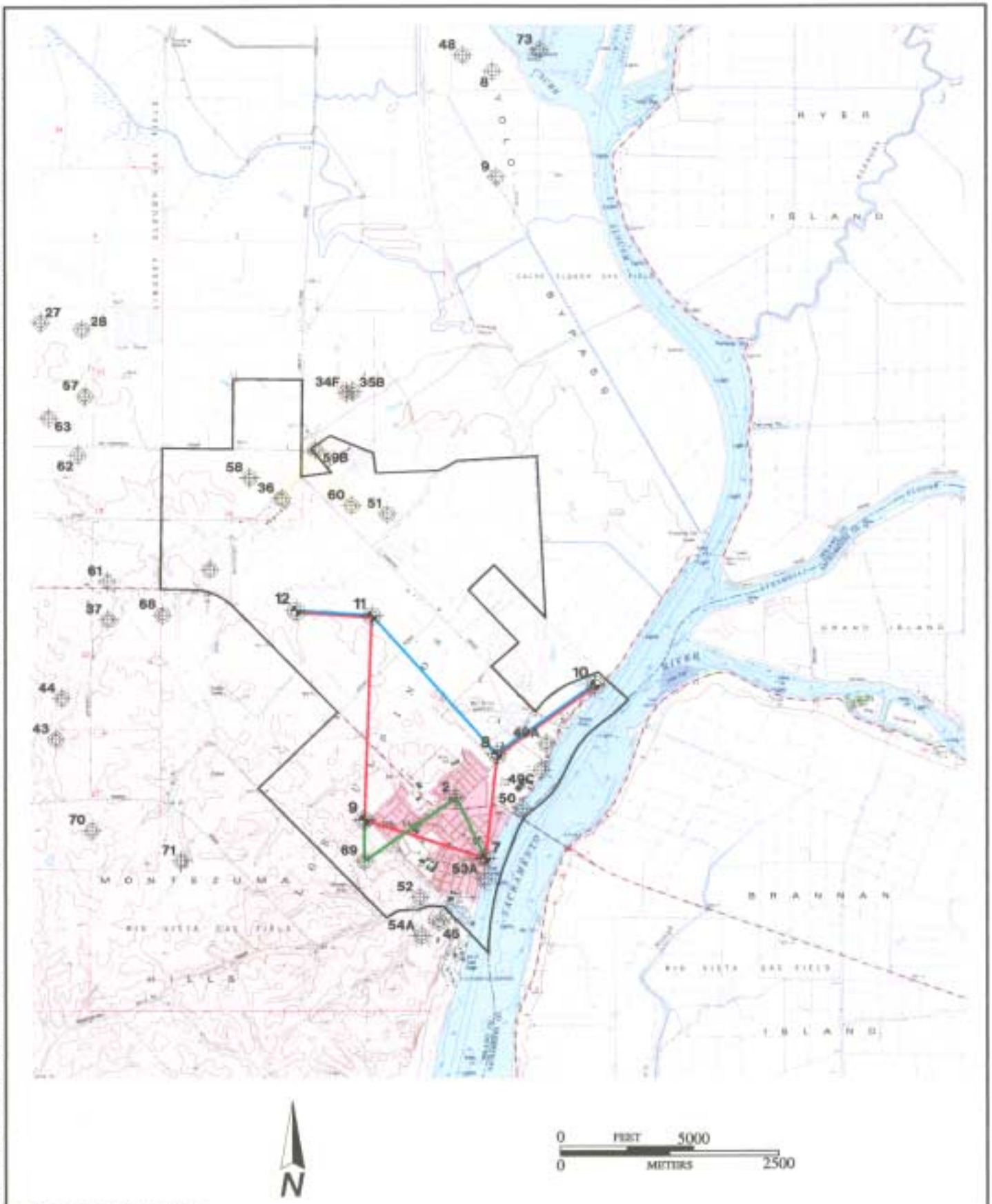
The City of Rio Vista is located in the eastern portion of the San Francisco Bay – Delta Region. Topographically, the City consists of low-rolling hills to the west transitioning to a relatively flat ground surface toward the north and east. The Sacramento River forms the eastern boundary of the City. The Montezuma Hills are situated along the western City limits while a relatively flat, low-lying flood plain extends to the east from the Sacramento River.

The river, which drains the northern half of the Central Valley, forms the eastern boundary of the Sacramento Valley Groundwater Basin. Most of the groundwater has been found in the younger and older alluvium deposits in the basin. The alluvium generally consists of unconsolidated gravel, sand and clay derived from the Coast Ranges.

The western uplands portion of the City is mapped as the Pleistocene-age Montezuma Formation (Atwater, 1982). Alluvial gravel, sand, silt and clay of this formation form the rolling hills and summits west of the City. Older alluvium of Montezuma Hills and vicinity form the slightly to moderately dissected fans on the northeastern flank of the hills and underlie the flatlands extending to the east of Airport Road. These deposits generally consist of clayey silt, silt, sandy silt, and subordinate sand and gravel (Atwater, 1982).

The Department of Water Resources Water Well Drillers Reports for the City's water supply wells, along with the logs for private water supply wells, were reviewed for subsurface lithologic data (Figure 3). After compiling and reviewing this data, ENGEO developed stratagraphic cross-sections (Figures 4 and 5). These cross sections indicate that the deeper alluvial sediments are a complex assemblage of coarse sand and gravel deposits, silt overbank deposits, and silt and clay-sized backwater deposits.

These cross sections have been prepared to show the representative layering and extent of the various subsurface materials beneath the City extending from the Sacramento River west to beyond the Trilogy subdivision. The screened intervals of the wells showing the water-bearing sands and gravels are also plotted.



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CITY AND DWR WELL LOCATIONS

RIO VISTA GROUNDWATER EVALUATION

RIO VISTA, CALIFORNIA

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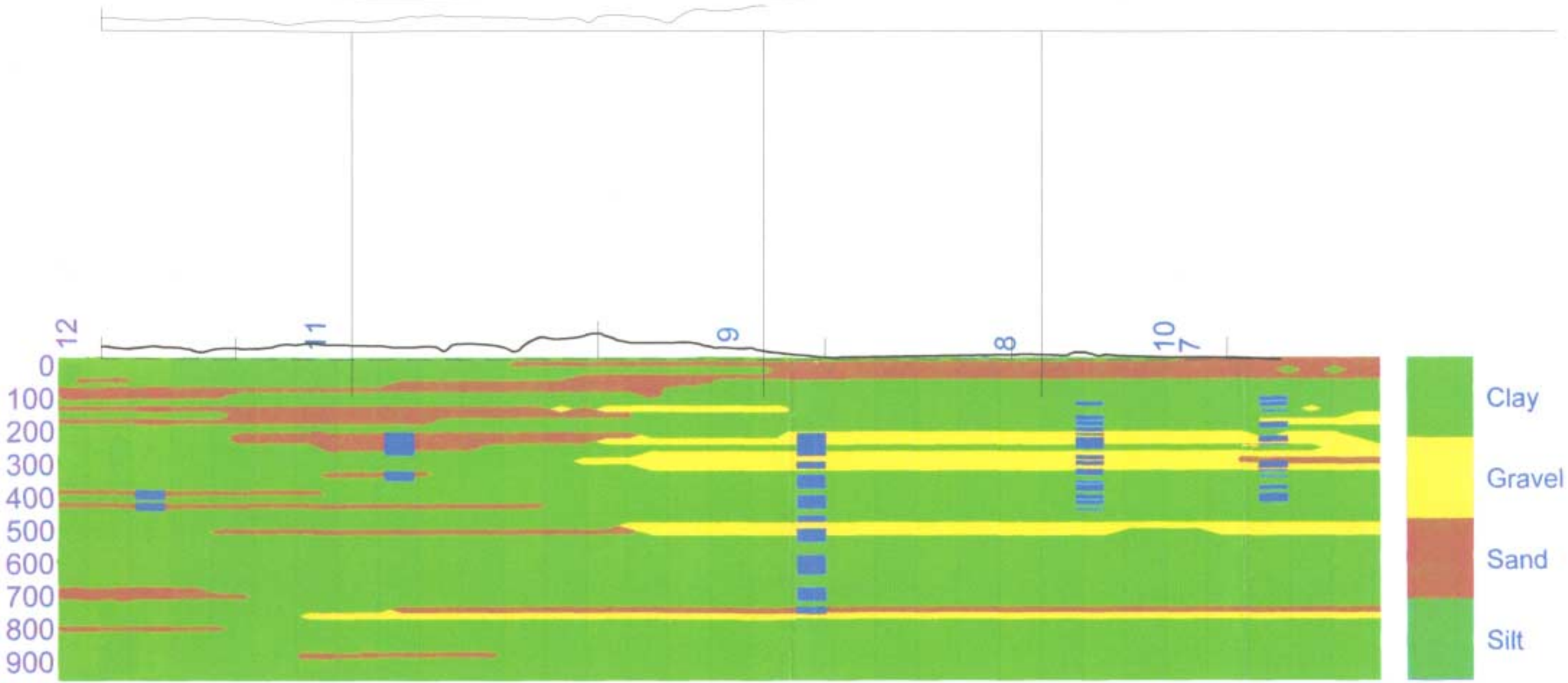

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EAST-TO-WEST CROSS SECTION OF REPRESENTATIVE SUBSURFACE SOILS
RIO VISTA GROUNDWATER EVALUATION
RIO VISTA, CALIFORNIA

PROJECT NO.: 5462.5.001.01
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FIGURE NO. 4

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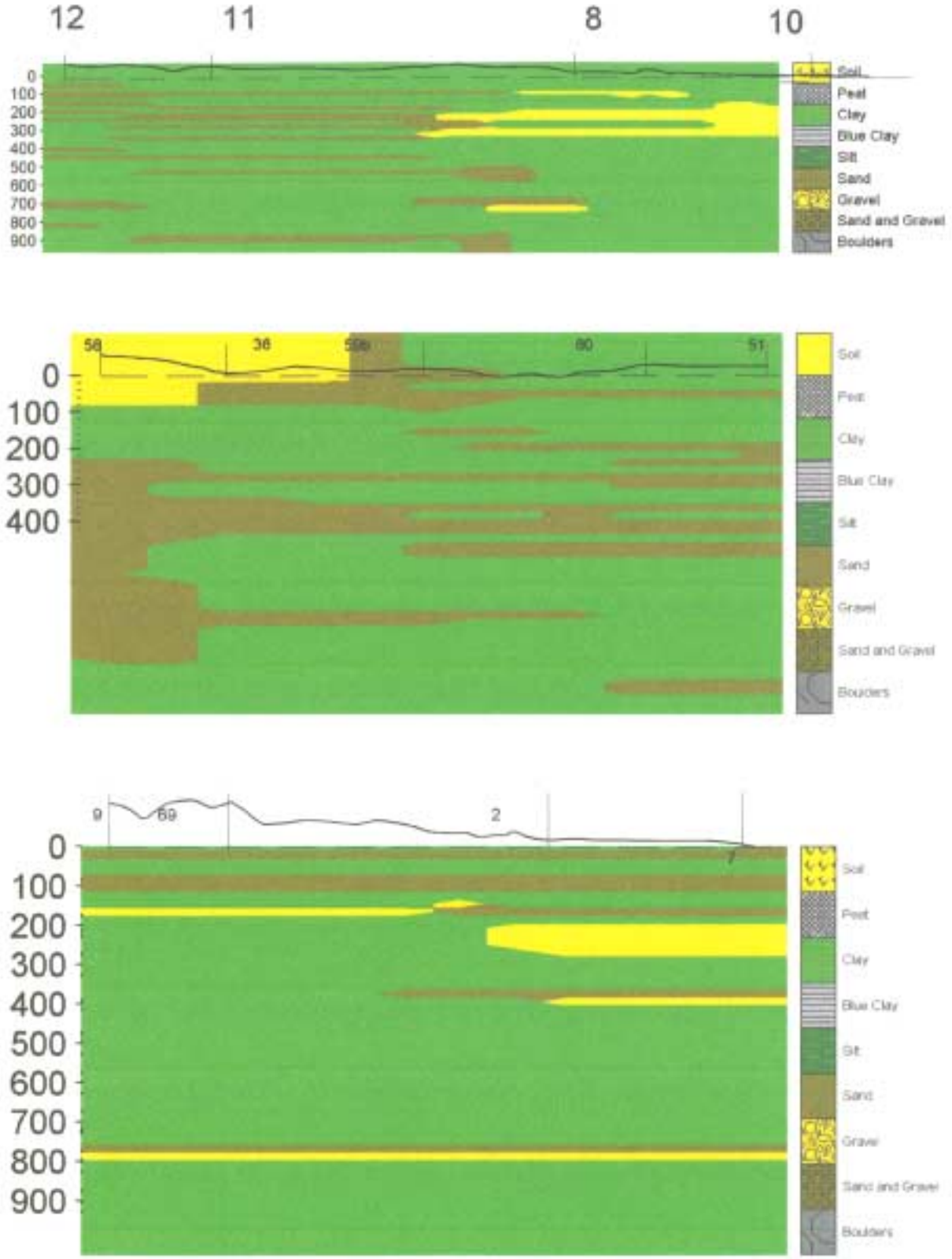

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VARIOUS VIEWS OF SUBSURFACE STRATA
RIO VISTA GROUNDWATER EVALUATION
RIO VISTA, CALIFORNIA

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FIGURE NO. 5

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Review of these logs suggests that the hydrogeologic conditions beneath the City of Rio Vista may be divided into two zones. The wells beneath the downtown area show that the water-bearing sands and gravels penetrated by the wells provide a significant volume of the groundwater used by the City. These gravels appear to pinch out to the west away from the river.

The wells to the west in the Trilogy area tend to penetrate a more interbedded and interfingered sand, silt and clay of various gradations. The various water supply well drillers working in the area logged few significant sand and gravel beds. The sources of these various alluvial beds may be the highlands to the north and west of the City. Some of the soils may also be Delta deposits from the east.

SPECIFIC WELL INFORMATION

During the course of our data collection and review, we were provided with a number of files pertaining to the specific individual wells within the water supply network, currently in use by the City. A summary of the reviewed information is provided below.

Well 7

Well 7 is located southwest of the southwestern corner of City Hall and northeast of the Sacramento River. The well was installed in June 1953 to a depth of 424 feet below the ground surface. The well is screened intermittently from a depth of 86 feet to a depth of 406 feet. Although a sanitary seal was installed, its depth of installation was not reported.

In a January 30, 1996, letter, the Department of Health Services (DHS) acknowledged that the well had been under investigation for possible surface influence from the nearby Sacramento River. Although a preliminary assessment had indicated no influence, additional testing for the presence of micro particulate matter was required on a monthly basis from February through May. With the exception of a minor detection of pine tree pollen, testing did not detect the presence of target analytes. A July 17, 1996, document from DHS to the City of Rio Vista determined that the well was not under the influence of the Sacramento River and additional testing was not necessary. Follow-up testing performed during March and April 1997 did not detect coliform bacteria.

Well 8

Well 8 is located at the Rio Vista Airport. It was installed in Spring 1955 to a depth of 492 feet below the ground surface. The well is screened intermittently from a depth of 84 feet to a depth of 438 feet. A sanitary seal was provided to a depth of 75 feet.

Pump testing performed in March 1977 indicated that the well provided a capacity of 1,200 gallons per minute (gpm) and 56 gpm per foot of water table drawdown. Testing in March 1981 indicated a capacity and 52.4 gpm per foot of water table drawdown. Testing was also performed on the well boosters and the backup boosters during these events.

Well 9

A well originally denoted as Well 9 was installed at the Sewage Treatment Works in July/August 1955. The well was installed to a depth of 120 feet below the ground surface and was screened from 114 to 119 feet. No sanitary seal was installed with the well.

The current Well 9 was installed in the spring of 1963 ±2,000 feet west of a cemetery and 2,500 feet north of the Rio Vista High School to a depth of 910 feet below the ground surface. A sanitary seal was installed to a depth of 75 feet. The well is screened intermittently from 230 feet to 780 feet.

A letter dated September 26, 1996, sent from Pump Repair Service Company to the City of Rio Vista indicated that the production of the well had dropped significantly. This was due to wear as well as age (the pump equipment reportedly had been installed in 1982).

Benzene concentrations above the State of California Maximum Contaminant Level (MCL) have been reported within Well 9 on several occasions. A letter dated October 8, 1996, from DHS to the City of Rio Vista indicated that the benzene MCL had been exceeded three times and treatment would be required if the MCL was exceeded in future events. A minimum of eight monthly tests was stipulated unless Well 9 was taken out of service. In a response letter dated October 21, 1996, from the City of Rio Vista to DHS, the City indicated that the well would be taken out of service until ECO Resources Inc., a firm contracted to operate the City water system effective November 1, 1996, determined a way to treat and/or remove benzene. A letter within ECO Resources Inc. dated October 31, 1996, indicated that a desirable solution involved the dilution of Well 9 water within a reservoir to reduce and or eliminate the benzene concentrations. The document indicated that DHS felt this remedy was acceptable.

Some options regarding the future of Well 9 were considered. In a February 18, 1997, ECO Resources Inc. letter provide to the City of Rio Vista, continued benzene testing was acknowledged. Additionally, a contingency was discussed in which Well 9 would be run to failure provided other wells could handle demand in the event of failure. Further, the production of sand within Well 9 was mentioned as a problem that could accelerate well failure.

In a March 3, 1997, document from ECO Resources Inc. to the City of Rio Vista, the options of continued Well 9 operation until failure versus repair were discussed. It was proposed to use Well 9 as a backup well during the peak demand summer months and defer inspection/repair until the fall. With this course of action, the mandated benzene could be continued. Pertaining to serviceability of the well, an April 2, 1997, document from Pump Repair Service Company to ECO Resources Inc. indicated that during testing, excessive sand had been produced.

The benzene testing had been completed by the summer of 1997. Pursuant to this activity, a letter dated July 14, 1997, was sent from ECO Resources Inc. to DHS reporting that the testing program had not detected concentrations of benzene within Well 9.

The sand production and the possible failure of the well were addressed in 1998. A February 27, 1998, letter from Layne Christensen Company to Pump Repair Services Company presented a proposal to inspect and repair the well. The City of Rio Vista approved this action. Pump Repair Services Company prepared a April 20, 1998, letter which indicated the inspection and repairs had been completed and that the well was producing at a flow rate of 800 gpm.

Benzene was detected within Well 9 during later analysis. An October 13, 2000, letter from DHS to the City of Rio Vista indicated that a July 2000 sample had a benzene concentration exceeding the MCL. Additionally, required quarterly monitoring had not been performed, and DHS had not been notified within a required timeframe following the benzene detection. Thus, several investigative, notification, and monitoring tasks were presented to the City.

An October 19, 2000, letter and a subsequent November 7, 2000, letter from the Regional Water Quality Control Board to the Solano County Department of Environmental Management indicated that several potential sources of the benzene impact were identified in the vicinity of Well 9. However, a December 20, 2000, letter from the City of Rio Vista to DHS indicated that since the benzene concentrations were so low, they were believed to be the result of quality control errors as opposed from the migration from an off-site source. The City proposed to perform monthly monitoring for 12 months using a rigorous quality control approach. A January 16, 2001, letter from DHS to the City of Rio Vista indicated that the City was complying with the tasks assigned by DHS. Additionally, a Drinking Water Source Protection (DWSAP) program was requested; a DWSAP program assesses the contributions to the drinking water source and their vulnerability to contamination.

Another DHS document dated October 31, 2001, requested an operation plan for Well 9. Options presented included well destruction, use and treatment, or continued use with dilution. Either treatment or dilution would require additional permitting processes.

A total of 11 sampling events performed between November 2000 and March 2002 were reviewed. Three events between July 2001 and September 2001 had detectable concentrations of benzene slightly above the benzene MCL.

Well 10

A sketch indicates that the well extends to a depth of 520 feet below the ground surface with a ±270-foot screened interval extending from a depth of 230 feet down to a depth of 500 feet below the ground surface. Additional details of the well construction were not reviewed.

During development activities performed in March 1985 that involved very high withdrawal rates, a number of private wells in the vicinity were reported to have “run dry”. Two wells were located on properties along River Road, and one property was located to the east across the Sacramento River. An assessment concluded that the high pumping rates affected the water table level. Emergency water supplies were reportedly provided to the properties along River Road for the remainder of development activities. A determination was made that the water supplies of these properties would not be affected during operation of the well at its normal pumping rate (1,000 gpm).

Well 11

This well is located at the Summerset community in Rio Vista and was installed in 1995. The well was initially drilled to a depth of 937 feet below the ground surface. The bottom of the cased well extends to a depth of 370 feet below the ground surface and is screened from 205 feet to 273 feet, and again from 315 feet to 350 feet. The well drilling exposed interbedded sand and clay down to the cased depth of the well. The depth of groundwater at the time of drilling was approximately 50 feet below the ground surface. The pump was set at a depth of 300 feet. Initial pump test data for this well found that the well was capable of producing up to 1,000 gallons per minute with a recorded drawdown of 150 feet.

A document from ECO Resources Inc. dated November 11, 1997, to Blackhawk Rio Vista Venture Group outlined the sequence of events of a system failure that occurred in May 1997. An investigation determined that the problem was caused either by (1) faulty design of the electrical wiring network, or (2) a failure to install the wiring as designed.

A document dated August 6, 1998, from Braddock & Logan to the City of Rio Vista indicated that the well was withdrawing sand from the subsurface during pumping operations and, in the opinion of Braddock & Logan, ECO Resources Inc. was not addressing the problem in an adequate manner.

Well 12

Well 12 was installed in October 1995 and is located at Church and Airport Roads. The well extends to a depth of 452 feet below the ground surface and is screened from 380 feet to 408 feet, and again from 418 feet to 442 feet. Limited data found for this well found that the well was tested and found to be capable of yielding up to 700 gallons per minute at the time of the initial pump tests.

According to an internal City of Rio Vista letter dated June 29, 2000, the well was approved for use in March 1996. An ECO Resources Inc. letter to the City indicated that complaints of sand in the drinking water of three residences within Summerset had been reported and ECO would investigate further. Because of the sand, Well 12 was used sparingly from October 1998 during periods of high demand. Additional complaints had not been received. ECO Resources recommended further testing to determine if sand/gravel continued to be pumped.

Several correspondences were sent to the City from both Blackhawk Rio Vista Venture Group and ECO Resources Inc. disputing the responsibility of the faulty well performance that Blackhawk assigned to ECO Resources Inc. Additionally, the City notified that several maintenance issues were not being addressed by ECO Resources Inc.

SUMMARY OF WATER WELL PRODUCTION DATA/OVERALL WATER SYSTEM

Annual reports summarizing the performance of the Rio Vista Water System were reviewed. The following is a summary of the available information:

- 1978 – Monthly summary data for January through June were reviewed. The system produced 17.1 million gallons in January 1978 and 42.2 million gallons in June 1978.

- 1980 – 390.6 million gallons were provided to 1,261 customers from 3 wells during 1980. During the year, 8 taste and odor complaints and 40 leaks were recorded.

- 1981 – 390.6 million gallons were provided to 1,319 customers from 3 wells during 1981. June provided the peak demand; 61.2 million gallons. During the year, 7 taste and odor complaints, 11 leaks, and 35 other service interruptions were recorded.

- 1982 – 368.5 million gallons were provided to 1,346 customers from 3 wells during 1982. July provided the peak demand; 55 million gallons. During the year, 15 taste and odor complaints, 20 leaks, and 35 other service interruptions were recorded.

- 1983 – 470.1 million gallons were provided from 3 wells during 1983. August provided the peak demand; 71.1 million gallons. During the year, 3 taste and odor complaints, 1 outage, and 3 leaks were recorded.

- 1984 – 482 million gallons were provided to 1,290 customers from 3 wells during 1984. August provided the peak demand; 71.8 million gallons. During the year, 6 taste and odor complaints, 2 outages, and 2 leaks were recorded.

- 1985 – 565 million gallons were provided to 1,341 customers from 4 wells during 1985. July provided the peak demand; 82 million gallons. During the year, 1 taste and odor complaint and 3 outages were recorded.

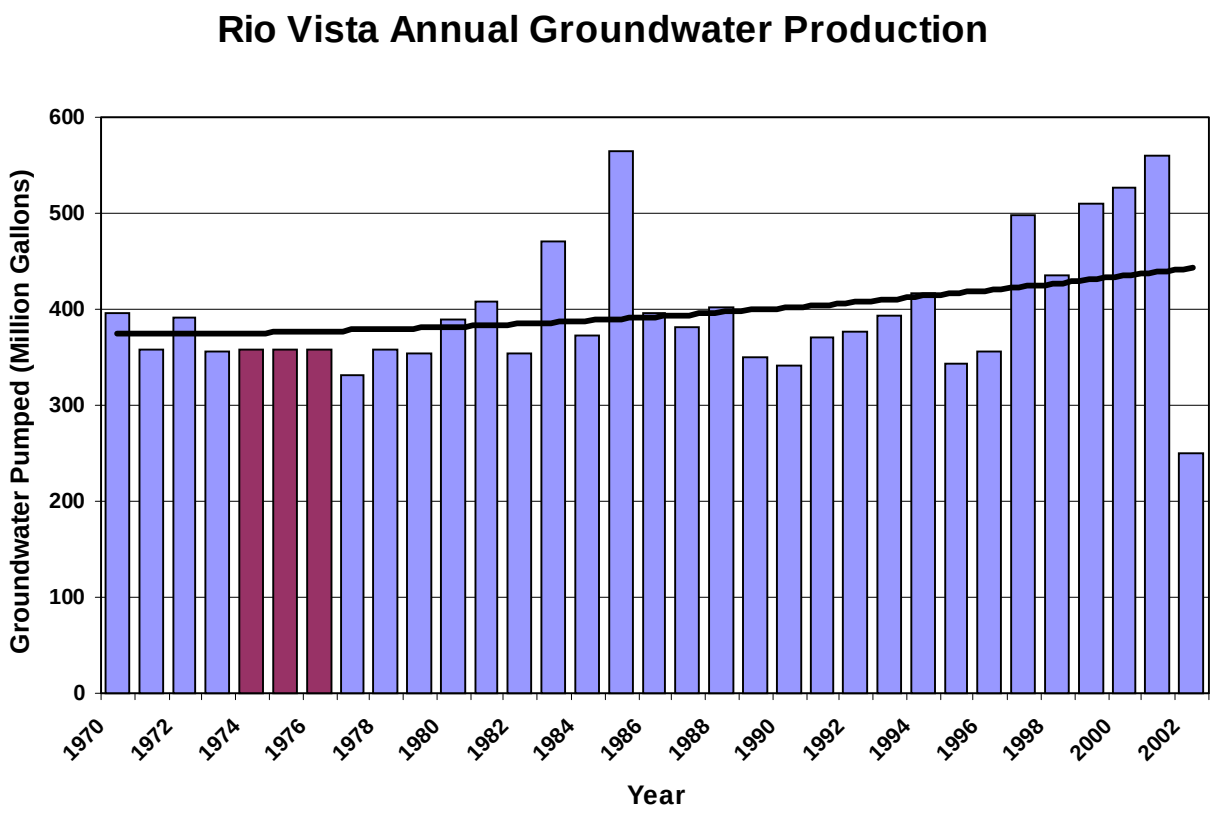
- 1986 – 408.9 million gallons were provided to 1,297 customers from 4 wells during 1986. July provided the peak demand; 64.2 million gallons.

- 1987 – 371.8 million gallons were provided to 1,319 customers from 4 wells during 1987. July provided the peak demand; 54.5 million gallons.

- 1988 – 678.7 million gallons were provided from 4 wells during 1988. August provided the peak demand; 36.6 million gallons.

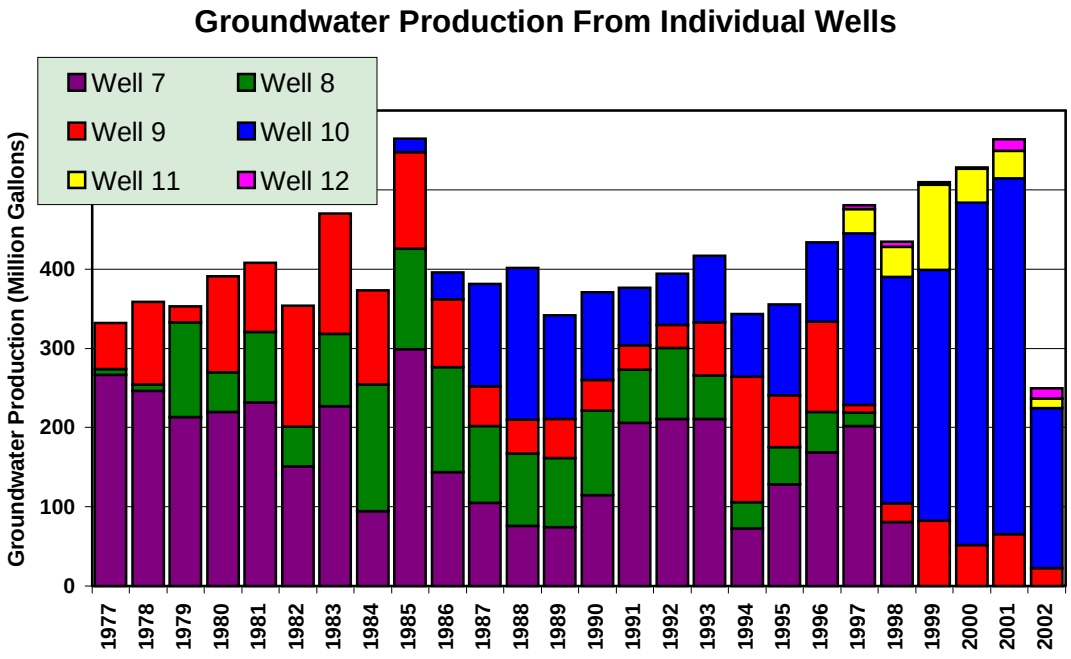
- 1989 – 344 million gallons were provided to 1369 customers from 4 wells during 1989. July provided the peak demand; 57.7 million gallons. During the year, 5 taste and odor complaints and 4 outages were recorded.
- 1990 – 341 million gallons were provided from 4 wells in 1990.
- 1991 – 370 million gallons were provided from 4 wells in 1991.
- 1992 – 376 million gallons were provided from 4 wells in 1992.
- 1993 – 394 million gallons were provided from 4 wells in 1993.
- 1994 – 416 million gallons were provided from 4 wells in 1994.
- 1995 – 343 million gallons were provided from 4 wells in 1995.
- 1996 – 355 million gallons were provided from 4 wells in 1996.
- 1997 – 498 million gallons were provided from 6 wells during 1997.
- 1998 – 435 million gallons were provided from 5 wells in 1998.
- 1999 – 510 million gallons were provided from 4 wells in 1999.
- 2000 – 528 million gallons of water were provided from 4 wells in 2000.
- 2001 – 560 million gallons of water were provided from 4 wells in 2001.
- 2002 – 250 million gallons of water had been pumped from 5 wells during the first 6 months of 2002.

The groundwater data reviewed by ENGEO found that the water was generally of a good quality. ENGEO has prepared graphic representations of the groundwater production from 1970 through 2000. Graph "A" shows the overall cumulative volume of groundwater pumped by the City during the past thirty years. It appears that the groundwater production is increasing by a rate of about 6 million gallons per year. The increasing trend in the production totals generally mirrors the growth the City has experienced during this time.



Graph "A"

Graph "B" provides a view of the groundwater production rate per year depicting the production from the individual wells. This graph shows that the primary production of groundwater has shifted to well 10 in the past few years. Well 10 was pumped to provide about 80 percent of the City's water supply during the years 2000 and 2001. It does not appear that the other productive water supply wells were required to supplement the waters pumped by well 10. Linear trends of groundwater levels suggest that the other City wells could have been pumped without significantly impacting the groundwater aquifer.



Graph "B"

In a May 26, 2000, document, ECO Resources Inc. outlined to the City of Rio Vista pumping difficulties within the well network. Well 9 was deemed a critical well; it was the only well that could be pumped in tandem with other wells. Wells 8, 10, 11 and 12 affected the performance of the network and could not be used when other wells beside 7 and 9 were in operation. Well 7 could be used, but was found to exhibit problems with turbidity.

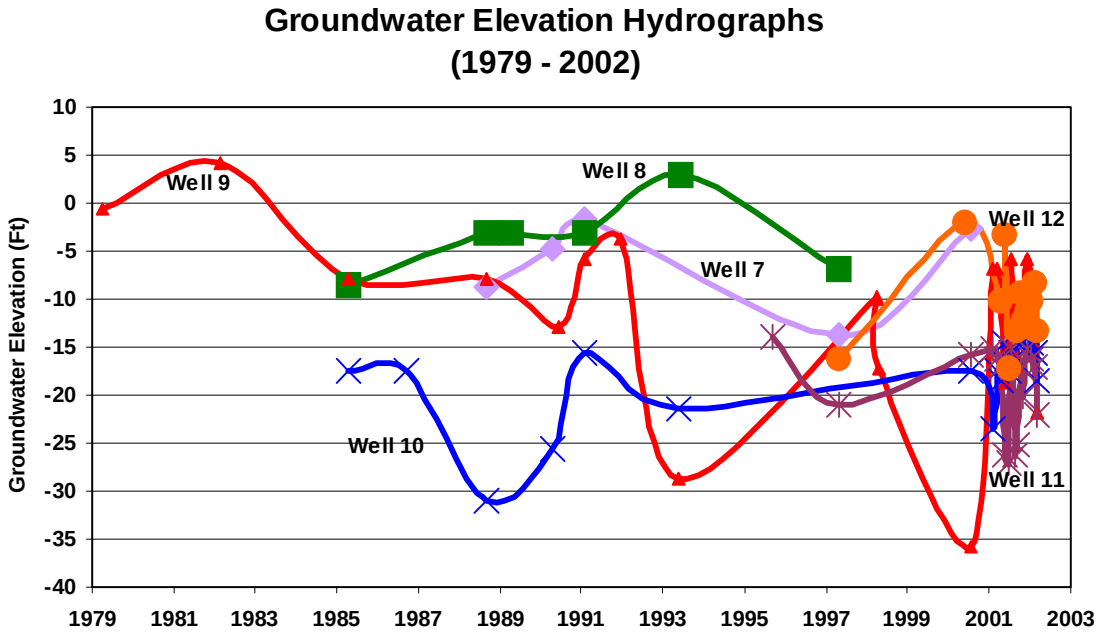
ANALYSIS OF AVAILABLE GROUNDWATER DATA

Limited data on the performance of the individual wells was found during the research and review of the documents provided by the City. Pacific Gas and Electric (PG&E) has periodically conducted pump tests of the individual wells to evaluate well capacity and efficiency. Static and pumping water levels were recorded at the time of these tests.

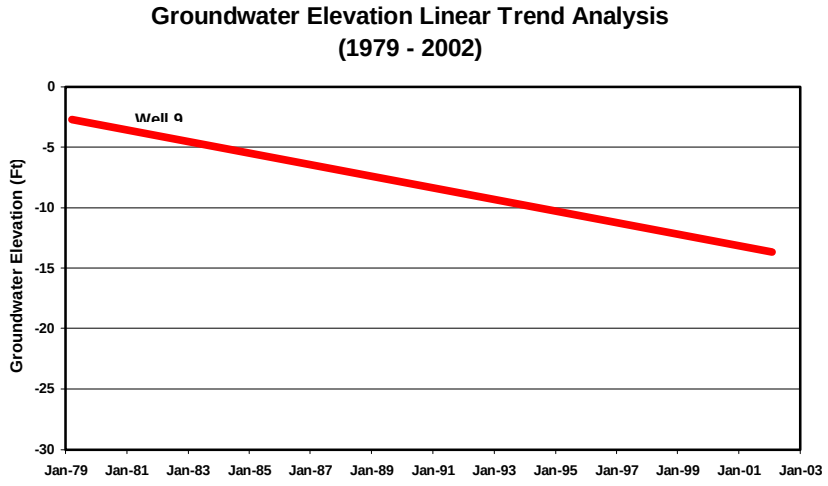
Analyses of these pump tests specifically on Wells 9 and 12 are provided in the Appendix. These tests show that the hydraulic conductivity of the aquifer penetrated by each of these wells is very similar. The hydraulic conductivity is a measure of the permeability of the water producing strata. It depends on a variety of physical factors including porosity, particle size and distribution and the shape and arrangement of particles. Review of the hydraulic conductivity results for these two wells shows that the water bearing consists of fine sand. This finding may be confirmed by the number of problems discussed earlier in this report for Wells 11 and 12 regarding sands in the drinking water from Well 12.

Our studies have found that if the groundwater level from each of the wells is recorded on a recurrent basis, the performance of each of the wells and the groundwater aquifer becomes clearer. . The collection of the groundwater level data was infrequent and inconsistent to allow for a better understanding of the performance of the groundwater aquifer. Prior to 1985, the City maintained very limited information regarding the performance of the wells and aquifer. After 1985, more data was collected but on an irregular basis. The lack of consistent data collection has made it more difficult to recognize and evaluate seasonal effects and outside influences on the wells such as the nearby Sacramento River.

As an example, the Groundwater Elevations Hydrographs (1979-2002) show the initial irregular plots of the data from the early 1980s to the late 1990s (Graph C). Our initial analyses indicated that the water levels might have been decreasing about 0.5 feet per year. A linear trend analysis of this data from 1985 through 2001 shows the groundwater elevations in Wells 7, 9 and 11 decreasing, while Wells 8, 10 and 12 show an increase in groundwater levels. A linear of analysis of Well 9, which had some groundwater levels recorded in 1979, shows a ±10-foot drop in groundwater elevation from 1979 to 2001.



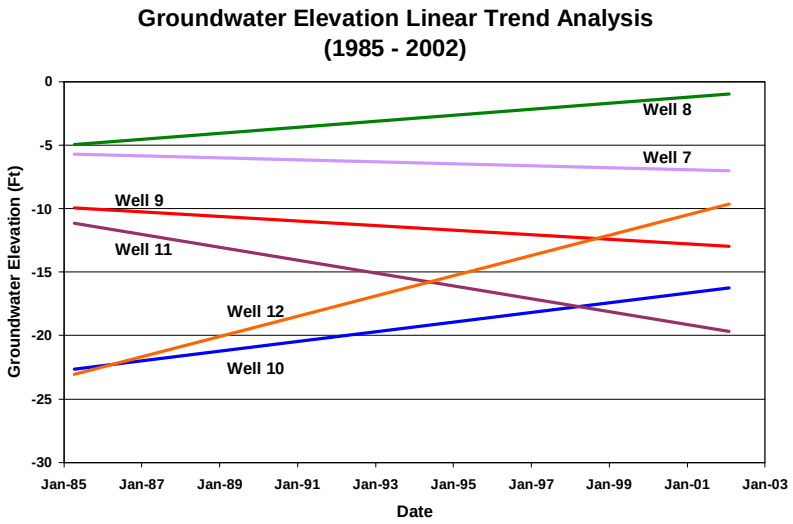
Graph "C"



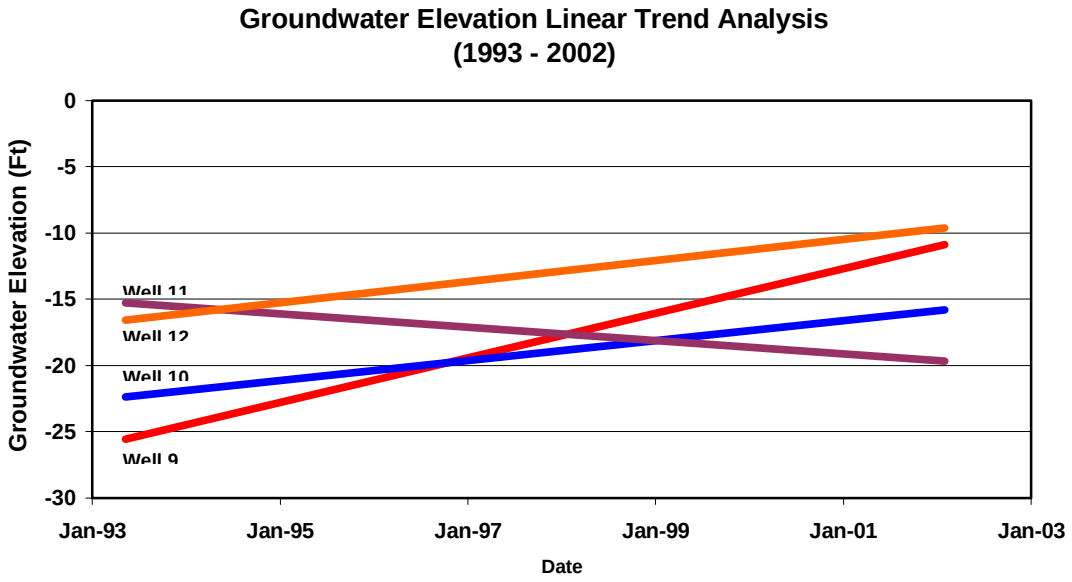
Graph "D"

As the data was adjusted for later years, we found that the reduction of the groundwater levels in each of the wells was not as pronounced as the earlier data would suggest. A review of a linear trend analysis for the years 1985 through 2001 indicates that the drop in the groundwater level in Well 9 was about 4 feet. This may also reflect the fact that groundwater production from Well 9 appears to have been reduced for some years in the late 1990s (Graph B). The trend for the groundwater elevation in Well 9 shows an increase in the 1995-2002 analysis while there is a slight decrease in the 2001-2002-trend analysis. These variations in the elevation of the groundwater levels in Well 9 most likely are a result of a decrease and subsequent increase in the production of groundwater from the well in the past several years.

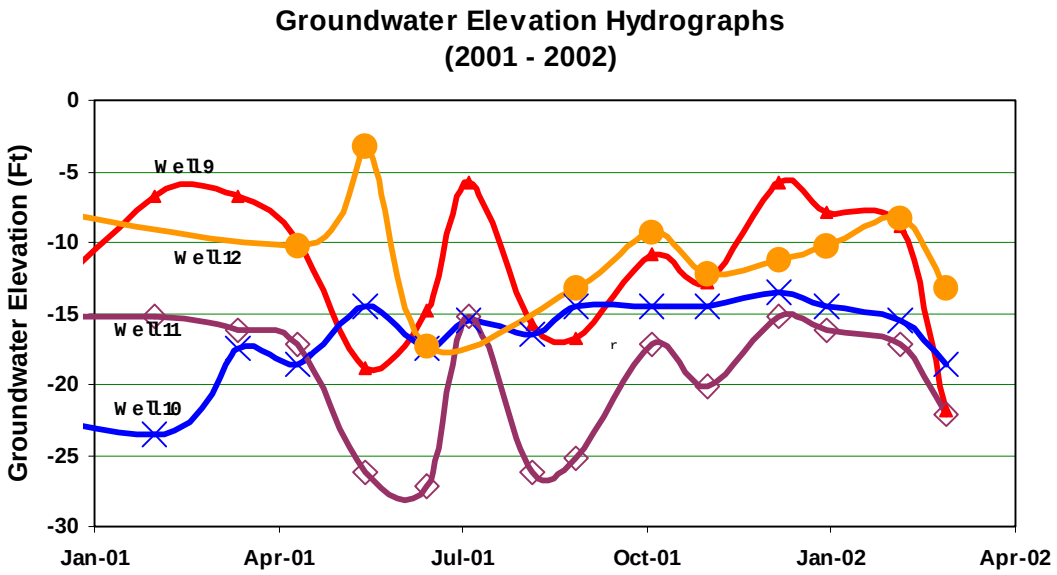
The linear trends that have been plotted tend to exhibit a more positive performance for Well 10. The groundwater production data has shown that Well 10 has become the primary producing well in the City during at least the past 4 to 5 years. During this time, the trend of the groundwater elevations has shown an increase. Three linear plots of the data from 1985-2002, 1995-2002 and the 2001-2002 all show an increase in the groundwater elevation even though the well has shown a significant increase in production. It is possible that the increased production in the well has resulted in an increase in flow or recharge to the water bearing gravels penetrated by the well. Given the close proximity, this data suggests that the recharge of the well at depth is most likely from the Sacramento River.



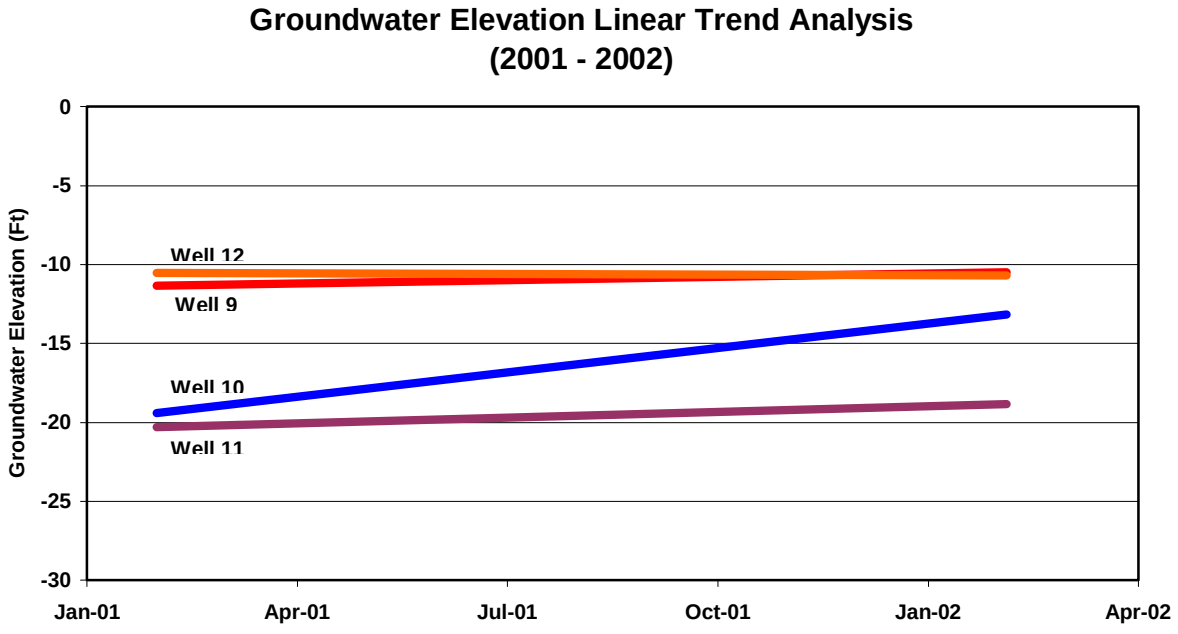
Graph "E"



Graph "F"



Graph "G"



Graph "H"

The trend analyses produced by ENGEO indicate that more frequent data collection allows for a more accurate evaluation of understanding of aquifer performance. While limited, the groundwater elevation trends recorded since the mid-1990s can be used to begin to understand the local aquifer. An example is the groundwater trends for Wells 11 and 12. These wells installed in the mid-1990s are located in the Trilogy subdivision west of the downtown core and some distance from the other water supply wells. Our study of the Department of Water Resources well drillers logs and pump test results found that these wells are likely drawing water from silty sands and a finer sand substratum than the wells closer to the river. The 2001-2002 Groundwater Elevation Hydrograph shows significant variation in the groundwater levels of these two wells, although it does not appear that they are producing large volumes of water for the City on an annual basis. This information tends to suggest that the aquifer west of the City may be more sensitive to pumping and would require more diligent management of the pumping rates and recordation of the water levels.

Well 9 also appears to react more readily to pumping than Well 10. Review of the Groundwater Elevation Hydrographs for 2001-2002 tends to show Wells 9 and 11 reacting in a very similar manner during the year. Well 10 does not appear to be as sensitive to water production. The Groundwater Elevation Hydrographs for 2001-2002 show Well 10 maintaining a somewhat stable elevation with the linear trend showing an overall increase in water level. In general, it appears that all six of the current water wells in the City recover quickly once water production is reduced. This is an indication that the storage and recharge of the groundwater aquifer is likely more than adequate to meet the current demands.

Additionally, theoretical well yield calculations were performed on a limited number of wells. Banks Information Solutions performed and completed a water well search report for wells within and in the vicinity of Rio Vista City limits. Well installation logs were provided for public and private wells within the well report. These logs were reviewed for information pertaining to any well pump test data performed at the time of well installation.

The installation logs of three private wells (denoted by Banks Identification Numbers 14, 35, and 36, respectively) as well as Municipal Wells 7, 8, and 9 (denoted by Banks Identification Numbers 51, 53, and 69, respectively) included pump test data. The reported flow rates and corresponding water table drawdowns were converted into theoretical well yields and corresponding drawdowns. Assuming no synergistic or adverse interaction effects between wells (the radii of influence of neighboring wells do not overlap), it is believed that the wells within the current well system may be operated at flow rates equal to or greater than 1,000 gallons per minute.

CONCLUSIONS AND RECOMMENDATIONS

Water levels recorded on a more regular basis by Eco-Resources for the past 6 to 18 months tend to show that Wells 9, 10, 11 and 12 pumped at the current rates show little drawdown. This trend suggests that the current water demands for the City are being met with minimal impacts on the local aquifer. While some of the wells tend to be more sensitive to possible overdraft than others, the wells all appear to recover quickly once the pumping at each well is reduced or discontinued.

The current trends show that the City's present needs are being met. Improvements in the City's infrastructure for better conveyance of the water from the wells could allow for better management and production from each well and reduce the current demands on Well 10.

Review of all the data collected during the course of this study suggests that the groundwater aquifer in and around the City of Rio Vista will likely meet the future groundwater demands established by the projected population growth for the next 20 years. In order to validate this statement and to more clearly understand the impacts of the increased demand on the aquifer, the City could begin to record the static and pumping levels from each well on a regular basis. We would initially suggest that these levels be recorded on a monthly basis in order to compare the groundwater levels in each well to the rate of groundwater production. Collection of this information over the next three to five years should allow the City to monitor the relationship of the population growth and projected water demands to the changes in the groundwater elevations in each of the wells.

The construction of the existing wells and the demands placed on the wells to produce water for the City does not facilitate the collection of the necessary water level data. A number of groundwater monitoring wells would need to be drilled adjacent to be pumping wells to reasonably record the impacts of the groundwater pumping on the aquifer.

The City's location on the western edge of the Sacramento River and at the eastern limits of the Sacramento Valley Groundwater indicates that it is in an ideal location with regard to sources of groundwater. Additional water supply wells drilled to the west of the City should be able to draw from water-bearing strata to supplement future groundwater demands. If these wells are drilled, we recommend that a pump test of at least 72 hours in duration be conducted. In addition, monitoring wells should be constructed proximate to the new wells to measure the drawdown of the groundwater elevations at various intervals from the pumping well.

In the near future, the City should consider additional studies to evaluate the overall potential yield of the local sub-basin from which the City would draw water. To evaluate whether additional sources of water are required to meet the City of Rio Vista's (City) future water demands, it is recommended that the perennial yield of groundwater be estimated for the sub-basin within which the City is located. The perennial yield of a basin (or sub-basin) may be defined as the rate at which water can be withdrawn perennially under specified operating conditions without producing an undesired result. An undesired result is an adverse situation such as:

- Progressive reduction of the water resource.
- Development of uneconomic pumping conditions.
- Degradation of groundwater quality.
- Interference with prior water rights.
- Land subsidence caused by lowered groundwater levels.

Any draft in excess of the perennial yield is referred to as overdraft. Existence of overdraft implies that continuation of existing water management practices will result in adverse impacts as defined above. To prevent overdraft, revisions are required in groundwater management practices, including the potential need for additional sources of water such as surface water.

As the initial step in estimating the perennial yield, a hydrologic budget of the basin is required. This budget correlates inflow and outflow of water to and from the basin and estimates the resulting change in groundwater storage based on the following equation:

Inflow of Water – Outflow of Water = Change in Groundwater Storage

Common components of inflow of water into a basin include subsurface inflow, rainfall recharge, streambed percolation, irrigation return percolation, and imported water. Common components of outflow of water from a basin include subsurface outflow, groundwater pumpage, evapotranspiration, consumptive use by phreatophytes, and exported water.

Once the change in groundwater storage has been quantified, there are various methods which may be used to estimate the perennial yield. One common approach is to equate the perennial yield to the long-term recharge less the long-term discharge. Another common method involves computing the average annual total net discharge over a period when the net change of groundwater in storage is nearly zero and when recharge is about equal to the long-term average. These methods should be combined with considerations regarding water quality in order to estimate the perennial yield of the basin. The perennial yield should then be compared to the projected future demand of water in order to determine if the basin will reach overdraft conditions and whether additional source of water may be required.

Data key to preparing a hydrologic budget include:

- Hydraulic parameters of the aquifer system (i.e. permeability, groundwater level elevation measurements) in order to estimate subsurface inflow and outflow.
- Compilation and evaluation of rainfall data for the targeted area.
- Stream flow measurements at points of inflow and outflow to the basin.
- Estimation of total pumpage of groundwater from the basin, including domestic and agricultural sources.
- Estimation of evapotranspiration rates for the basin.
- An understanding of land use, including the potential for uptake of water by plants.
- Compilation of other potential sources of water to and from the basin.

It is recommended that the above data be systematically collected in support of a future hydrologic budget and perennial yield study. These studies should be supplemented by development of a basin- (or sub-basin) wide groundwater model to further correlate and predict the impacts of the various inflow, outflow and water quality components. In addition, the model may be used as a tool for management of groundwater resources, including optimization of well citing and operations.

To conclude, while the data reviewed by ENGEO suggests that the groundwater aquifer supplying the City of Rio Vista meets current and possibly the projected future demands, continued data collection and analysis is required to confirm these findings. In the short term the City should (1) collect groundwater level data from the existing wells, (2) install groundwater monitoring wells adjacent to the existing wells where the well construction will not allow for the reasonable collection of groundwater level data, (3) monitor monthly production from each well to avoid over pumping of individual wells, and (4) require detailed pumping tests with drawdown studies of any new water supply wells drilled in the City.

The City should review the findings from these studies on a yearly basis to determine if the incremental increases in anticipated population are impacting the groundwater levels in the aquifer. The City should then consider completing the hydrologic budget and perennial yield analysis.

PUMP
RECORDS
2001

WELL PRODUCTION FOR THE MONTH OF DECEMBER 2001

Date	Well 7	Well #8	Well #9	Well #10	Well #11	Well #12	
31	-	-	393,287	880,754	260,898	39,436	
30							
29							
28							
27							
26							
25							
24							
23							
22							
21							
20							
19							
18							
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12							
11							
10							
9							
8							
7							
6							
5							
4							
3							
2							
1	0	0	393,287	861,461	260,417	39,436	
Prior	0	0	393,287	860,761	260,363	39,436	
Total M. G.	-	-	-	19,993,000	535,000	-	20,528,000
Total MGD.	**0.000**	**0.000**	**0.000**	**19.993**	**0.535**	**0.000**	**0.662**

WELL PRODUCTION TOTAL FOR THE MONTH OF NOVEMBER 2001

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31								
30	0	0	393287	860761	260363	39436		
29								
28								
27								
26								
25								
24								
23								
22								
21								
20								
19								
18								
17								
16								
15								
14								
13								
12								
11								
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8								
7								
6								
5								
4								
3								
2								
1	0	0	393287	834206	258890	39191		
PRIOR	0	0	393287	833285	258869	39191		
TOTAL	0	0	0	27,476,000	1,494,000	245,000	**29,215,000**	**M.G.**
TOTAL MGD.	#####	**0.000**	**0.000**	**27.476**	**1.494**	**0.245**	**0.974**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF OCTOBER 2001

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31			393287	833285	258869	39191		
30	0	0						
29								
28								
27								
26								
25								
24								
23								
22								
21								
20								
19								
18								
17								
16								
15								
14								
13								
12								
11								
10								
9								
8								
7								
6								
5								
4								
3								
2								
1	0	0	393287	800183	243405	36910		
PRIOR	0	0	392964	798604	243405	36794		
TOTAL	0	0	323,000	34,681,000	15,464,000	2,397,000	**52,865,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**0.323**	**34.681**	**15.464**	**2.397**	**1.705**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF SEPTEMBER 2001

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31								
30	0	0	392964	798604	243405	36794		
29								
28								
27								
26								
25								
24								
23								
22								
21								
20								
19								
18								
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3								
2								
1	0	0	383640	752401	241862	33375		
PRIOR	0	0	383240	750881	241704	33375		
TOTAL	0	0	9,724,000	47,723,000	1,701,000	3,419,000	62,567,000	M.G.
TOTAL MGD.	**0.000**	**0.000**	**9.724**	**47.723**	**1.701**	**3.419**	**2.086**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF AUGUST 2001

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	383240	750881	241704			
30								
29								
28								
27								
26								
25								
24								
23								
22						33375		
21								
20								
19								
18								
17								
16								
15								
14								
13								
12								
11								
10								
9								
8								
7								
6								
5								
4								
3								
2								
1	0	0	369581	696520	239632	30731		
PRIOR	0	0	368738	694561	239369	30731		
TOTAL	0.000	0.000	14,502,000	56,320,000	2,335,000	2,644,000	**75,801,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**14.502**	**56.320**	**2.335**	**2.644**	**2.445**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF JULY 2001

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	368738	694561	239369	30731		
30								
29								
28								
27								
26								
25								
24								
23								
22								
21								
20								
19								
18								
17								
16								
15								
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11								
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2								
1	0	0	353360	638967	237851	27355		
PRIOR	0	0	352900	637180	237712	27355		
TOTAL	0.000	0.000	15,838,000	57,381,000	1,657,000	3,376,000	78,252,000	M.G.
TOTAL MGD.	**0.000**	**0.000**	**15.838**	**57.381**	**1.657**	**3.376**	**2.524**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF JUNE 2001

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0						
30			352900	637180	237712	27355		
29								
28								
27								
26								
25								
24								
23								
22								
21								
20								
19								
18								
17								
16								
15								
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2								
1	0	0	340330	584210	234292	25272		
PRIOR	0	0	339624	582467	234037	25272		
TOTAL	0.000	0.000	13,276,000	54,713,000	3,675,000	2,083,000	**73,747,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**13.276**	**54.713**	**3.675**	**2.083**	**2.458**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF May 2001

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	339624	582467	234037	25272		
30								
29								
28								
27								
26								
25								
24								
23								
22								
21								
20								
19								
18								
17								
16								
15								
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2								
1	0	0	330622	531173	231160	24939		
PRIOR	0	0	330622	529779	231160	24939		
TOTAL	0.000	0.000	9,002,000	52,688,000	2,877,000	333,000	**64,900,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**9.002**	**52.688**	**2.877**	**0.333**	**2.094**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF APRIL 2001

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0						
30			330622	529774	231160	0		
29								
28								
27								
26								
25								
24								
23								
22								
21								
20								
19								
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4								
3								
2								
1	0	0	328561	501773	229400	0		
PRIOR	0	0	328561	501773	227890	0		
TOTAL	0.000	0.000	2,061,000	28,001,000	3,270,000	0	**33,332,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**2.061**	**28.001**	**3.27**	**0**	**1.111**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF MARCH 2001

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	328561	501773	227890	0		
30								
29								
28								
27								
26								
25								
24								
23								
22								
21								
20								
19								
18								
17								
16								
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3								
2								
1	0	0	327827	478213	226136	0		
PRIOR	0	0	327827	478213	226136	0		
TOTAL	0.000	0.000	734,000	23,560,000	1,754,000	0	26,048,000	M.G.
TOTAL MGD.	**0.000**	**0.000**	**0.734**	**23.560**	**1.754**	**0**	**0.840**	**M.G.D.**

113.027

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF FEBRUARY 2001

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0						
30								
29								
28			327827	478213	226136	0		
27								
26								
25								
24								
23								
22								
21								
20								
19								
18								
17								
16								
15								
14								
13								
12								
11								
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7								
6								
5								
4								
3								
2								
1	0	0	327750	459447	226123	0		
PRIOR	0	0	327750	458795	226123	24660		
TOTAL	0.000	0.000	77,000	19,418,000	13,000	0	19,508,000	M.G.
TOTAL MGD.	**0.000**	**0.000**	**0.077**	**19.418**	**0.013**	**0**	**0.697**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF JANUARY 2001

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	327750	458795	226123	0		
30								
29								
28								
27								
26								
25								
24								
23								
22								
21								
20								
19								
18								
17								
16								
15								
14								
13								
12								
11								
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3								
2								
1	0	0	327600	437016	226099	0		
PRIOR	0	0	327562	436215	226099	24660		
TOTAL	0.000	0.000	188,000	22,580,000	24,000	0.000	**22,792,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**0.188**	**22.580**	**0.024**	**0**	**0.735**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

PUMP RECORDS 2000

WELL PRODUCTION TOTAL FOR THE MONTH OF NOVEMBER 2000

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0						
30	0		326548	412763	225342	24660		
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	325981	394031	220608	24660		
PRIOR	0	0	325981	393605	220297	24660		
TOTAL	0.000	0.000	567,000	19,158,000	5,045,000	0	**24,770,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**0.567**	**19.158**	**5.045**	**0**	**0.826**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF OCTOBER 2000

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	325981	393605	220297	22660		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	325442	361425	215817	22660		
PRIOR	0	0	325442	358066	215773	22660		
TOTAL	0.000	0.000	539,000	35,539,000	4,524,000	0	40,602,000	M.G.
TOTAL MGD.	**0.000**	**0.000**	**0.539**	**35.539**	**4.524**	**0**	**1.310** ✓	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF SEPTEMBER 2000

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0						
30	0		325442	358066	215773	22660		
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
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8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	320266	314459	210778	22489		
PRIOR	0	0	320266	312725	210608	22489		
TOTAL	0.000	0.000	5,176,000	45,341,000	5,165,000	171,000	55,853,000	M.G.
TOTAL MGD.	**0.000**	**0.000**	**5.176**	**45.341**	**5.165**	**0.171**	**1.862**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF AUGUST 2000

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	320174	312725	210407	22486		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	307094	259226	204842	21681		
PRIOR	0	0	306109	257314	204718	21681		
TOTAL	0.000	0.000	14,065,000	55,411,000	5,689,000	805,000	**75,970,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**14.065**	**55.411**	**5.689**	**0.805**	**2.451**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF JULY 2000

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	306109	257314	204718	21663		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	291673	202393	201327	21663		
PRIOR	0	0	291403	200523	201235	21663		
TOTAL	0.000	0.000	14,706,000	56,791,000	3,483,000	0	**74,980,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**14.706**	**56.791**	**3.483**	**0**	**2.419** ✓	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF JUNE 2000

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0						
30	0		290926	200523	201131	21663		
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	278273	148240	197740	21319		
PRIOR	0	0	278103	146217	197681	21319		
TOTAL	0.000	0.000	12,823,000	54,306,000	3,450,000	344,000	**70,923,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**12.823**	**54.306**	**3.45**	**0.344**	**2.364**	**M.G.D.**

FN: LOTUS123R5\WELLP0600.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF MAY 2000

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	278103	146217	197681	21319		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	275543	103431	195384	20706		
PRIOR	0	0	275543	101740	195366	20706		
TOTAL	0.000	0.000	2,560,000	44,477,000	2,315,000	613,000	**49,965,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**2.560**	**44.477**	**2.315**	**0.613**	**1.612**	**M.G.D.**

FN: LOTUS123R5\WELLP0499.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF APRIL 2000

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	0					
30	0		275543	101740	195366	20706		
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	275543	67361	189575	20706		
PRIOR	0	0	275543	66102	189575	20706		
TOTAL	0.000	0.000	0	35,638,000	5,791,000	0	**41,429,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**0.000**	**35.638**	**5.791**	**0.000**	**1.336**	**M.G.D.**

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FN: LOTUS123R5\WELLP100.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF MARCH 2000

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	0	10066102	189575	20706		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	0	10044705	185629	20706		
PRIOR	0	0	0	10044705	185629	20706		
TOTAL	0.000	0.000	0	21,397,000	3,946,000	0	**25,343,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**0.000**	**21.397**	**3.946**	**0.000**	**0.818**	**M.G.D.**

FN: LOTUS123R5\WELLP100.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF FEBRUARY 2000

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	0			20706		
30	0							
29	0			10044705	185623			
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	0	10027808	183853	20706		
PRIOR	0	0	0	10027099	183853	20706		
TOTAL	0.000	0.000	0	17,606,000	1,770,000	0	19,376,000	M.G.
TOTAL MGD.	**0.000**	**0.000**	**0.000**	**17.606**	**1.770**	**0.000**	**0.668**	**M.G.D.**

FN: LOTUS123R5\WELLP100.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF JANUARY 2000

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	275543	1026511	183853	20706		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	275543	1003106	183570	20706		
PRIOR	0	0	275543	1003106	183570	20706		
TOTAL	0.000	0.000	0	23,405,000	283,000	0	23,688,000	M.G.
TOTAL MGD.	**0.000**	**0.000**	**0.000**	**23.405**	**0.283**	**0.000**	**0.764**	**M.G.D.**

FN: LOTUS123R5\WELLP100.WK4

PUMP RECORDS 1999

WELL PRODUCTION TOTAL FOR THE MONTH OF DECEMBER 99

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	275543	1003106	183570	20706		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	275543	980295	183182	20701		
PRIOR	0	0	275543	979618	183182	20701		
TOTAL	0.000	0.000	0	23,488,000	388,000	5,000	23,881,000	M.G.
TOTAL MGD.	**0.000**	**0.000**	**0.000**	**23.488**	**0.388**	**0.050**	**0.772**	**M.G.D.**

FN: LOTUS123R5\WELLP119.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF NOVEMBER 99

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0						
30	0		275543	979618	183182	20701		
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	275294	957547	181562	19754		
PRIOR	0	0	274882	956751	181562	19754		
TOTAL	0.000	0.000	661,000	22,867,000	1,620,000	947,000	26,095,000	M.G.
TOTAL MGD.	**0.000**	**0.000**	**0.661**	**22.867**	**1.620**	**0.947**	**0.870**	**M.G.D.**

FN: LOTUS123R5\WELLP119.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF OCTOBER 99

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	274882	956751	181562	19754		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	261547	928379	176373	19754		
PRIOR	0	0	261256	927055	176208	19754		
TOTAL	0.000	0.000	13,626,000	29,696,000	5,354,000	0	**48,676,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**13.626**	**29.696**	**5.354**	**0**	**1.570**	**M.G.D.**

FN: LOTUS123R5\WELLP109.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF SEPTEMBER 99

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0						
30	0		261256	927055	176208	19754		
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	255372	887325	165157	19754		
PRIOR	0	0	255212	885382	165157	19754		
TOTAL	0.000	0.000	6,044,000	41,673,000	11,051,000	0	**58,768,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**6.044**	**41.673**	**11.051**	**0**	**1.896**	**M.G.D.**

FN: LOTUS123R5\WELLP0799.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF AUGUST 99

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	255212	883392	165157	19754		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	235637	872764	131908	17937		
PRIOR	0	0	235214	871707	131251	17937		
TOTAL	0.000	0.000	19,998,000	11,685,000	33,906,000	1,817,000	**67,406,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**19.998**	**11.685**	**33.906**	**1.817**	**2.174**	**M.G.D.**

FN: LOTUS123R5\WELLP0799.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF JULY 99

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	235214	871707	131251	17937		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	218434	837012	111587	17937		
PRIOR	0	0	217637	835797	110724	17937		
TOTAL	0.000	0.000	17,577,000	35,910,000	20,527,000	0	**74,014,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**17.577**	**35.910**	**20.527**	**0**	**2.388**	**M.G.D.**

FN: LOTUS123R5\WELLP0799.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF JUNE 99

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0						
30	0		217637	835797	110724	17937		
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	201027	799740	97164	17937		
PRIOR	0	0	200656	798301	96930	17937		
TOTAL	0.000	0.000	16,981,000	37,496,000	13,794,000	0	**68,271,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**16.981**	**37.496**	**13.794**	**0**	**2.202**	**M.G.D.**

FN: LOTUS123R5\WELLP0499.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF MAY 99

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	200337	796912	96683	17937		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	193301	762120	87144	17937		
PRIOR	0	0	193301	761191	86446	17937		
TOTAL	0.000	0.000	7,036,000	35,721,000	10,237,000	0	**52,994,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**7.036**	**35.721**	**10.237**	**0**	**1.709**	**M.G.D.**

FN: LOTUS123R5\WELLP0499.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF APRIL 99

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0						
30	0		193139	760296	85845	17936		
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	192974	738026	79089	17371		
PRIOR	0	0	192974	737362	79036	17371		
TOTAL	0.000	0.000	165,000	22,934,000	6,809,000	565,000	**30,473,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**0.165**	**22.934**	**6.809**	**0.565**	**1.016**	**M.G.D.**

FN: LOTUS123R5\WELLP0499.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF MARCH 99

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	192974	737362	79036	17371		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	192970	717867	78507	17371		
PRIOR	0	0	192970	717320	78507	17371		
TOTAL	0.000	0.000	4,000	20,042,000	529,000	0	**20,575,000**	**M.G.**
TOTAL MGD.	**0.000**	**0.000**	**0.004**	**20.042**	**0.529**	**0**	**0.664**	**M.G.D.**

FN: LOTUS123R5\WELLP0399.WK4

DATE

month of Feb. 99

well #10

Total Flow 18,127,000 gallons
Avg Flow .647 MGD

well # 11

Total Flow 668,000
Avg Flow .024 MGD

Total Flow - 18,795,000
Avg Total Flow - .671 MGD

WELL PRODUCTION TOTAL FOR THE MONTH OF JANUARY 99

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	192171	699193	77890	17369		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	192171	682356	75832	17334		
TOTAL	0.000	0.000	0	17,445,000	2144000	35000		
TOTAL MGD.	**0.000**	**0.000**	**0.000**	**17.445**	**2.144**	**0.035**	**19.624**	**M.G.**

Total Daily Aveage 0.633 M.G.D.

FN: LOTUS123R5\WELLP1198.WK4

PUMP RECORDS 1998

WELL PRODUCTION TOTAL FOR THE MONTH OF DECEMBER 98

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	192171	681748	75746	17334		
30	0							
29	0							
28	0							
27	0							
26	0							
25	0							
24	0							
23	0							
22	0							
21	0							
20	0							
19	0							
18	0							
17	0							
16	0							
15	0							
14	0							
13	0							
12	0							
11	0							
10	0							
9	0							
8	0							
7	0							
6	0							
5	0							
4	0							
3	0							
2	0							
1	0	0	185981	668649	73370	17333		
TOTAL	0.000	0.000	6190000	14056000	2444000	1000		
TOTAL MGD.	**0.000**		**6.190**	**14.060**	**2.444**	**0.010**	**22.704**	**M.G.**

Total Daily Aveage 0.7324 M.G.D.

FN: LOTUS123R5\WELLP1198.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF NOVEMBER 98

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD	
30	0	0	185981	667692	73302	17333	
29	0						
28	0						
27	0						
26	0						
25	0						
24	0						
23	0						
22	0						
21	0						
20	0						
19	0						
18	0						
17	0						
16	0						
15	0						
14	0						
13	0						
12	0						
11	0						
10	0						
9	0						
8	0						
7	0						
6	0						
5	0						
4	0						
3	0						
2	0						
1	0		185,981	646503	70350	17333	
TOTAL	0.000		0	22623000	172000	0	
TOTAL MGD.	**0.000**		**0**	~~40.04~~ 21.189	~~1.56~~ 2.952	**0**	~~41.6 MGD.~~ 24.141
Total Daily Aveage		1.3867					

FN: LOTUS123R5\WELLP1198.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF OCTOBER 98

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD	
31	0	0	185981	645069	70178	17333	
30	0						
29	0						
28	0						
27	0						
26	0						
25	0						
24	0						
23	0						
22	0						
21	0						
20	0						
19	0						
18	0						
17	0						
16	0						
15	0						
14	0						
13	0						
12	0						
11	0						
10	0						
9	0						
8	0						
7	0						
6	0						
5	0						
4	0						
3	0						
2	0						
1	0		185,373	606043	64708	17333	
TOTAL	0.000		0	40040000	156000	0	
TOTAL MGD.	**0.000**		**0**	**~~40.04~~**	**~~1.56~~**	**0**	**~~41.6~~ MGD.**
Total Daily Aveage		1.3419		39.026	5.47		44.496

FN: LOTUS123R5\WELLP998.WK4

WELL PRODUCTION TOTAL FOR THE MONTH OF SEPT. 98

DATE	#7	#8	#9 METER RD	#10 METER RD	#11 METER RD	#12 METER RD		
31	0	0	185373	605029	64552	17333		
30	0.180							
29	0.914							
28	0.954							
27	0.846							
26	1.035							
25	1.080							
24	1.098							
23	1.044							
22	1.116							
21	1.130							
20	1.089							
19	1.157							
18	0.855							
17	1.080							
16	1.080							
15	0.990							
14	1.260							
13	1.089							
12	1.080							
11	1.080							
10	1.035							
9	1.125							
8	0.954							
7	1.125							
6	1.080							
5	1.035							
4	0.810							
3	1.350							
2	0.918							
1	1.161		185.373	585139	59099	16660		
TOTAL	30.750		0	20774000	5760000	713000		
TOTAL MGD.	**30.750**		**0**	~~20.774~~ 19.89	**5.76**	**0.713**	**57.997**	**MGD.**
Total Daily Aveage		1.9332						

FN: LOTUS123R5\WELLP998.WK4

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WELL PRODUCTION	AUG '98
WELL #7	33.293 M.G.
WELL #8	Ø M.G.
WELL #9	3.921 M.G
WELL #10	30.429 M.G.
TOTAL	67.643 M.G.
	2.182 MGD
WELL #11	6.822 M.G.
WELL #12	0.020 M.G.
TOTAL S.S.	6.842 M.G.
	0.220 MGD.
GRAND TOTAL	74.485 M.G.
	2.403 MGD.

HEART FEDERAL
SAVINGS & LOAN

DATE

TO

FROM

SUBJECT WELL PRODUCTION JULY '98

#7 = 16.727 MG

#8 = Ø

#9 = 9.772 M.G.

#10 = 38.458 M.G.

TOTAL 64.957 M.G. / 2.095 MGD.

#11 = 5.981

#12 = Ø

GRAND TOTAL 70.938 MG. / 2.29 MGD

MEMO

FSL 10-1, Rev. 8/86

APPLIED
Industrial Technologies

Applied Industrial Technologies-
King
801 Sunset Drive
Antioch, CA 94509
510 757 4680 Tel
510 754 7817 Fax

Well production May '98

well #7		Ø	
well # 8		Ø	
well # 9		Ø	
well #10		24.3 mg	
	NaOcl	4.48 barrels	12%
	NaOcl	232.96 gal	12%
Well #11		2.708 mg	
	NaOcl	22.1 gal of	12%
well # 12		Ø	
Grand total		27.008 mg	
AVG.		.87 MGD	

Hilton

WELL PRODUCTION APRIL '98

WELL #7	Ø
WELL #8	Ø
WELL #9	Ø
WELL #10	19.237 MG.
WELL #11	1.168 M.G.
WELL #12	1.244 M.G.
TOTAL - CITY	19.237 MG.
TOTAL - S.S.	2.412 M.G.
GRAND TOTAL =	21.649 M.G.
AVG.	0.72 M.G.D.

Reservations 1-800-HILTONS

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PRODUCTION	MARCH ~~APRIL~~ 1998
well # 7	1800 gal .0018 MG.
well # 8	~~0~~
well # 9	~~0~~
well # 10	14.431 mg ~~X~~
well # 11	0.023 mg ~~X~~
well # 12	1.962 mg ~~X~~
TOTAL	16.418 M.G.
	.530 MGD.

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WELL PRODUCTION
JANUARY 1998

#7	—	Ø
#8	—	Ø
#9	—	Ø
#10	—	14.477 M.G.
CITY TOTAL	—	14.477 M.G. .467 M.G.D.
#11	—	Ø
#12	—	1.685 M.G.
S.S. TOTAL	—	1.685 M.G. .054 M.G.D.
GRAND TOTAL	—	16.162 M.G. .521 M.G.D.

PUMP RECORDS 1997

US Rentals

"AMERICA'S EQUIPMENT RENTAL LEADER"
210 E. Kettleman Lane • Lodi, CA 95240
1-800-352-RENT / 209-334-2850

WELL PRODUCTION
DECEMBER 1997

#7	—	.023	M.G.
#8	—	.019	M.G.
#9	—	Ø	
#10	—	15.480	M.G.
CITY TOTAL		15.522	M.G.
		.501	MGD.
#11	—	.125	M.G.
#12	—	1.526	M.G.
SS TOTAL		1.651	M.G.
		.053	M.G.D.
GRAND TOTAL		17.173	M.G.
		.554	M.G.D.

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WELL PRODUCTION
NOVEMBER 1997

#7 — Ø

#8 — Ø

#9 — .105 M.G.

#10 — 20.100 M.G.

CITY TOTAL = 20.205 M.G.

.674 M.G.D. AVG.

#11 — 2.161 M.G.

#12 — Ø

SUMMERSET 2.161 M.G.
TOTAL

.072 M.G.D. AVG.

GRAND TOTAL = 22.366 M.G.

.746 M.G.D. AVG.

CENTER STATE PIPE
& SUPPLY COMPANY

P. O. BOX 4620
1348 McWILLIAMS WAY
MODESTO, CALIFORNIA 95352
Phone (209) 521-1151
Fax (209) 521-6301

P. O. BOX 939
520 N. UNION STREET
STOCKTON, CALIFORNIA 95205
Phone (209) 466-0871
Fax (209) 941-8821

WATER PRODUCTION
OCTOBER 1997

#7	26.692	M.G.
#8	Ø	
#9	.098	MG.
#10	15.946	MG.
TOTAL CITY	42.736	MG.
	1.389	M.G.D.
#11	3.633	M.G.
#12	.029	M.G.
S.S.	3.662	M.G.
	.118 MGD	
GRAND TOTAL =	46.398	M.G.
	1.497	MGD

CENTER STATE PIPE
& SUPPLY COMPANY

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Fax (209) 521-6301

P. O. BOX 939
520 N. UNION STREET
STOCKTON, CALIFORNIA 95205
Phone (209) 466-0871
Fax (209) 941-8821

9-97

PRODUCTION

#7 = 33.345 M.G.

#8 = Ø

#9 = .379 M.G.

#10 = 19.753 M.G.

CITY 53.477 M.G.

#11 = 2.719 M.G.

#12 = .455 M.G.

S.S. 3.174 M.G.

TOTAL = 56.651 M.G.

CENTER STATE PIPE
& SUPPLY COMPANY

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1348 McWILLIAMS WAY
MODESTO, CALIFORNIA 95352
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P. O. BOX 939
520 N. UNION STREET
STOCKTON, CALIFORNIA 95205
Phone (209) 466-0871
Fax (209) 941-8821

WELL PRODUCTION
AUG. 1997

	M.G.
#7	33.108
#8	Ø
#9	1.922
#10	27.466
TOTAL CITY =	62.496
#11	3.820
#12	Ø
TOTAL SUMMERSET =	3.820
GRAND TOTAL =	66.316
DAILY AVERAGE =	2.14

USRentals

"AMERICA'S EQUIPMENT RENTAL LEADER"
210 E. Kettleman Lane • Lodi, CA 95240
1-800-352-RENT / 209-334-2850

WELL PRODUCTION
JULY 1997

#7 = 33.914 MG.

#8 = 5.273 MG.

#9 = 7.677 MG.

#10 = 20.878 MG.

CITY - 67.742 MG. = 2.185 MGD. AVG.

#11 = 4.679 MG.

#12 = .002 MG.

S.S. - 4.681 MG. = 0.151 MGD AVG.

GRAND TOTAL = 72.423 MG./2.336 MGD.

7-3-97 PEAK DAY 2.765 MG.

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JUNE '97
WATER PROD.

#7 = 27.45 M.G.

#8 = 2.289 M.G.

#9 = ϕ

#10 = 24.874 M.G.

CITY TOTAL.	54.613 M.G.	1.82	DAILY AVG.

#11 = 3.233 M.G.

#12 = 1.759 M.G.

S.S. TOTAL	4.992 M.G.	.166	DAILY AVG.
GRAND TOTAL	59.605 M.G.	1.987	DAILY AVG.

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Technical Support

WATER PRODUCTION - MAY 1997

WELL #7	29.878 M.G.	
WELL #8	5.064 M.G.	
WELL #9	Ø M.G.	
WELL #10	16.400 M.G.	
CITY TOTAL	51.342 M.G.	(1.66 MGD)
WELL #11	4.934 M.G.	
WELL #12	0.554 M.G.	
S.S. TOTAL	5.488 M.G.	(.177 MGD)
GRAND TOTAL	56.830 M.G.	(1.83 MGD)

WATER PRODUCTION - APRIL '97

7) 15,707,000 + *1,913,000 = 17,620,000
8) 3,600,700
9) Ø
10) 15,972,000

TOTAL 37,192,000 CITY

11) 3,199,000
12) 460,000

TOTAL 3,659,000 SUMMERSET

G. TOTAL 40,851,000 AVG. DAILY = 1.362 MG.

* CALCULATED

WATER PRODUCTION, MARCH 1997

WELL # 7	=	Ø	GAL
8	=	300,000	GAL
9	=	Ø	GAL
10	=	24,572,000	GAL
TOTAL		24,872,000	GAL

11	=	1,752,000	GAL
12	=	1,000	GAL
TOTAL (SUMM.)		1,753,000	GAL.

GRAND TOTAL 26,625,000 GAL.

US Rentals

"AMERICA'S EQUIPMENT RENTAL LEADER"
210 E. Kettleman Lane • Lodi, CA 95240
1-800-352-RENT / 209-334-2850

PRODUCTION	FEB '97
#7	Ø
#8	Ø
#9	Ø
#10	14.270
CITY	14.270 .51 MGD
#11	.770
#12	.321
SS	1.091 .040 MGD
TOTAL =	15.361 .548 MGD

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WATER PRODUCTION
JAN '97

#7		.331
#8		.053
#9		Ø
#10		14.030
CITY	—	14.414
#11		1.088
#12		.001
SS.	—	1.089
TOTAL		15.503

PUMP RECORDS

1978-~~1989~~ 1995

(1995)

JANUARY =	13,132,000 GALLONS	
FEBRUARY =	10,833,000 GALLONS	= 23,965,000 GAL
MARCH =	14,084,000 GALLONS	= 38,049,000 GAL
APRIL =	19,046,000 GALLONS	= 33,130,000 GAL
MAY =	29,768,000 GALLONS	= 62,898,000 GAL
JUNE =	39,834,000 GALLONS	= 102,732,000 GAL
JULY =	45,354,000 GALLONS	= 148,086,000 GAL
AUG =	54,912,000 GALLONS	= 202,998,000 GAL
SEPT =	41,131,000 GALLONS	244,129,000 GAL
OCT =	38,150,000 "	282,279,000 "
NOV =	25,860,000 "	308,139,000 "
DEC.	18,504,000	

350,608,000
total gal. 1995

350,608,000

2,000,000
Aug 1994 15

1994

JANUARY — 17,386,000 GALLONS.
FEBRUARY — 15,310,000 GALS (32,696,000 GALS)
MARCH — 21,266,000 GALS (53,962,000 GALLONS)
APRIL — 14,133,000 GALS (68,095,000 GALLONS
MAY — 28,636,000 GALS (96,731,000 GALLONS
JUNE — 47,480,000 GALS (144,211,000 GALLONS)
JULY — 48,211,000 GALS (192,422,000 GALLONS)
AUGUST 49,687,000 GALS (242,109,000 GALLONS)
SEPT 41,265,000 GALS (283,374,000 GALLONS)
OCTOBER 27,975,000 GALS ([redacted]
(311,349,000 GALLONS)

NOVEMBER 16,249,000 GALS (327,598,000 GALLONS
DECEMBER 14,603,000 GALS (342,201 GALLS

JUNE
JULY AVE 48,459
AUG
TOTAL 145,378,000

1993

JANUARY — 14 896 000
FEBUARY — 14 576 000 (29 472 000
MARCH — 19 385 000 = 48 857 000
APRIL — 26 026 000 = 74 883 000
MAY — 33 638 000 = 108 521 000
JUNE = 45 284 000 = 153 805 000
JULY = 54 937 000 = 208 742 000
AUGUST = 51 065 000 = 259 807 000
SEPTEMBER = 45 875 000 = 305 682 000
OCTOBER = 30 934 000 = 336 562 000
NOVEMBER = 23 707 000 = 360 269 000
DECEMBER = 18 021 000 = 378 290 000

TOTAL 1993

WATER CONSUMPTION.

378 290 000

AVE DAY IN JULY

1 836 000

1992

JANUARY =	16,701,000 GALLONS	
FEBRUARY =	13,963,000 GALLONS	(30,664,000)
MARCH	17,966,000 GALLONS	(48,630,000)
APRIL	30,713,000 GALLONS	(79,343,000
MAY	42,950,000 GALLONS	(122,293,000
JUNE	47,864,000 GALLONS	(170,157,000
JULY	53,028,000 GALLONS	(223,185,000
AUGUST	55,069,000 GALLONS	(278,254,000
September.	45,702,000 GALLONS	(323,956,000
OCTOBER	32,682,000 GALLONS	(356,638,000
NOVEMBER	19,285,000 GALLONS	(375,923,000
December.	17,960,000 GALLONS	(393,883,000

Oxford®
ESSELTE
MADE IN U.S.A. NO. 752 1/3

1991 JULY

1992 June

TOTAL CONSUMPTION.
WATER. 1992

393,883,000

JANUARY	19,339,000 GALS (YEAR 1991 LOG
FEBRUARY	16,604,000 GALS
MARCH	14,387,000 GALS = 50,330,000
APRIL	24,430,000 GALS = 74,760,000
MAY	38,392,000 GALS = 113,152,000 = AVE 28,288,000 PER MONTH
JUNE	44,038,000 GALS = 157,190,000 = AVE 26,198,00 " "
JULY	53,447,000 GALS = 210,637,000 AVE 30,091,000
AUGUST	46,727,000 GALS = 257,364,000
SEPTEMBER	41,651,000 GALS = 299,015,000
OCTOBER	38,974,000 GALS = = 337,989,000
NOVEMBER	20,194,000 GALS = 358,183,000
DECEMBER	18,011,000 GALS = 376,194

TOTAL WATER CONSUMPTION FOR CALANDER YEAR 376,194,000

AVE 3,1134,00 PER MONTH

JUNE, JULY, AUGUST	TOTAL GALLONS 144,212,000
	AVE PER MONTH 48,000,000

CITY OF RIO VISTA
MONTHLY WATER PRODUCTION

YEAR 1991

	WELL NO. 7	WELL NO. 8	WELL NO. 9	WELL NO. 10	TOTAL
JANUARY	6,254,000	11,469,000	~~0~~	1,616,000	19,339,000
FEBRUARY	3,353,000	10,969,000	1,290,000	993,000	16,604,000
MARCH	2,561,000	10,559,000	379,000	888,000	14,387,000
APRIL	11,881,000	9,969,000	2,035,000	545,000	24,430,000
MAY	13,122,000	3,949,000	10,866,000	10,455,000	38,392,000
JUNE	30,483,000	8,967,000	2,198,000	7,390,000	44,038,000 *
JULY	31,541,000	3,134,000	4,979,000	13,793,000	53,447,000 *
AUGUST	29,855,000	3,738,000	3,162,000	9,972,000	46,727,000 *
SEPTEMBER	25,036,000	2,463,000	1,809,000	12,343,000	41,651,000 *
OCTOBER	22,878,000	2,052,000	2,917,000	11,127,000	38,974,000
NOVEMBER	16,101,000	3,108,000	454,000	531,000	20,194,000
DECEMBER	12,737,000	1,596,000	949,000	2,719,000	18,011,000
				TOTAL	370,194,000

* INDICATES LARGEST MONTHLY CONSUMPTIONS

JAN-1990	15	992,000		
FEB-1990	13	255,000		
MARCH 1990	18	306,000		
APRIL 1990	31	258,000		
13 505,000 MAY-1990	34	694,000		Ave 493. per mo
JUNE-1990	41	708000 (155 213,000)	JUNE JULY AUGUST	148053
JULY 1990	55	1,353 000 (210 566,000)		
AUGUST 1990	50	992 000 (261 558,000)		
SEPT 1990	33	756 000 (295 314,000)		
OCT 1990	32	847000 (~~[illegible]~~)		(328 161)
NOV 1990	21	283000 (350 130,000)		(349 444)
Dec 1990	20	712000		

TOTAL WATER used 1990 ~~[illegible]~~,000

(370 156,000)

Ave
1 075,000 PER DAY.

WATER USAGE

1990 20 847,000 MORE GALLON

~~[illegible]~~ 1989

THAW.

10136 P.M.

CITY OF RIO VISTA
MONTHLY WATER PRODUCTION

YEAR [redacted] 1990

	WELL NO. 7	WELL NO. 8	WELL NO. 9	WELL NO. 10	TOTAL
JANUARY	222,000	12,091,000	114,000	3565,000	15,992,000
FEBRUARY	-0-	10,716,000	480,000	2059,000	13,255,000
MARCH	1,897,000	9,228,000	1,080,000	6,101,000	18,306,000
APRIL	2,303,000	7,465,000	6,946,000	14,544,000	31,258,000
MAY	5,773,000	7,584,000	7,499,000	13,838,000	34,694,000
JUNE	16,392,000	8,977,000	6,748,000	9,591,000	41,708,000 *
JULY	34,215,000	12,108,000	7,411,000	1,621,000	55,353,000 *
AUGUST	22,071,000	6,029,000	2,008,000	20,884,000	50,992,000 *
SEPTEMBER	10,335,000	4,602,000	1,362,000	17,457,000	33,756,000
OCTOBER	5,984,000	4,585,000	4,116,000	18,162,000	32,847,000
NOVEMBER	8,994,000	11,110,000	521,000	658,000	21,283,000
DECEMBER	6,412,000	11,984,000	1,010,000	1,306,000	20,712,000
				TOTAL	370,156,000 GALS

* INDICATES LARGEST MONTHLY CONSUMPTIONS

CITY OF RIO VISTA
MONTHLY WATER PRODUCTION

YEAR [redacted] 1989

	WELL NO. 7	WELL NO. 8	WELL NO. 9	WELL NO. 10	TOTAL
JANUARY	0	1,399,000	948,000	4,774,000	7,121,000
FEBRUARY	9000	9,709,000	961,000	5,635,000	16,314,000
MARCH	3,116,000	3,180,000	34,000	1,679,000	8,009,000
APRIL	2,521,000	6,553,000	2,315,000	13,603,000	24,992,000
MAY	8,232,000	5,387,000	2,246,000	26,410,000	42,275,000 *
JUNE	16,875,000	5,839,000	9,552,000	18,957,000	51,223,000 *
JULY	23,772,000	11,965,000	18,849,000	3,107,000	57,683,000 *
AUGUST	16,546,000	8,487,000	10,667,000	16,560,000	52,260,000 *
SEPTEMBER	887,000	7,226,000	1,828,000	16,273,000	34,221,000
OCTOBER	2,157,000	8,662,000	450,000	12,225,000	23,494,000
NOVEMBER	428,000	9,344,000	1,158,000	7,971,000	18,901,000
DECEMBER	111,000	9,068,000	191,000	3,446,000	12,816,000
				TOTAL	349,309,000 GALS

* INDICATES LARGEST MONTHLY CONSUMPTIONS

TOTAL WATER USED FOR YEAR 1989

~~349 309 000~~

HIGH MONTHS WATER

JUNE 89 → 51 223 000

JULY 89 → 57 683 000 (AVG 53 722,000

AUGUST 89 → 52 260 000

TOTAL 161 166,000

1989

JAN 7,121 000

FEB 16 314 000

MAR 8 009 000

APRIL 24 992 000

MAY 42 275,000

~~JUNE 51,223 000~~

~~JULY 57,683,000~~

~~AUGUST 52 260,000~~

SEPT 34 221,000

OCT 23 494,000

NOV 18 901,000

DEC 12 816,000

TOTAL 349 309,000

THE CITY OF RIO VISTA CALIFORNIA INCORPORATED DEC 30 1893

DON R. DeSILVA

PUBLIC WORKS SUPERINTENDENT

CITY OF RIO VISTA

Phone (707) 374-6747-Corp. Yard
(707) 374-2387-Home
(707) 374-6451-City Hall

P.O. Box 745
789 St. Francis Way
Rio Vista, Calif. 94571

Tab Products Co. - Spacefinder Systems Model 1318

Year - 1988

Month	#7	#8	#9	#10	Total
JANUARY	874,054.21	587,932	986,147.50	2,837,409.00	5,285,543.11
FEB.	921,618	789,740	988,385.30	215,585,534	218,285,277.3
MARCH	108,113,130	128,971.84	1,011,147.68	215,795,159.2	325,049,008.6
APRIL	988,729.10	12,459.22	1,054,874.40	44,162.81	2,100,225.53
MAY	945,117.40	21,701.07	1,060,149.86	49,499.13	2,076,467.40
JUNE	107,448.39	16,353.69	106,955.63	53,516.01	284,273.72
JULY	94,819.23	14,861.35	114,188.25	51,883.99	275,753.42
AUG.	12,115,034	2,126,641	15,590,610	6,812,096	36,644,381
SEPT	7,690,621	2,034,775	11,121,310	6,715,074	27,561,780
OCT.	1,781,817	1,567,441	10,023,090	6,469,538	19,841,886
NOV.	out of operation	1,937,086	10,627,731	7,083,081	19,647,898
DEC.	out of operation	1,979,439	10,640,077	7,205,928	19,825,444
Total(s)	135,428,061.6	11,217,401.1	63,324,644.9	468,703,481	678,673,408

CITY OF RIO VISTA MONTHLY WATER
. .PRODUCTION. .

	WELL #7	WELL #8	WELL #9	WELL #10	1987 (TOTAL ACCROSS)
		(GALLONS)			
JAN	1,315,000	9,997,000	1,298,000	2,320,000	14,930,000
FEB	915,000	9,704,000	777,000	2,213,000	13,609,000
MAR	1,727,000	12,012,000	866,000	2,759,000	17,364,000
APRIL	8,257,000	5,939,000	1,537,000	22,296,000	38,029,000
MAY	13,115,000	5,688,000	3,160,000	23,893,000	45,856,000
JUNE	16,086,000	7,374,000	6,829,000	19,925,000	50,214,000
JULY	18,225,000	5,411,000	14,023,000	16,817,000	54,476,000
AUG	27,039,000	10,532,000	9,571,000	7,109,000	54,251,000
SEPT	6,147,000	8,902,000	6,898,000	3,780,000	25,727,000
OCT	11,159,000	9,546,000	4,506,000	7,699,000	32,910,000
NOV	615,000	8,787,000	1,056,000	7,088,000	17,546,000
DEC	430,000	2,759,000	150,000	12,494,000	15,833,000
Totals	(105,030,000	(87,651,000	(50,671,00	(128,393,000	(371,745,000)

AVE. ANNUAL PER CAPITA* USE = 111,035 GAL
AVE DAILY PER CAPITA* USE = 304 GAL.
PEAK MO. DAILY PER CAPITA* USE = 592 GAL (JULY

TOTAL NO. SERVICES - JULY 1987 = 1319
FLAT RATE RES. 1150
METER. COMM. - 169

*POPULATION 3348

CITY OF RIO VISTA MONTHLY WATER
. .PRODUCTION. .

1986

	WELL #7	WELL #8	WELL #9	WELL #10		TOTALS ACROSS
			(GALLONS)			
JAN	1,055,000	11,597,000	1,831,000	424,000		14,907,000
FEB	651,000	10,982,000	2,025,000	903,000		14,561,000
MARCH	Ø	11,418,000	6,018,000	Ø		17,436,000
APRIL	Ø	11,768,000	15,471,000	2,256,000		29,495,000
MAY	20,092,000	12,312,000	8,319,000	3,340,000		44,063,00
JUNE	31,962,000	12,305,000	11,676,000	1,941,000		57,884,00
JULY	35,893,000	12,688,000	13,280,000	2,098,000		63,959,00
AUG	28,142,000	13,339,000	8,752,000	1,222,000		51,455,00
SEPT	15,756,000	10,896,000	6,220,000	4,038,000		36,910,00
OCT	4,363,000	8,805,000	7,002,000	9,687,000		29,857,00
NOV.	4,151,000	5,049,000	3,237,000	4,688,000		17,125,00
DEC.	1,724,000	11,345,000	1,415,000	3,225,000		17,709,00
TOTALS	(143,789,000)	(132,504,000)	(85,246,000)	(33,822,000)		(395,361,0

AVE ANNUAL PER CAPITA* USE = 118,089 GAL
AVE DAILY PER CAPITA* USE = 323 GAL
PEAK MO. DAILY PER CAPITA* USE = 637 GAL (JULY)

TOTAL NO. SERVICES - JULY 1986 = 1337
FLAT RATE RES. 1163
METER COMM. - 174

* POPULATION 3348

	7	8	9	10	Total
Jan	11,176,000	10,124,000	2,176,000		23,476,000
Feb	12,872,000	11,762,000	1,449,000		26,030,000
Mar	17,136,000	12,276,000	5,731,000		35,143,000
Apr	21,110,000	12,217,000	9,176,000		42,503,000
May	27,136,000	11,724,000	16,314,000		55,174,000
Jun	36,811,000	11,128,000	19,326,000		67,265,000
Jul	41,099,000	12,373,000	29,235,000		82,707,000
Aug	40,597,000	11,835,000	28,828,000		81,260,000
Sept	33,566,000	12,308,000	7,327,000		53,201,000
Oct	28,071,000	12,754,000	1,979,000		42,804,000
Nov	18,071,000	1,320,000	588,000	12,127,000	32,106,000
Dec	11,045,000	6,986,000	418,000	4,614,000	23,063,000
Total	298,690,000	126,807,000	122,547,000	16,741,000	564,732,000

Water Well Production 1985

WATER CONSUMPTION REPORT

1984

MONTH	WELL #7	WELL #8	WELL #9	TOTAL
January	-0-	12,955,000	2,199,000	15,154,000
February	-0-	13,368,000	-0-	13,368,000
March	-0-	11,635,000	17,952,000	29,587,000
April	20,929,000	11,636,000	-0-	32,565,000
May	34,489,000	12,925,000	11,493,000	58,907,000
June	39,019,000	15,179,000	15,764,000	69,962,000
July	-0-	13,737,000	9,331,000	23,068,000
August	-0-	13,737,000	9,331,000	23,068,000
September	-0-	13,737,000	9,331,000	23,068,000
October	-0-	13,737,000	9,331,000	23,068,000
November	-0-	13,738,000	9,331,000	23,069,000
December	-0-	13,646,000	24,430,000	38,076,000

GALLONS
372,960,000
÷ 12
31,080,000

* CITY TELEMETRY system installed July through NOV. / system was not monitored during construction, consequently DATA from July 1 THROUGH NOV. 30 IS UNRELIABLE.

M. Sargent

CITY OF RIO VISTA

One Main Street P. O. Box 745 RIO VISTA, CALIFORNIA 94571

COUNCIL
707-374-6451

MAYOR
Jerry Rubier

MAYOR PRO TEMPORE
Andrew Stephens

Elger Vengley
Milton Wallace
Grace Anderson

CITY ADMINISTRATOR
Robert R. Brown
707-374-5773

CITY CLERK
Anita Reineke
707-374-6451

CITY TREASURER
Carl Kelly
707-374-6451

CITY ATTORNEY
Jon Blegen
707-374-6417

DIRECTOR OF FINANCE
Peter Woodruff
707-374-6451

POLICE CHIEF
Richard Cook
707-374-6366

FIRE CHIEF
Stan Simi
707-374-2233

February 2, 1984

Department of Water Resources
P.O. Box 160088
Sacramento, Calif. 95816

Gentlemen,

Enclosed is the information you have requested. We hope this is sufficient.

Total service connections -	Residential	1171
	Commercials	134
		1305

Population served - 3427

Sincerely,

Anita Reineke

Anita Reineke
City Clerk

3142

AR/mr

Enc.

Jan 28, 1984 Res. 1121
comm. 167
90

Water Consumption Report
1982

MONTH	WELL #7	WELL #8	WELL #9	TOTAL
January	14,207,000	-0-	316,000	14,523,000
February	17,628,000	-0-	411,000	18,039,000
March	16,721,000	-0-	-0-	16,721,000
April	12,470,000	2,490,000	-0-	23,960,000
May	12,996,000	22,663,000	-0-	44,659,000
June	10,705,000	7,055,000	23,110,000	40,870,000
July	13,792,000	6,726,000	34,626,000	55,044,000
August	20,873,000	4,402,000	26,965,000	52,240,000
September	15,076,000	1,843,000	22,496,000	39,415,000
October	2,877,000	3,610,000	22,715,000	29,202,000
November	2,956,000	1,037,000	12,119,000	16,112,000
December	11,185,000	47,000	9,493,000	20,725,000

Water Consumption Report
1983

MONTH	WELL #7	WELL #8	WELL #9	TOTAL
January	11,527,000	-0-	5,322,000	16,849,000
February	-0-	-0-	17,017,000	17,017,000
March	-0-	-0-	17,293,000	17,293,000
April	13,006,000	-0-	9,531,000	22,537,000
May	26,481,000	-0-	11,326,000	37,807,000
June	30,119,000	-0-	20,815,000	50,934,000
July	31,197,000	9,599,000	16,821,000	57,617,000
August	35,704,000	13,558,000	21,865,000	71,127,000
September	39,743,000	13,499,000	8,885,000	62,127,000
October	39,000,000	13,295,000	14,661,000	66,956,000
November	-0-	13,326,000	2,865,000	16,191,000
December	-0-	27,957,000	5,726,000	33,683,000

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

Month of January 1981		Last Month	This Month Last Year
WELL NO. 7	12,952,000	16,458,000	7,633,000
WELL NO. 8	-0-	-0-	-0-
WELL NO. 9	-0-	1,275,000	7,698,000
TOTAL	12,952,000	17,733,000	15,331,000
WATER PUMPED PER DAY	417,806	572,032	494,548

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of February 1981	Last Month	This Month Last Year
WELL NO. 7	15,554,000	274,548	713,000
WELL NO. 8	Not in Use	No Reading	- 0-
WELL NO. 9	Not in Use	No Reading	14,801,000
TOTAL	15,554,000	No Reading	15,514,000
WATER PUMPED PER DAY	555,500	274,548	534,966

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

Month of March 1981		Last Month	This Month Last Year
WELL NO. 7	17,176,000	15,554,000	1,543,000
WELL NO. 8	-0-	Not in Use	-0-
WELL NO. 9	-0-	Not in Use	17,086,000
TOTAL	17,176,000	15,554,000	18,629,000
WATER PUMPED PER DAY	554,065	555,500	600,935

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of April 1981	Last Month	This Month Last Year
WELL NO. 7	22,145,000	17,176,000	19,301,000
WELL NO. 8	-0-	-0-	-0-
WELL NO. 9	6,896,000	-0-	7,449,000
TOTAL	29,041,000	17,176,000	26,750,000
WATER PUMPED PER DAY	968,033	554,065	891,667

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of May 1981	Last Month	This Month Last Year
WELL NO. 7	27,716,000	22,145,000	31,528,000
WELL NO. 8	5,090,000	-0-	-0-
WELL NO. 9	12,643,000	6,896,000	8,076,000
TOTAL	45,449,000	29,041,000	39,604,000
WATER PUMPED PER DAY	1,562,870	968,033	1,277,548

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of June 1981	Last Month	This Month Last Year
WELL NO. 7	28,675,000	27,716,000	26,910,000
WELL NO. 8	15,553,000	5,090,000	-0-
WELL NO. 9	16,941,000	12,643,000	19,837,000
TOTAL	61,169,000	45,449,000	46,747,000
WATER PUMPED PER DAY	2,038,966	1,562,870	1,558,233

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of August 1981	Last Month	This Month Last Year
WELL NO. 7	27,168,000	25,730,000	24,364,000
WELL NO. 8	16,016,000	15,100,000	18,190,000
WELL NO. 9	13,961,000	17,847,000	9,147,000
TOTAL	57,145,000	58,677,000	51,701,000
WATER PUMPED PER DAY	1,843,387	1,892,806	1,667,774

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

Month of January 1980		Last Month	This Month Last Year
WELL NO. 7	7,633,000	15,153,000	16,341,000
WELL NO. 8	-0-	2,105,000	10,000
WELL NO. 9	7,698,000	500,000	-0-
TOTAL	15,331,000	17,758,000	16,351,000
WATER PUMPED PER DAY	494,548	572,838	527,452

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of February 1980	Last Month	This Month Last Year
WELL NO. 7	713,000	7,633,000	8,799,000
WELL NO. 8	-0-	-0-	-0-
WELL NO. 9	14,801,000	7,698,000	7,505,000
TOTAL	15,514,000	15,331,000	16,304,000
WATER PUMPED PER DAY	534,966	494,548	582,286

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of March 1980	Last Month	This Month Last Year
WELL NO. 7	1,543,000	713,000	15,318,000
WELL NO. 8	-0-	-0-	-0-
WELL NO. 9	17,086,000	14,801,000	-0-
TOTAL	18,629,000	15,514,000	15,318,000
WATER PUMPED PER DAY	600,935	494,548	494,120

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

Month of April 1980		Last Month	This Month Last Year
WELL NO. 7	19,301,000	1,543,000	15,318,000
WELL NO. 8	-0-	-0-	-0-
WELL NO. 9	7,449,000	17,086,000	-0-
TOTAL	26,750,000	18,629,000	15,318,000
WATER PUMPED PER DAY	891,667	600,935	494,129

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of May 1980	Last Month	This Month Last Year
WELL NO. 7	31,528,000	19,301,000	26,741,000
WELL NO. 8	-0-	-0-	-0-
WELL NO. 9	8,076,000	7,449,000	9,681,000
TOTAL	39,604,000	26,750,000	36,422,000
WATER PUMPED PER DAY	1,277,548	891,667	1,174,903

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

Month of June 1980		Last Month	This Month Last Year
WELL NO. 7	26,910,000	31,528,000	23,518,000
WELL NO. 8	-0-	-0-	22,664,000
WELL NO. 9	19,837,000	8,076,000	-0-
TOTAL	46,747,000	39,604,000	46,182,000
WATER PUMPED PER DAY	1,558,233	1,277,548	1,539,400

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of July 1980	Last Month	This Month Last Year
WELL NO. 7	26,354,000	26,910,000	25,445,000
WELL NO. 8	8,953,000	-0-	25,685,000
WELL NO. 9	20,636,000	19,837,000	-0-
TOTAL	55,943,000	46,747,000	51,130,000
WATER PUMPED PER DAY	1,804,613	1,558,233	1,649,355

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of August 1980	Last Month	This Month Last Year
WELL NO. 7	24,364,000	26,354,000	29,014,000
WELL NO. 8	18,190,000	8,953,000	19,200,000
WELL NO. 9	9,147,000	20,636,000	8,000
TOTAL	51,701,000	55,943,000	48,222,000
WATER PUMPED PER DAY	1,667,774	1,804,613	1,555,548

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of September 1980	Last Month	This Month Last Year
WELL NO. 7	18,349,000	24,364,000	27,146,000
WELL NO. 8	15,219,000	18,190,000	17,563,000
WELL NO. 9	6,105,000	9,147,000	2,531,000
TOTAL	39,673,000	51,701,000	47,240,000
WATER PUMPED PER DAY	1,322,433	1,667,774	1,574,667

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of October 1980	Last Month	This Month Last Year
WELL NO. 7	22,927,000	18,349,000	9,957,000
WELL NO. 8	7,979,000	15,219,000	17,071,000
WELL NO. 9	5,441,000	6,105,000	-0-
TOTAL	36,347,000	39,673,000	27,028,000
WATER PUMPED PER DAY	1,172,483	1,322,433	900,933

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of November 1980	Last Month	This Month Last Year
WELL NO. 7	23,371,000	22,927,000	843,000
WELL NO. 8	-0-	7,979,000	15,060,000
WELL NO. 9	3,230,000	5,441,000	-0-
TOTAL	26,601,000	36,347,000	15,903,000
WATER PUMPED PER DAY	886,700	1,172,483	530,100

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of December 1980	Last Month	This Month Last Year
WELL NO. 7	16,458,000	23,371,000	15,153,000
WELL NO. 8	-0-	-0-	2,105,000
WELL NO. 9	1,275,000	3,230,000	500,000
TOTAL	17,733,000	26,601,000	17,758,000
WATER PUMPED PER DAY	572,032	886,700	572,838

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of JANUARY 1978	Last Month	This Month Last Year
WELL NO. 7	14,668,000	16,966,000	14,031,000
WELL NO. 8	-0-	119,000	235,000
WELL NO. 9	-0-	-0-	273,000
TOTAL	14,668,000	17,085,000	14,539,000
WATER PUMPED PER DAY	473,161	551,129	469,000

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

Month of FEBRUARY 1978		Last Month	This Month Last Year
WELL NO. 7	13,996,000	14,668,000	9,916,000
WELL NO. 8	2,263,000	-0-	101,000
WELL NO. 9	-0-	-0-	-0-
TOTAL	16,259,000	14,668,000	10,017,000
WATER PUMPED PER DAY	580,679	473,161	357,750

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of MARCH 1978	Last Month	This Month Last Year
WELL NO. 7	14,218,000	13,996,000	21,173,000
WELL NO. 8	-0-	2,263,000	793,000
WELL NO. 9	822,000	-0-	15,000
TOTAL	15,040,000	16,259,000	21,981,000
WATER PUMPED PER DAY	485,161	580,679	709,064

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of APRIL 1978	Last Month	This Month Last Year
WELL NO. 7	16,461,000	14,218,000	26,127,000
WELL NO. 8	-0-	-0-	2,125,000
WELL NO. 9	11,157,000	822,000	23,000
TOTAL	27,618,000	15,040,000	28,275,000
WATER PUMPED PER DAY	920,600	485,161	942,500

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of MAY 1978	Last Month	This Month Last Year
WELL NO. 7	28,806,000	16,461,000	32,665,000
WELL NO. 8	-0-	-0-	2,808,000
WELL NO. 9	13,388,000	11,157,000	-0-
TOTAL	42,194,000	27,618,000	35,473,000
WATER PUMPED PER DAY	1,361,097	920,600	1,144,290

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of JUNE 1978	Last Month	This Month Last Year
WELL NO. 7	37,038,000	28,806,000	17,466,000
WELL NO. 8	3,268,000	-0-	-0-
WELL NO. 9	20,084,000	13,388,000	19,326,000
TOTAL	60,390,000	42,194,000	36,792,000
WATER PUMPED PER DAY	2,013,000	1,361,097	1,226,400

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of JULY 1978	Last Month	This Month Last Year
WELL NO. 7	25,750,000	37,038,000	34,363,000
WELL NO. 8	390,000	3,268,000	1,269,000
WELL NO. 9	15,555,000	20,084,000	11,122,000
TOTAL	41,695,000	60,390,000	46,754,000
WATER PUMPED PER DAY	1,345,000	2,013,000	1,508,194

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

Month of August 1978		Last Month	This Month Last Year
WELL NO. 7	26,213,000	25,750,000	28,418,000
WELL NO. 8	307,000	390,000	-0-
WELL NO. 9	15,922,000	15,555,000	11,103,000
TOTAL	42,442,000	41,695,000	39531,000
WATER PUMPED PER DAY	1,369,097	1,345.[illegible]	1,274,871

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

Month of September 1978		Last Month	This Month Last Year
WELL NO. 7	21,359,000	26,213,000	24,208,000
WELL NO. 8	-0-	307,000	-0-
WELL NO. 9	13,366,000	15,922,000	12,030,000
TOTAL	34,725,000	42,442,000	36,238,000
WATER PUMPED PER DAY	1,157,500	1,369,097	1,207,933

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of October 1978	Last Month	This Month Last Year
WELL NO. 7	21,523,000	21,359,000	24,086,000
WELL NO. 8	-0-	-0-	-0-
WELL NO. 9	6,118,000	13,366,000	4,269,000
TOTAL	27,641,000	34,725,000	28,355,000
WATER PUMPED PER DAY	891,645	1,157,500	914,677

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of November 1978	Last Month	This Month Last Year
WELL NO. 7	6,498,000	21,523,000	16,989,000
WELL NO. 8	2,393,000	-0-	103,000
WELL NO. 9	7,332,000	6,118,000	-0-
TOTAL	16,223,000	27,641,000	17,092,000
WATER PUMPED PER DAY	540,767	891,645	569,733

Read monthly by Stan Simi, Fire Chief

WATER CONSUMPTION REPORT

COMPARATIVE WATER CONSUMPTION REPORT

	Month of December 1978	Last Month	This Month Last Year
WELL NO. 7	19,684,000	6,498,000	16,966,000
WELL NO. 8	-0-	2,393,000	119,000
WELL NO. 9	-0-	7,332,000	-0-
TOTAL	19,684,000	16,223,000	17,085,000
WATER PUMPED PER DAY	634,968	540,767	551,129

TABLE 3-1

CITY OF RIO VISTA

1985 MASTER UTILITY PLAN

HISTORICAL PUMPED WATER RECORDS

YEAR	NUMBER OF CONNECTIONS (1) RES.	(2) COMM.	YEAR MG	YEAR MGD	MAX. MONTH MO	MAX. MONTH MG	MAX. MONTH MGD	MAX. DAY DATE	MAX. DAY MGD	MAX. HR. RATE DATE	MAX. HR. RATE MGD
1952	(3)				JL	46.00	1.484		2.00		
1970			395.7	1.084							
1971			358.78	0.983							
1972			392.093	1.071	JL	67.236	2.169		2.23		
1973			356.798	0.978	JL	53.031	1.711				
1977	1,266	185	332.122	0.910							
1978			358.579	0.982	JU	60.390	2.013				
1979			363.744	0.997	JL	51.130	1.649				
1980	1,128	133	390.573	1.067	JL	53.943	1.740				
1981	1,170	176	368.5	1.010	JL	55	1.774	7/15	2.37	7/15	5.16
1982			371.51	1.018	JL	55.044	1.776				
1983		134	470.138	1.288	AU	71.127	2.294				
1984	1,126	173	482.00	1.317	AU	71.846	2.318				

(1) Unmetered Residential Accounts

(2) Metered Commercial Accounts Include Some Residential Housing units. Metering Instituted 2/72.

(3) Total 890 Unmetered Connections Includes Commercial

PUMP TESTS

PG&E Agricultural Services

****** PUMP TEST REPORT ******

Tested By: MICHAEL HANDEL
Test Date: 05/07/97
Customer Plant ID: WELL 7 BOOSTER 2

Location: 2 MAIN ST

Drive: Electric Motor
H.P.: 50
Drive Make: U.S.
Pump Make: Western
PG&E Plant ID:

CUSTOMER MAILING ADDRESS

RUSS VAN VORIS
ECO RESOURCES, INC.
PO BOX 417
RIO VISTA, CA 94571

ACCOUNT INFORMATION

Account No: JPK-69-15002
Control No: 446498 Pump Suffix: C
Meter No: 79800T
Pump Usage: 1,888 KWH / YR
Account Usage: 18,880 KWH / YR
Energy Cost: 11.02 Cents / KWH

TEST RESULTS

Run Number:	**1**
Standing Water Level (ft)	
Drawdown (ft)	
Pumping Water Level (ft)	5.0
Discharge Level (ft)	184.8
Discharge Pressure at Gauge (psi)	80.0
Total Lift (ft)	189.8
PG&E Water Flow (gpm)	875
Customer Water Flow (gpm)	
Well Yield (gpm/ft)	
KW Input	48.5
Horsepower Input	65.0
Percent of Rated Motor Load	117.0
Acre Feet per 24 Hrs	3.9
KWH per Acre Feet	301.0
Overall Plant Efficiency (%)	64.5

TEST REMARKS

- Test results may be impaired due to poor hydraulic test section.

POTENTIAL SAVINGS

None Requested

Printed On: 05/19/97
Pump Test version 4.0.0

Well #7 Well Pump. 1990 YR

PG&E AGRICULTURAL SERVICES, PUMP TEST REPORT PG&E PLANT ID: 24361

A PUMP TEST WAS CONDUCTED BY TODD BRUCE ON 04/25/90
FOR A 25.0 H.P. U.S. MOTOR AND WESTERN TURBINE PUMP
LOCATED WELL #7 #7.

CUSTOMER MAILING ADDRESS
CITY OF RIO VISTA
ATTN: DON DE SILVA
238 SACRAMENTO ST
RIO VISTA, CA 94571

ACCOUNT INFORMATION
ACCOUNT NO. CPK1515001
METER NO. 146585
ENERGY USAGE: 60000 KWH/YR
ENERGY COST: 10.00 CENTS/KWH

TEST RESULTS

RUN NUMBER	1	2	3	4	5
STANDING WATER LEVEL(FT)	10.0				
DRAWDOWN(FT)	42.0				
PUMPING WATER LEVEL(FT)	52.0				
DISCHARGE LEVEL(FT)	6.9				
DISCHARGE PRESSURE AT GAUGE(PSI)	3.0				
TOTAL LIFT(FT)	58.9				
PG&E WATER FLOW RATE(GPM)	1153				
WELL YIELD	27.5				
ACRE FEET PER 24 HOURS	5.1				
HORSEPOWER INPUT TO MOTOR	30.3				
PERCENT OF RATED MOTOR LOAD	100				
KILOWATT INPUT TO MOTOR	22.6				
KILOWATT HOURS PER MILLION.GALS	326.8				
OVERALL PLANT EFFICIENCY	56.6				

TEST REMARKS

-THE OVERALL PLANT EFFICIENCY IS FAIR BASED ON RUN NUMBER 1's
NORMAL OPERATING CONDITION.

PACIFIC GAS AND ELECTRIC COMPANY
*** PUMP TEST REPORT ***

---------- CUSTOMER AND FACILITY DATA ----------

ANT LOCATION : WELL #7 BEHIND CITY HALL	PG&E PLANT ID.# : 24361
OTOR MAKE : U. S. H.P. : 25.0	CONTROL# : 0446498-7 SUF. = A
UMP MAKE : Western TYPE : Turbine	ACCOUNT# : CPF-04-15001
AILING ADDRESS :	METER# : 146585
	C.G.C. # :
CITY OF RIO VISTA	ENERGY USAGE : 53000 KWH/YR
1 MAIN STREET	ENERGY COST : 8.0 CENTS/KWH
RIO VISTA CA 94571	MILL.GALS/YR : 169.0

---------- TEST RESULTS ----------

EST DATE : 09-14-88 TESTER : BRUCE PHONE : (916)753-1520

UN NUMBER	1
EASURED RPM	-
TANDING WATER LEVEL (FT)	13.5
RAWDOWN (FT)	41.3
UMPING WATER LEVEL (FT)	54.8
ISCHARGE LEVEL (FT)	6.9
ISCHARGE PRESSURE AT GAUGE (PSI)	3.0
OTAL LIFT (FT)	61.7 Drawing 405'
URVEY LIFT (FT)	-
GE WATER FLOW RATE (GPM)	1185
ELL YIELD (GPM/FT DRAWDOWN)	28.7
ILL.GALS PER 24 HOURS	1.7
ORSEPOWER INPUT TO MOTOR	29.9
ERCENT OF RATED MOTOR LOAD	-
ILOWATT INPUT TO MOTOR	22.3
ILOWATT HOURS PER MILL.GALS	313.6
VERALL PLANT EFFICIENCY (%)	61.8

---------- REMARKS ----------

THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE EXCELLENT ASSUMING RUN NUMBER 1 REPRESENTS THE PLANT'S NORMAL OPERATING CONDITIONS.
DATUM IS CENTER LINE OF DISCHARGE PIPE UNLESS OTHERWISE SPECIFIED.

PG&E AGRICULTURAL SERVICES, PUMP TEST REPORT PG&E PLANT ID: 22148

A PUMP TEST WAS CONDUCTED BY TODD BRUCE ON 04/25/90
FOR A 50.0 H.P. U.S. MOTOR AND WESTERN MIX FLOW PUMP
LOCATED BOOSTER/ACROSS FROM CITY HALL BOOST 1.

CUSTOMER MAILING ADDRESS	ACCOUNT INFORMATION
CITY OF RIO VISTA	
ATTN: DON DE SILVA	METER NO. 146585
238 SACRAMENTO ST	ENERGY USAGE: 350000 KWH/YR
RIO VISTA, CA 94571	ENERGY COST: 10.00 CENTS/KWH

TEST RESULTS

RUN NUMBER	1	2	3	4	5
STANDING WATER LEVEL(FT)	6.7				
DRAWDOWN(FT)	0.3				
PUMPING WATER LEVEL(FT)	7.0				
DISCHARGE LEVEL(FT)	166.3				
DISCHARGE PRESSURE AT GAUGE(PSI)	72.0				
TOTAL LIFT(FT)	173.3				
PG&E WATER FLOW RATE(GPM)	961				
WELL YIELD	3203				
ACRE FEET PER 24 HOURS	4.2				
HORSEPOWER INPUT TO MOTOR	66.2				
PERCENT OF RATED MOTOR LOAD	100				
KILOWATT INPUT TO MOTOR	49.4				
KILOWATT HOURS PER MILLION.GALS	857.1				
OVERALL PLANT EFFICIENCY	63.5				

TEST REMARKS

-THE OVERALL PLANT EFFICIENCY IS GOOD BASED ON RUN NUMBER 1's
NORMAL OPERATING CONDITION.

TWR:FP-446498-04/25/90-A

PACIFIC GAS AND ELECTRIC COMPANY WELL #7
*** PUMP TEST REPORT ***

---------- CUSTOMER AND FACILITY DATA ----------

LOCATION : BOSTER #1
OTOR MAKE : U. S. H.P. : 50.0
UMP MAKE : Western TYPE : Mix Flow
AILING ADDRESS :

CITY OF RIO VISTA
1 MAIN STREET
RIO VISTA CA 94571

PG&E PLANT ID.# : 2214
CONTROL# : 0446498-7 S
ACCOUNT# : CPF-04-15001
METER# : 146585
C.G.C. # :
ENERGY USAGE : 106000 KWH/
ENERGY COST : 8.0 CENTS/KW
MILL.GALS/YR : 122.4

---------- TEST RESULTS ----------

EST DATE : 09-14-88 TESTER : BRUCE PHONE : (916)753-1520

UN NUMBER	1
EASURED RPM	-
TANDING WATER LEVEL (FT)	6.1
RAWDOWN (FT)	0.4
UMPING WATER LEVEL (FT)	6.5
ISCHARGE LEVEL (FT)	175.6
ISCHARGE PRESSURE AT GAUGE (PSI)	76.0
OTAL LIFT (FT)	182.1
URVEY LIFT (FT)	-
GE WATER FLOW RATE (GPM)	941
ELL YIELD (GPM/FT DRAWDOWN)	2352.5
ILL.GALS PER 24 HOURS	1.4
ORSEPOWER INPUT TO MOTOR	65.5
ERCENT OF RATED MOTOR LOAD	-
ILOWATT INPUT TO MOTOR	48.9
ILOWATT HOURS PER MILL.GALS	866.1
VERALL PLANT EFFICIENCY (%)	66.0

---------- REMARKS ----------

THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE EXCELLENT ASSUMING RUN NUMBER 1 REPRESENTS THE PLANT'S NORMAL OPERATING CONDITIONS.
DATUM IS CENTER LINE OF DISCHARGE PIPE UNLESS OTHERWISE SPECIFIED.

WELL #7 BOOSTER

PG&E AGRICULTURAL SERVICES, PUMP TEST REPORT PG&E PLANT ID: 22147

A PUMP TEST WAS CONDUCTED BY TODD BRUCE ON 04/25/90
FOR A 50.0 H.P. U.S. MOTOR AND WESTERN TURBINE PUMP
LOCATED BOOSTER 2 ACROSS FROM CITY HALL #2.

CUSTOMER MAILING ADDRESS	ACCOUNT INFORMATION
CITY OF RIO VISTA	ACCOUNT NO. CPK1515001
ATTN: DON DE SILVA	METER NO. 146585
238 SACRAMENTO ST	ENERGY USAGE: 80000 KWH/YR
RIO VISTA, CA 94571	ENERGY COST: 10.00 CENTS/KWH

TEST RESULTS

RUN NUMBER	1	2	3	4	5
STANDING WATER LEVEL(FT)	6.5				
DRAWDOWN(FT)	0.5				
PUMPING WATER LEVEL(FT)	7.0				
DISCHARGE LEVEL(FT)	170.9				
DISCHARGE PRESSURE AT GAUGE(PSI)	74.0				
TOTAL LIFT(FT)	177.9				
PG&E WATER FLOW RATE(GPM)	833				
WELL YIELD	1666				
ACRE FEET PER 24 HOURS	3.7				
HORSEPOWER INPUT TO MOTOR	0.0				
PERCENT OF RATED MOTOR LOAD	100				
KILOWATT INPUT TO MOTOR	0.0				
KILOWATT HOURS PER MILLION.GALS	0.0				
OVERALL PLANT EFFICIENCY	0.0				

TEST REMARKS

TWB:FP-446498-04/25/90-B

PACIFIC GAS AND ELECTRIC COMPANY
*** PUMP TEST REPORT ***

Well # 7

CUSTOMER AND FACILITY DATA

LOCATION : BOSTER #2
MOTOR MAKE : U. S. H.P. : 50.0
PUMP MAKE : Western TYPE : Mix Flow
MAILING ADDRESS :

CITY OF RIO VISTA
1 MAIN STREET
RIO VISTA CA 94571

PG&E PLANT ID.# : 20374
CONTROL# : 0446498-7 SUF. = C
ACCOUNT# : CPF-04-15001
METER# : 146585
C.G.C. # :
ENERGY USAGE : 10000 KWH/YR
ENERGY COST : 8.0 CENTS/KWH
MILL.GALS/YR : 11.2

TEST RESULTS

TEST DATE : 09-14-88 TESTER : BRUCE PHONE : (916)753-1520

RUN NUMBER	1
MEASURED RPM	-
STANDING WATER LEVEL (FT)	7.3
DRAWDOWN (FT)	1.5
PUMPING WATER LEVEL (FT)	8.8
DISCHARGE LEVEL (FT)	170.9
DISCHARGE PRESSURE AT GAUGE (PSI)	74.0
TOTAL LIFT (FT)	179.7
SURVEY LIFT (FT)	-
GE WATER FLOW RATE (GPM)	925
WELL YIELD (GPM/FT DRAWDOWN)	616.7
MILL.GALS PER 24 HOURS	1.3
HORSEPOWER INPUT TO MOTOR	66.4
PERCENT OF RATED MOTOR LOAD	-
KILOWATT INPUT TO MOTOR	49.5
KILOWATT HOURS PER MILL.GALS	891.9
OVERALL PLANT EFFICIENCY (%)	63.3

REMARKS

THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE EXCELLENT ASSUMING RUN NUMBER 1 REPRESENTS THE PLANT'S NORMAL OPERATING CONDITIONS.
DATUM IS CENTER LINE OF DISCHARGE PIPE UNLESS OTHERWISE SPECIFIED.

PACIFIC GAS and ELECTRIC COMPANY
*** PUMP TEST REPORT ***

well 7
4-85

CUSTOMER AND FACILITY DATA

PLANT LOCATION : WELL 7 BEHIND CITY HALL
MOTOR MAKE : U. S. H.P.: 25.0
PUMP MAKE: Western Type : Turbine
MAILING ADDRESS :

CITY OF RIO VISTA
1 MAIN ST
RIO VISTA CA 94571

PG&E PLANT ID.# : 24361
CONTROL# : 0302782-7 Suf. = A
ACCOUNT# : BPP-02-83001
METER# : 146585
C.G.C. # : 4822089571785O
ENERGY USAGE : 140000 KWH/YR
ENERGY COST : 8.80 Cents/KWH

TEST RESULTS

TEST DATE : 04/24/85 Tester : TODD BRUCE Off. Phone : (916)3865344

RUN NUMBER	1
MEASURED RPM	
STANDING WATER LEVEL (FT)	46.2
DRAWDOWN (FT)	13.8
PUMPING WATER LEV. (FT)	60.0
DISCHARGE LEVEL (FT)	6.9
DISCHARGE PRESS. AT GAUGE (PSI)	3
TOTAL LIFT (FT)	66.9
SURVEY LIFT (FT)	
WATER FLOW RATE (GPM)	1131
WELL YIELD (G.P.M./FT DRAWDOWN)	81.9
MILLION GALLONS PER 24 HOURS	1.6
HORSEPOWER INPUT TO MOTOR	29.3
PER CENT OF RATED MOTOR LOAD	
KILOWATT INPUT TO MOTOR	21.9
KILOWATT HOURS/MILL.GALS PUMPED	322.7
OVERALL PLANT EFFICIENCY (%)	64.6

REMARKS

* THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE EXCELLENT ASSUMING RUN NUMBER 1 REPRESENTS THE PLANTS NORMAL OPERATING CONDITIONS.

* PLEASE REFER TO THE ATTACHED SHEET FOR A DESCRIPTION OF THE FOLLOWING REMARK CODES : 16

PACIFIC GAS and ELECTRIC COMPANY
*** PUMP TEST REPORT ***

CUSTOMER AND FACILITY DATA

PLANT LOCATION : CITY HALL BSTR #2
MOTOR MAKE : U. S. H.P.: 50.0
PUMP MAKE: Western Type : Turbine
MAILING ADDRESS :

CITY OF RIO VISTA
1 MAIN ST
RIO VISTA CA 94571

PG&E PLANT ID.# : 32147
CONTROL# : 0302782-7 Suf. : 1
ACCOUNT# : BPP-02-83001
METER# : 146585
C.S.C. # : 48220895717850
ENERGY USAGE : 00000 KWH/YR
ENERGY COST : 8.80 Cents/KWH

TEST RESULTS

TEST DATE : 04/24/85 Tester : TODD BRUCE Off. Phone : (916)373-5344

RUN NUMBER	1
MEASURED RPM	
STANDING WATER LEVEL (FT)	6.0
DRAWDOWN (FT)	0.0
PUMPING WATER LEV. (FT)	6.0
DISCHARGE LEVEL (FT)	203.3
DISCHARGE PRESS. AT GAUGE (PSI)	88
TOTAL LIFT (FT)	209.3
SURVEY LIFT (FT)	
WATER FLOW RATE (GPM)	1022
WELL YIELD (G.P.M./FT DRAWDOWN)	
MILLION GALLONS PER 24 HOURS	1.4
HORSEPOWER INPUT TO MOTOR	64.6
PER CENT OF RATED MOTOR LOAD	
KILOWATT INPUT TO MOTOR	48.2
KILOWATT HOURS/MILL.GALS PUMPED	786.0
OVERALL PLANT EFFICIENCY (%)	83.7

REMARKS

* THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE EXCELLENT ASSUMING RUN NUMBER 1 REPRESENTS THE PLANTS NORMAL OPERATING CONDITIONS.

* PLEASE REFER TO THE ATTACHED SHEET FOR A DESCRIPTION OF THE FOLLOWING REMARK CODES : 16

PACIFIC GAS and ELECTRIC COMPANY
*** PUMP TEST REPORT ***

CUSTOMER AND FACILITY DATA

PLANT LOCATION : CITY HALL BSTR #3
MOTOR MAKE : U. S. H.P.: 50.0
PUMP MAKE: Western Type : Turbine
MAILING ADDRESS :

CITY OF RIO VISTA
1 MAIN ST
RIO VISTA CA 94571

PG&E PLANT ID.# : 22148
CONTROL# : 03027872-7 Suf. =
ACCOUNT# : BPP-02-93001
METER# : 146585
C.G.C. # : 48220895717850
ENERGY USAGE : 92000 KWH/YR
ENERGY COST : 8.80 Cents/KWH

TEST RESULTS

TEST DATE : 04/24/85 Tester : TODD BRUCE Off. Phone : (916)3865344

RUN NUMBER	1
MEASURED RPM	
STANDING WATER LEVEL (FT)	6.0
DRAWDOWN (FT)	0.0
PUMPING WATER LEV. (FT)	6.0
DISCHARGE LEVEL (FT)	200.1
DISCHARGE PRESS. AT GAUGE (PSI)	87
TOTAL LIFT (FT)	206.1
SURVEY LIFT (FT)	
WATER FLOW RATE (GPM)	713
WELL YIELD (G.P.M./FT DRAWDOWN)	
MILLION GALLONS PER 24 HOURS	1.0
HORSEPOWER INPUT TO MOTOR	42.8
PER CENT OF RATED MOTOR LOAD	
KILOWATT INPUT TO MOTOR	46.9
KILOWATT HOURS/MILL.GALS PUMPED	1096.3
OVERALL PLANT EFFICIENCY (%)	59.1

REMARKS

* THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE GOOD ASSUMING RUN NUMBER 1 REPRESENTS THE PLANTS NORMAL OPERATING CONDITIONS.

* PLEASE REFER TO THE ATTACHED SHEET FOR A DESCRIPTION OF THE FOLLOWING REMARK CODES : 16

PG&E Agricultural Services

**** PUMP TEST REPORT ****

Tested By: MICHAEL HANDEL
Test Date: 05/06/97
Customer Plant ID: WELL 8

Location: 789 ST FRANCIS WY

Drive: Electric Motor
H.P.: 40
Drive Make: Westinghouse
Pump Make: Western
PG&E Plant ID:

CUSTOMER MAILING ADDRESS

RUSS VAN VORIS
ECO RESOURCES, INC.
PO BOX 417
RIO VISTA, CA 94571

ACCOUNT INFORMATION

Account No: VPK-14-30202
Control No: 897449 Pump Suffix: A
Meter No: 0R2374
Pump Usage: 1,260 KWH / YR
Account Usage: 2,520 KWH / YR
Energy Cost: 12.84 Cents / KWH

---------- TEST RESULTS ----------

Run Number:	**1**
Standing Water Level (ft)	31.9
Drawdown (ft)	22.0
Pumping Water Level (ft)	53.9
Discharge Level (ft)	2.1
Discharge Pressure at Gauge (psi)	0.9
Total Lift (ft)	56.0
PG&E Water Flow (gpm)	875
Customer Water Flow (gpm)	
Well Yield (gpm/ft)	39.8
KW Input	23.1
Horsepower Input	31.0
Percent of Rated Motor Load	9.0
Acre Feet per 24 Hrs	3.9
KWH per Acre Feet	143.4
Overall Plant Efficiency (%)	40.0

---------- TEST REMARKS ----------

- Standing water level based on 5 minute recovery. Well may still be recovering.
- Pump started for test, pumping water level may still be drawing down.
- Test results may be impaired due to poor hydraulic test section.

---------- POTENTIAL SAVINGS ----------

Not Applicable

Printed On: 05/19/97
Pump Test version 4.0.0

PG&E Agricultural Services
**** PUMP TEST REPORT ****

Tested By: MICHAEL HANDEL
Test Date: 05/06/97
Customer Plant ID: WELL 8 BOOSTER 1

Location: 789 ST FRANCIS WY

Drive: Electric Motor
H.P.: 25
Drive Make: U.S.
Pump Make: Western
PG&E Plant ID:

CUSTOMER MAILING ADDRESS

RUSS VAN VORIS
ECO RESOURCES, INC.
PO BOX 417
RIO VISTA, CA 94571

ACCOUNT INFORMATION

Account No: VPK-14-30202
Control No: 897449 Pump Suffix: B
Meter No: 0R2374
Pump Usage: 1,260 KWH / YR
Account Usage: 2,520 KWH / YR
Energy Cost: 12.84 Cents / KWH

---------- TEST RESULTS ----------

Run Number:	**1**
Standing Water Level (ft)	
Drawdown (ft)	
Pumping Water Level (ft)	6.0
Discharge Level (ft)	161.7
Discharge Pressure at Gauge (psi)	70.0
Total Lift (ft)	167.7
PG&E Water Flow (gpm)	468
Customer Water Flow (gpm)	
Well Yield (gpm/ft)	
KW Input	23.3
Horsepower Input	31.2
Percent of Rated Motor Load	111.0
Acre Feet per 24 Hrs	2.1
KWH per Acre Feet	270.4
Overall Plant Efficiency (%)	63.5

---------- TEST REMARKS ----------

- Test results may be impaired due to poor hydraulic test section.

---------- POTENTIAL SAVINGS ----------

None Requested

Printed On: 05/19/97
Pump Test version 4.0.0

PG&E Agricultural Services

****** PUMP TEST REPORT ******

Tested By: MICHAEL HANDEL
Test Date: 05/06/97
Customer Plant ID: WELL 8 BOOSTER 2

Location: 789 ST FRANCIS WY

Drive: Electric Motor
H.P.: 75
Drive Make: U.S.
Pump Make: Western
PG&E Plant ID:

CUSTOMER MAILING ADDRESS

RUSS VAN VORIS
ECO RESOURCES, INC.
PO BOX 417
RIO VISTA, CA 94571

ACCOUNT INFORMATION

Account No: VPK-14-30202
Control No: 897449 Pump Suffix: C
Meter No: 0R2374
Pump Usage: KWH / YR
Account Usage: 2,520 KWH / YR
Energy Cost: 12.84 Cents / KWH

TEST RESULTS

Run Number:	**1**
Standing Water Level (ft)	
Drawdown (ft)	
Pumping Water Level (ft)	5.5
Discharge Level (ft)	199.8
Discharge Pressure at Gauge (psi)	86.5
Total Lift (ft)	205.3
PG&E Water Flow (gpm)	1,221
Customer Water Flow (gpm)	1,240
Well Yield (gpm/ft)	
KW Input	67.7
Horsepower Input	90.8
Percent of Rated Motor Load	108.0
Acre Feet per 24 Hrs	5.4
KWH per Acre Feet	301.1
Overall Plant Efficiency (%)	69.8

TEST REMARKS

- Test results may be impaired due to poor hydraulic test section.

POTENTIAL SAVINGS

None Requested

Printed On: 05/19/97
Pump Test version 4.0.0

Well 8 Booster Pump

PG&E AGRICULTURAL SERVICES, PUMP TEST REPORT PG&E PLANT ID: 25173

A PUMP TEST WAS CONDUCTED BY TODD BRUCE ON 04/26/90
FOR A 75.0 H.P. U.S. MOTOR AND WESTERN TURBINE PUMP
LOCATED ST FRANCIS 75 HP.

CUSTOMER MAILING ADDRESS	ACCOUNT INFORMATION
CITY OF RIO VISTA	ACCOUNT NO. CPK1430201
ATTN: DON DE SILVA	METER NO. T72020
238 SACRAMENTO ST	ENERGY USAGE: 25000 KWH/YR
RIO VISTA, CA 94571	ENERGY COST: 10.00 CENTS/KWH

TEST RESULTS

RUN NUMBER	1	2	3	4	5
STANDING WATER LEVEL(FT)	4.0				
DRAWDOWN(FT)	0.0				
PUMPING WATER LEVEL(FT)	4.0				
DISCHARGE LEVEL(FT)	200.9				
DISCHARGE PRESSURE AT GAUGE(PSI)	87.0				
TOTAL LIFT(FT)	204.9				
PG&E WATER FLOW RATE(GPM)	1090				
WELL YIELD	0.0				
ACRE FEET PER 24 HOURS	4.8				
HORSEPOWER INPUT TO MOTOR	89.1				
PERCENT OF RATED MOTOR LOAD	100				
KILOWATT INPUT TO MOTOR	66.5				
KILOWATT HOURS PER MILLION.GALS	1017.2				
OVERALL PLANT EFFICIENCY	63.3				

TEST REMARKS

-THE OVERALL PLANT EFFICIENCY IS FAIR BASED ON RUN NUMBER 1's
NORMAL OPERATING CONDITION.

TWB:FP-897449-04/26/90-B

PACIFIC GAS AND ELECTRIC COMPANY
*** PUMP TEST REPORT ***

Well #8

CUSTOMER AND FACILITY DATA

ANT LOCATION : ST FRANCIS 75 HP Booster Pump
OR MAKE : U. S. H.P. : 75.0
P MAKE : Western TYPE : Turbine
LING ADDRESS :

CITY OF RIO VISTA
1 MAIN STREET
RIO VISTA CA 94571

PG&E PLANT ID.# : 25173
CONTROL# : 0897449-7 SUF. = C
ACCOUNT# : CPF-05-30201
METER# : T722020
C.G.C. # :
ENERGY USAGE : 64215 KWH/YR
ENERGY COST : 9.00 CENTS/KWH
MILL.GALS/YR : 61.5

TEST RESULTS

ST DATE : 04-10-89 TESTER : BRUCE PHONE : (916)753-1520

N NUMBER	1
ASURED RPM	-
ANDING WATER LEVEL (FT)	3.0
AWDOWN (FT)	0.0
MPING WATER LEVEL (FT)	3.0
SCHARGE LEVEL (FT)	184.8
SCHARGE PRESSURE AT GAUGE (PSI)	80.0
TAL LIFT (FT)	187.8
RVEY LIFT (FT)	-
E WATER FLOW RATE (GPM)	1071
LL YIELD (GPM/FT DRAWDOWN)	0.0
LL.GALS PER 24 HOURS	1.5
RSEPOWER INPUT TO MOTOR	89.9
RCENT OF RATED MOTOR LOAD	-
LOWATT INPUT TO MOTOR	67.1
LOWATT HOURS PER MILL.GALS	1044.2
ERALL PLANT EFFICIENCY (%)	56.5

REMARKS

THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE FAIR ASSUMING RUN NUMBER 1 REPRESENTS THE PLANT'S NORMAL OPERATING CONDITIONS.
DATUM IS CENTER LINE OF DISCHARGE PIPE UNLESS OTHERWISE SPECIFIED.

Well 8 [illegible]

PG&E AGRICULTURAL SERVICES, PUMP TEST REPORT PG&E PLANT ID: 25172

A PUMP TEST WAS CONDUCTED BY TODD BRUCE ON 04/26/90
FOR A 40.0 H.P. WESTINGHOUSE MOTOR AND WESTERN TURBINE PUMP
LOCATED BEHIND CORP. YARD #8.

CUSTOMER MAILING ADDRESS	ACCOUNT INFORMATION
CITY OF RIO VISTA	ACCOUNT NO. CPK1430201
ATTN: DON DE SILVA	METER NO. T72020
238 SACRAMENTO ST	ENERGY USAGE: 88280 KWH/YR
RIO VISTA, CA 94571	ENERGY COST: 10.00 CENTS/KWH

TEST RESULTS

RUN NUMBER	1	2	3	4	5
STANDING WATER LEVEL(FT)	27.0				
DRAWDOWN(FT)	25.0				
PUMPING WATER LEVEL(FT)	52.0				
DISCHARGE LEVEL(FT)	0.0				
DISCHARGE PRESSURE AT GAUGE(PSI)	0.0				
TOTAL LIFT(FT)	52.0				
PG&E WATER FLOW RATE(GPM)	889				
WELL YIELD	35.6				
ACRE FEET PER 24 HOURS	3.9				
HORSEPOWER INPUT TO MOTOR	29.8				
PERCENT OF RATED MOTOR LOAD	100				
KILOWATT INPUT TO MOTOR	22.2				
KILOWATT HOURS PER MILLION.GALS	416.4				
OVERALL PLANT EFFICIENCY	38.8				

TEST REMARKS

-THE OVERALL PLANT EFFICIENCY IS LOW BASED ON RUN NUMBER 1's
NORMAL OPERATING CONDITION.

TWB:FP-897449-04/26/90-A

CUSTOMER AND FACILITY DATA

ANT LOCATION : WELL #8 - well pump
TOR MAKE : Westinghouse H.P. : 40.0
MP MAKE : Western TYPE : Turbine
LING ADDRESS :

CITY OF RIO VISTA
1 MAIN STREET
RIO VISTA CA 94571

PG&E PLANT ID.# : 25172
CONTROL# : 0897449-7 SUF. = A
ACCOUNT# : CPF-05-30201
METER# : T72020
C.G.C. # :
ENERGY USAGE : 85620 KWH/YR
ENERGY COST : 8.00 CENTS/KWH
MILL.GALS/YR : 202.7

TEST RESULTS

ST DATE : 04-10-89 TESTER : BRUCE PHONE : (916)753-1520

N NUMBER	1
ASURED RPM	-
ANDING WATER LEVEL (FT)	28.0
AWDOWN (FT)	22.0
MPING WATER LEVEL (FT)	50.0
SCHARGE LEVEL (FT)	0.0
SCHARGE PRESSURE AT GAUGE (PSI)	0.0
TAL LIFT (FT)	50.0
RVEY LIFT (FT)	-
E WATER FLOW RATE (GPM)	876
LL YIELD (GPM/FT DRAWDOWN)	39.8
LL.GALS PER 24 HOURS	1.3
RSEPOWER INPUT TO MOTOR	29.8
RCENT OF RATED MOTOR LOAD	-
LOWATT INPUT TO MOTOR	22.2
LOWATT HOURS PER MILL.GALS	422.4
ERALL PLANT EFFICIENCY (%)	38.0

REMARKS

THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE LOW ASSUMING RUN NUMBER 1 REPRESENTS THE PLANT'S NORMAL OPERATING CONDITIONS.
DATUM IS CENTER LINE OF DISCHARGE PIPE UNLESS OTHERWISE SPECIFIED.

Well A & Booster Pump

PG&E AGRICULTURAL SERVICES, PUMP TEST REPORT PG&E PLANT ID: 24046

A PUMP TEST WAS CONDUCTED BY TODD BRUCE ON 04/26/90
FOR A 25.0 H.P. U.S. MOTOR AND WESTERN TURBINE PUMP
LOCATED ST FRANCIS 25 HP 25 HP.

CUSTOMER MAILING ADDRESS
CITY OF RIO VISTA
ATTN: DON DE SILVA
238 SACRAMENTO ST
RIO VISTA, CA 94571

ACCOUNT INFORMATION
ACCOUNT NO. CPK1430201
METER NO. T72020
ENERGY USAGE: 50000 KWH/YR
ENERGY COST: 10.00 CENTS/KWH

TEST RESULTS

RUN NUMBER	1	2	3	4	5
STANDING WATER LEVEL(FT)	4.0				
DRAWDOWN(FT)	0.0				
PUMPING WATER LEVEL(FT)	4.0				
DISCHARGE LEVEL(FT)	166.3				
DISCHARGE PRESSURE AT GAUGE(PSI)	72.0				
TOTAL LIFT(FT)	170.3				
PG&E WATER FLOW RATE(GPM)	337				
WELL YIELD	0.0				
ACRE FEET PER 24 HOURS	1.5				
HORSEPOWER INPUT TO MOTOR	28.0				
PERCENT OF RATED MOTOR LOAD	100				
KILOWATT INPUT TO MOTOR	20.9				
KILOWATT HOURS PER MILLION.GALS	1034.0				
OVERALL PLANT EFFICIENCY	51.4				

TEST REMARKS

-THE OVERALL PLANT EFFICIENCY IS FAIR BASED ON RUN NUMBER 1's NORMAL OPERATING CONDITION.

TWB:FP-897449-04/26/90-C

PACIFIC GAS AND ELECTRIC COMPANY
*** PUMP TEST REPORT ***

well #8 ---------- CUSTOMER AND FACILITY DATA ----------

ANT LOCATION : ST FRANCIS 25HP ~~Booster Pump~~
TOR MAKE : U. S. H.P. : 25.0
MP MAKE : Western TYPE : Turbine
ILING ADDRESS :

CITY OF RIO VISTA
1 MAIN STREET
RIO VISTA CA 94571

PG&E PLANT ID.# : 24046
CONTROL# : 0897449-7 SUF. = B
ACCOUNT# : CPF-05-30201
METER# : T72020
C.G.C. # :
ENERGY USAGE : 21405 KWH/YR
ENERGY COST : 8.00 CENTS/KWH
MILL.GALS/YR : 25.7

---------- TEST RESULTS ----------

ST DATE : 04-10-89 TESTER : BRUCE PHONE : (916)753-1520

N NUMBER	1
ASURED RPM	-
ANDING WATER LEVEL (FT)	3.0
AWDOWN (FT)	0.0
MPING WATER LEVEL (FT)	3.0
SCHARGE LEVEL (FT)	161.7
SCHARGE PRESSURE AT GAUGE (PSI)	70.0
TAL LIFT (FT)	164.7
RVEY LIFT (FT)	-
E WATER FLOW RATE (GPM)	310
LL YIELD (GPM/FT DRAWDOWN)	0.0
LL.GALS PER 24 HOURS	0.4
RSEPOWER INPUT TO MOTOR	20.8
RCENT OF RATED MOTOR LOAD	-
LOWATT INPUT TO MOTOR	15.5
LOWATT HOURS PER MILL.GALS	833.3
ERALL PLANT EFFICIENCY (%)	-

---------- REMARKS ----------

85 DO well #7 ?/0

PACIFIC GAS and ELECTRIC COMPANY
*** PUMP TEST REPORT ***

well 2
4-85

CUSTOMER AND FACILITY DATA

PLANT LOCATION : ST FRANCIS WELL PUMP
MOTOR MAKE : Westinghouse H.P.: 40.0
PUMP MAKE: Western Type : Turbine
MAILING ADDRESS :

CITY OF RIO VISTA
1 MAIN ST
RIO VISTA CA 94571

PG&E PLANT ID.# : 25172
CONTROL# : 0897449-7 Suf. = C
ACCOUNT# : BPP-02-83281
METER# : T72020
C.G.C. # : 48220899618209
ENERGY USAGE : 80000 KWH/YR
ENERGY COST : 8.80 Cents/KWH
MG/YR : 194

TEST RESULTS

TEST DATE : 04/24/85 Tester : TODD BRUCE Off. Phone : (916)3865344

RUN NUMBER	1
MEASURED RPM	
STANDING WATER LEVEL (FT)	33.5
DRAWDOWN (FT)	24.0
PUMPING WATER LEV. (FT)	57.5
DISCHARGE LEVEL (FT)	0.0
DISCHARGE PRESS. AT GAUGE (PSI)	0
TOTAL LIFT (FT)	57.5
SURVEY LIFT (FT)	
WATER FLOW RATE (GPM)	941
WELL YIELD (G.P.M./FT DRAWDOWN)	39.2
MILLION GALLONS PER 24 HOURS	1.3
HORSEPOWER INPUT TO MOTOR	31.0
PER CENT OF RATED MOTOR LOAD	
KILOWATT INPUT TO MOTOR	23.2
KILOWATT HOURS/MILL.GALS PUMPED	410.9
OVERALL PLANT EFFICIENCY (%)	44.1

REMARKS

* THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE LOW ASSUMING RUN NUMBER 1 REPRESENTS THE PLANTS NORMAL OPERATING CONDITIONS.

POTENTIAL SAVINGS

THE POTENTIAL SAVINGS SHOWN BELOW ARE POSSIBLE IF THE EFFICIENCY OF YOUR PUMPING PLANT COULD BE IMPROVED TO THE LEVEL INDICATED. NORMAL PLANT OPERATION IS ASSUMED TO BE RUN NUMBER 1 .

	PRESENT CONDITIONS	ESTIMATED AFTER REPAIRS	POTENTIAL SAVINGS/IMPROVEMENTS
OVERALL PLANT EFFICIENCY (%)	44.1	61.9	-
ANNUAL ENERGY USED (KWH)	80000	71569	8431
ANNUAL COST	$7040	$6298	$742
ANNUAL OPERATING HOURS	3448	2135	1313
WATER FLOW RATE (GPM)	941	1521	580
TOTAL LIFT (FT)	57.5	72.3	-
% OF RATED MOTOR LOAD (%)	0	100	-
KILOWATT HOURS PER MILLION GALS.	411	367	44
ANNUAL MILLION GALS. PUMPED	195	195	-

PG&E Agricultural Services
****** PUMP TEST REPORT ******

Tested By: MICHAEL HANDEL
Test Date: 05/06/97
Customer Plant ID: WELL #9

Location: AMADOR CIRCLE W/200 FT.10 MI N/DROUIN DR

Drive: Electric Motor
H.P.: 100
Drive M-
Pum
PG&

#9

CUSTOMER MAILING ADDRESS

RUSS VAN VORIS
ECO RESOURCES, INC.
PO BOX 417
RIO VISTA, CA 94571

ACC
Acc
Cont
Pump Suffix: A
Meter No: R28431
Pump Usage: KWH / YR
Account Usage: KWH / YR
Energy Cost: 12.84 Cents / KWH

---------- **TEST RESULTS** ----------

Run Number:	**1**
Standing Water Level (ft)	128.3
Drawdown (ft)	30.0
Pumping Water Level (ft)	158.3
Discharge Level (ft)	71.6
Discharge Pressure at Gauge (psi)	31.0
Total Lift (ft)	229.9
PG&E Water Flow (gpm)	896
Customer Water Flow (gpm)	
Well Yield (gpm/ft)	29.9
KW Input	71.0
Horsepower Input	95.2
Percent of Rated Motor Load	81.0
Acre Feet per 24 Hrs	4.0
KWH per Acre Feet	430.4
Overall Plant Efficiency (%)	54.7

---------- **TEST REMARKS** ----------

- Standing water level based on 5 minute recovery. Well may still be recovering.
- Pump started for test, pumping water level may still be drawing down.
- Test results may be impaired due to poor hydraulic test section.

THE METER IS NOT WORKING

---------- **POTENTIAL SAVINGS** ----------

Not Applicable

Printed On: 05/19/97
Pump Test version 4.0.0

Well #

PG&E AGRICULTURAL SERVICES, PUMP TEST REPORT PG&E PLANT ID: 24362

A PUMP TEST WAS CONDUCTED BY TODD BRUCE ON 04/26/90
FOR A 100.0 H.P. NO NAME PLATE MOTOR AND NO PUMP MAKE SUBMERSIBLE PUMP
LOCATED AMADOR CIR. W/200 FT .11 N DROUIN DR #9.

CUSTOMER MAILING ADDRESS	ACCOUNT INFORMATION
CITY OF RIO VISTA	ACCOUNT NO. BPK1027101
ATTN: DON DE SILVA	METER NO. 654T22
238 SACRAMENTO	ENERGY USAGE: 76400 KWH/YR
RIO VISTA, CA 94571	ENERGY COST: 10.00 CENTS/KWH

TEST RESULTS

RUN NUMBER	1	2	3	4	5
STANDING WATER LEVEL(FT)	163.0				
DRAWDOWN(FT)	62.0				
PUMPING WATER LEVEL(FT)	225.0				
DISCHARGE LEVEL(FT)	69.3				
DISCHARGE PRESSURE AT GAUGE(PSI)	30.0				
TOTAL LIFT(FT)	294.3				
PG&E WATER FLOW RATE(GPM)	949				
WELL YIELD	15.3				
ACRE FEET PER 24 HOURS	4.2				
HORSEPOWER INPUT TO MOTOR	97.5				
PERCENT OF RATED MOTOR LOAD	100				
KILOWATT INPUT TO MOTOR	72.7				
KILOWATT HOURS PER MILLION.GALS	1277.3				
OVERALL PLANT EFFICIENCY	72.3				

TEST REMARKS

-THE OVERALL PLANT EFFICIENCY IS GOOD BASED ON RUN NUMBER 1's
NORMAL OPERATING CONDITION.

TWB:FP-1004511-04/26/90-A

PG&E AGRICULTURAL SERVICES, PUMP TEST REPORT PG&E PLANT ID: 24362

A PUMP TEST WAS CONDUCTED BY TODD BRUCE ON 06/14/90
FOR A 100.0 H.P. NO NAME PLATE MOTOR AND NO PUMP MAKE SUBMERSIBLE PUMP
LOCATED WATER TANK #9

CUSTOMER MAILING ADDRESS
CITY OF RIO VISTA
ATTN: DON DE SILVA
238 SACRAMENTO
RIO VISTA, CA 94571

ACCOUNT INFORMATION
ACCOUNT NO. BPK-10-27101
METER NO. 654T22
ENERGY USAGE: 76400 KWH/YR
ENERGY COST: 10.00 CENTS/KWH

TEST RESULTS

RUN NUMBER	1
STANDING WATER LEVEL(FT)	127.0
DRAWDOWN(FT)	34.0
PUMPING WATER LEVEL(FT)	161.0
DISCHARGE LEVEL(FT)	71.6
TOTAL LIFT(FT)	232.6
PG&E WATER FLOW RATE(GPM)	929
WELL YIELD	27.3
ACRE FEET PER 24 HOURS	4.1
HORSEPOWER INPUT TO MOTOR	92.6
PERCENT OF RATED MOTOR LOAD	100
KILOWATT INPUT TO MOTOR	69.1
KILOWATT HOURS PER MILLION.GALS	1240.2
OVERALL PLANT EFFICIENCY	58.8

TEST REMARKS

-THE OVERALL PLANT EFFICIENCY IS FAIR BASED ON RUN NUMBER 1's NORMAL OPERATING CONDITION.

TWB:FP-1004511-06/14/90-A

PACIFIC GAS AND ELECTRIC COMPANY
*** PUMP TEST REPORT ***

CUSTOMER AND FACILITY DATA

T LOCATION : WELL #9
R MAKE : Unknown
MAKE : Unknown
ING ADDRESS :

H.P. : 100.0
TYPE : Turbine

CITY OF RIO VISTA
1 MAIN STREET
RIO VISTA CA 94571

PG&E PLANT ID.# : 24362
CONTROL# : 1004511-8 SUF. = A
ACCOUNT# : QPF-62-20001
METER# : 654T22
C.G.C. # :
ENERGY USAGE : 68480 KWH/YR
ENERGY COST : 8.00 CENTS/KWH
MILL.GALS/YR : 53.0

TEST RESULTS

DATE : 04-10-89 TESTER : BRUCE PHONE : (916)753-1520

NUMBER	1
SURED RPM	-
NDING WATER LEVEL (FT)	163.0
WDOWN (FT)	62.0
PING WATER LEVEL (FT)	225.0
CHARGE LEVEL (FT)	69.3
CHARGE PRESSURE AT GAUGE (PSI)	30.0
AL LIFT (FT)	294.3
VEY LIFT (FT)	-
WATER FLOW RATE (GPM)	926
L YIELD (GPM/FT DRAWDOWN)	14.9
L.GALS PER 24 HOURS	1.3
SEPOWER INPUT TO MOTOR	96.2
CENT OF RATED MOTOR LOAD	-
OWATT INPUT TO MOTOR	71.8
OWATT HOURS PER MILL.GALS	1292.3
RALL PLANT EFFICIENCY (%)	71.4

REMARKS

HE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE EXCELLENT ASSUMING
UN NUMBER 1 REPRESENTS THE PLANT'S NORMAL OPERATING CONDITIONS.
ATUM IS CENTER LINE OF DISCHARGE PIPE UNLESS OTHERWISE SPECIFIED.

PACIFIC GAS AND ELECTRIC COMPANY
*** PUMP TEST REPORT ***

---------- CUSTOMER AND FACILITY DATA ----------

PLANT LOCATION : PUMP #9 WATER TANK AMADOR CRCL
MOTOR MAKE : Other H.P. : 100.
PUMP MAKE : Byron Jackson TYPE : Submersible
MAILING ADDRESS :

CITY OF RIO VISTA
1 MAIN STREET
RIO VISTA CA 94571

PG&E PLANT ID.# : 24362
CONTROL# : 1004511-8 SUF. = A
ACCOUNT# : QPF-62-20001
METER# : 654T22
C.G.C. # :
ENERGY USAGE : 100000 KWH/YR
ENERGY COST : 8.0 CENTS/KWH
MILL.GALS/YR : 80.7

---------- TEST RESULTS ----------

TEST DATE : 09-14-88 TESTER : BRUCE PHONE : (916)753-1520

RUN NUMBER	1
MEASURED RPM	-
STANDING WATER LEVEL (FT)	122.1
DRAWDOWN (FT)	29.2
PUMPING WATER LEVEL (FT)	151.3
DISCHARGE LEVEL (FT)	53.1
DISCHARGE PRESSURE AT GAUGE (PSI)	23.0
TOTAL LIFT (FT)	204.4 — DRAWING 695'
SURVEY LIFT (FT)	-
PGE WATER FLOW RATE (GPM)	952
CUSTOMER WATER FLOW RATE (GPM)	952
WELL YIELD (GPM/FT DRAWDOWN)	32.6
MILL.GALS PER 24 HOURS	1.4
HORSEPOWER INPUT TO MOTOR	94.9
PERCENT OF RATED MOTOR LOAD	-
KILOWATT INPUT TO MOTOR	70.8
KILOWATT HOURS PER MILL.GALS	1239.5
OVERALL PLANT EFFICIENCY (%)	51.8

---------- REMARKS ----------

* THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE LOW ASSUMING RUN NUMBER 1 REPRESENTS THE PLANT'S NORMAL OPERATING CONDITIONS.
* DATUM IS CENTER LINE OF DISCHARGE PIPE UNLESS OTHERWISE SPECIFIED.
* GALLONS PER MINUTE MEASURED WITH CUSTOMER WATER METER.

PACIFIC GAS and ELECTRIC COMPANY
*** PUMP TEST REPORT ***

well 9
4-85

CUSTOMER AND FACILITY DATA

PLANT LOCATION : PUMP 9 AT WTR TANK
MOTOR MAKE : Unknown H.P.: 100.0
PUMP MAKE: Unknown Type : Submersible
MAILING ADDRESS :

CITY OF RIO VISTA
1 MAIN ST
RIO VISTA CA 94571

PG&E PLANT ID.# : 24362
CONTROL# : 1004511-8 Suf. = A
ACCOUNT# : BPP-02-83141
METER# : 654T22
C.G.C. # : 48220850217955
ENERGY USAGE : 186044 KWH/YR
ENERGY COST : 8.80 Cents/KWH

TEST RESULTS

TEST DATE : 04/24/85 Tester : TODD BRUCE Off. Phone : (916)3865344

RUN NUMBER	1
MEASURED RPM	
STANDING WATER LEVEL (FT)	174.0
DRAWDOWN (FT)	0.0
PUMPING WATER LEV. (FT)	174.0
DISCHARGE LEVEL (FT)	80.8
DISCHARGE PRESS. AT GAUGE (PSI)	35
TOTAL LIFT (FT)	254.8
SURVEY LIFT (FT)	
WATER FLOW RATE (GPM)	937
WELL YIELD (G.P.M./FT DRAWDOWN)	
MILLION GALLONS PER 24 HOURS	1.3
HORSEPOWER INPUT TO MOTOR	95.7
PER CENT OF RATED MOTOR LOAD	
KILOWATT INPUT TO MOTOR	71.4
KILOWATT HOURS/MILL.GALS PUMPED	1270.0
OVERALL PLANT EFFICIENCY (%)	62.9

REMARKS

* THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE FAIR ASSUMING RUN NUMBER 1 REPRESENTS THE PLANTS NORMAL OPERATING CONDITIONS.

* PLEASE REFER TO THE ATTACHED SHEET FOR A DESCRIPTION OF THE FOLLOWING REMARK CODES : 16

PG and E

55-1

PUMP TEST

R205CE
04/01/81

SACRAMENTO Division RIO VISTA Office

Dear RIO VISTA CITY OF : Test Date 03/16/81

Below are the results of the recent test on your pumping plant. Please let us know if you have any questions or if we can be of further service.

PGandE

RIO VISTA CITY OF

P O BOX 745

RIO VISTA CA 94571

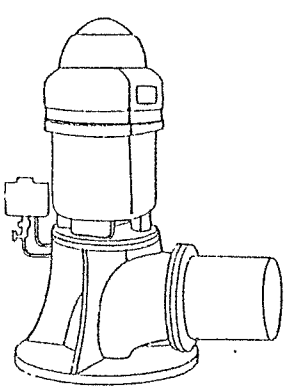
Number of Copies:
Customer 0
Office 3

Plant Location- PUMP #9 AT WTR TANK
Customer Plant Identification- 24362
Test Engineer- JOHN WYNN

Customer Account # BPP0283141 Location # 48220850217955
122246
U.S. HP 200.0 Volts 440
Rated RPM 1800 Serial # 1320943
Pump WESTERN Type TURBINE

Remarks:

- THE WATER PUMPED AS MEASURED BY THE CUSTOMER'S WATER METER WAS 1067 GPM.
- THE OVERALL EFFICIENCY OF THIS PLANT IS FAIR UNDER EXISTING WATER AND OPERATING CONDITIONS.



	TEST 1
	Min. (*=24 hrs.)
Shutdown Time	114.2 Ft.
Standing Water Level Below CENTER LINE OF DISCHARGE PIPE	35.3 Ft.
Draw Down from Standing to Pumping Level	149.5 Ft.
Pumping Water Level Below CENTER LINE OF DISCHARGE PIPE	108.6 Ft.
Discharge Level Above CENTER LINE OF DISCHARGE PIPE	47 P.S.I.
Discharge Pressure Measured at Gauge	258.1 Ft.
TOTAL LIFT (Water to Water)	1036 G.P.M.
WATER PUMPED	29.3 G.P.M./Ft.
Yield of Well (G.P.M. per foot draw down)	1491.84 1000 GAL.
Water Pumped in 24 Hours	116.3 H.P.
HORSEPOWER INPUT TO MOTOR	86.8 KW.
Kilowatt Input to Motor	1.40 Kwh/ 1000 GAL.
KILOWATT HOURS PER 1000 GAL OF WATER PUMPED	58 %
OVERALL PLANT EFFICIENCY	

GET THE MOST GALLONS FOR YOUR MONEY WITH EFFICIENT PUMPS!

PG and E

55-1

PUMP TEST PORT

R205CF
03/03/82

SACRAMENTO Division RIO VISTA Office Customer Account # BPP0283001 Location # 48220895717805A

PG and E

55-1

PUMP TEST REPORT

R205CF
03/03/82

SACRAMENTO Division RIO VISTA Office

Customer Account # BPP0283141 Location # 48220850217955
Meter # 122246
Motor U.S. H.P. 200.0 Volts 440
Rated RPM 1800 Serial # 1320943
Pump WESTERN Type TURBINE

Dear CITY OF RIO VISTA : Test Date 02/24/82

Below are the results of the recent test on your pumping plant. Please let us know if you have any questions or if we can be of further service.

Remarks:

- THE WATER PUMPED AS MEASURED BY THE CUSTOMER'S WATER METER WAS 990 GPM.
- THE OVERALL EFFICIENCY OF THIS PLANT IS FAIR UNDER EXISTING WATER AND OPERATING CONDITIONS.

PGandE

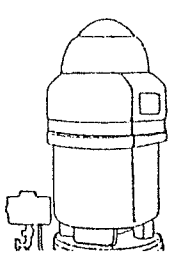
CITY OF RIO VISTA

P O BOX 745

RIO VISTA CA 94571

Number of Copies:
Customer 0
Office 3

Plant Location- PUMP #9 AT WTR TANK
Customer Plant Identification- 24362A
Test Engineer- MIKE NOGGLE



		TEST 1
Shutdown Time		Min. (*=24 hrs.)
Standing Water Level Below	CENTER LINE OF DISCHARGE PIPE	110.0 Ft.
Draw Down from Standing to Pumping Level		34.0 Ft.
Pumping Water Level Below	CENTER LINE OF DISCHARGE PIPE	144.0 Ft.
Discharge Level Above	CENTER LINE OF DISCHARGE PIPE	122.4 Ft.
Discharge Pressure Measured at Gauge		53 P.S.I.
TOTAL LIFT (Water to Water)		266.4 Ft.
WATER PUMPED		1036 G.P.M.
Yield of Well (G.P.M. per foot draw down)		30.4 G.P.M./Ft.
Water Pumped in 24 Hours		1491.84 1000 GAL.
HORSEPOWER INPUT TO MOTOR		116.1 H.P.
Kilowatt Input to Motor		86.6 KW.

PACIFIC GAS AND ELECTRIC COMPANY

SACRAMENTO Division SOLANO District RIO VISTA Office

Dear MR. ALPHIN

Below are the results of the recent test on your pumping plant. Please let us know if you have any questions or if we can be of further service.

Sincerely, H. R. GAMBILL

WELL NO 9

PUMP TEST REPORT

Name CITY OF RIO VISTA Date 3-31-77 Loc. No. 24045 VI-B

Address P.O. BOX 745, RIO VISTA Acct. No. DPP 12-81201

Plant Location SW/SIERRA DR & DROUIN DR Meter No. 122246

Motor US H.P. 200 Volts 440 Rated R.P.M. 1800 Serial No. 1320943

Pump WESTERN Type TURBINE No. —

TEST RESULTS

Standing Water Level Below Center of DISCHARGE		114.7	Ft.
Draw Down from Standing to Pumping Level		16.5	Ft.
Pumping Water Level Below Center of DISCHARGE		131.2	Ft.
Discharge Level Above Center of DISCHARGE (86.5 P.S.I.G.)		199.8	Ft.
TOTAL LIFT (Water to Water)		331.0	Ft.
WATER PUMPED		550	G.P.M.
Yield of Well (G.P.M. per foot Draw Down)		33.3	G.P.M/Ft.
Water Pumped in 24 Hours MILLION GALLONS		0.792	MIL ~~Ac.Ft.~~ GA
~~Water Temperature~~ MOTOR LOAD % OF FULL LOAD CAPACITY		46.1 %	
HORSEPOWER INPUT TO MOTOR		87.1	H.P.
Kilowatt Input to Motor		65.0	KW.
KILOWATT HRS. PER ~~AC.FT.~~ MILLION GALLONS OF WATER PUMPED		1970.1	KWH/~~A.F.~~ MIL G
OVERALL PLANT EFFICIENCY		52.8	%

REMARKS: OVERALL PLANT EFFICIENCY IS LOW UNDER EXISTING OPERATING CONDITIONS. AN EFFICIENCY OF 63% TO 69% WOULD BE CONSIDERED GOOD. THE SYSTEM LINE PRESSURE WAS 32 P.S.I.G. (CUSTOMERS GAUGE)
LINE VOLTS 477-477-479 AMPS 100-110-105
VOLTS TO GROUND 150-152-130

Everett S Rypinski Test Engineer

well #10

PG&E AGRICULTURAL SERVICES, PUMP TEST REPORT PG&E PLANT ID: 25361

A PUMP TEST WAS CONDUCTED BY TODD BRUCE ON 04/25/90
FOR A 200.0 H.P. U.S. MOTOR AND OTHER TURBINE PUMP
LOCATED WELL 10 #10.

CUSTOMER MAILING ADDRESS
CITY OF RIO VISTA
ATTN: DON DE SILVA
238 SACRAMENTO
RIO VISTA, CA 94571

ACCOUNT INFORMATION
ACCOUNT NO. C[L1422501
METER NO. 922T95
ENERGY USAGE: 257920 KWH/YR
ENERGY COST: 10.00 CENTS/KWH

TEST RESULTS

RUN NUMBER	1	2	3	4	5
STANDING WATER LEVEL(FT)	32.0				
DRAWDOWN(FT)	10.0				
PUMPING WATER LEVEL(FT)	42.0				
DISCHARGE LEVEL(FT)	328.0				
DISCHARGE PRESSURE AT GAUGE(PSI)	142.0				
TOTAL LIFT(FT)	370.0				
PG&E WATER FLOW RATE(GPM)	1000				
WELL YIELD	100.0				
ACRE FEET PER 24 HOURS	4.4				
HORSEPOWER INPUT TO MOTOR	143.7				
PERCENT OF RATED MOTOR LOAD	100				
KILOWATT INPUT TO MOTOR	107.2				
KILOWATT HOURS PER MILLION.GALS	1787.4				
OVERALL PLANT EFFICIENCY	65.0				

TEST REMARKS

-THE OVERALL PLANT EFFICIENCY IS FAIR BASED ON RUN NUMBER 1's
NORMAL OPERATING CONDITION.

TWB:FP-4809634-04/25/90-A

*** PUMP TEST REPORT ***

CUSTOMER AND FACILITY DATA

ANT LOCATION : WELL #10 1.OE/RIO VISTA BRIDGE
OTOR MAKE : U. S. H.P. : 200.0
UMP MAKE : Other TYPE : Turbine
AILING ADDRESS :

CITY OF RIO VISTA
1 MAIN STREET
RIO VISTA CA 94571

PG&E PLANT ID.# : 25361
CONTROL# : 4809634-8 SUF. = A
ACCOUNT# : CPF-05-07001
METER# : 922T95
C.G.C. # :
ENERGY USAGE : 350000 KWH/YR
ENERGY COST : 8.0 CENTS/KWH
MILL.GALS/YR : 214.0

TEST RESULTS

EST DATE : 09-14-88 TESTER : BRUCE PHONE : (916)753-1520

UN NUMBER	1
EASURED RPM	-
TANDING WATER LEVEL (FT)	37.5
RAWDOWN (FT)	9.3
UMPING WATER LEVEL (FT)	46.8
ISCHARGE LEVEL (FT)	288.8
ISCHARGE PRESSURE AT GAUGE (PSI)	125.
OTAL LIFT (FT)	335.6 DRAWING 5001
URVEY LIFT (FT)	-
GE WATER FLOW RATE (GPM)	1115
USTOMER WATER FLOW RATE (GPM)	1115
ELL YIELD (GPM/FT DRAWDOWN)	119.9
ILL.GALS PER 24 HOURS	1.6
ORSEPOWER INPUT TO MOTOR	146.6
ERCENT OF RATED MOTOR LOAD	-
ILOWATT INPUT TO MOTOR	109.4
ILOWATT HOURS PER MILL.GALS	1635.3
VERALL PLANT EFFICIENCY (%)	64.5

REMARKS

THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE GOOD ASSUMING RUN NUMBER 1 REPRESENTS THE PLANT'S NORMAL OPERATING CONDITIONS.
DATUM IS CENTER LINE OF DISCHARGE PIPE UNLESS OTHERWISE SPECIFIED.
GALLONS PER MINUTE MEASURED WITH CUSTOMER WATER METER.

PACIFIC GAS AND ELECTRIC COMPANY
*** PUMP TEST REPORT ***

well 10
9-86

CUSTOMER AND FACILITY DATA

PLANT LOCATION : # 10
MOTOR MAKE : U. S. H.P. : 200
PUMP MAKE : Peerless TYPE : Turbine
MAILING ADDRESS :

CITY OF RIO VISTA
1 MAIN ST
RIO VISTA CA 94571

PG&E PLANT ID.# : 25275
CONTROL# : 4809634-8 SUF. = A
ACCOUNT# : BPP-02-83151
METER# : 922T95
C.G.C. # :
ENERGY USAGE : 75000 KWH/YR
ENERGY COST : 7.81 CENTS/KWH
MILL.GALS/YR : 42.7

TEST RESULTS

TEST DATE : 09-26-86 TESTER : BRUCE PHONE : (707)426-5555

RUN NUMBER	1
MEASURED RPM	-
STANDING WATER LEVEL (FT)	24
DRAWDOWN (FT)	15.0
PUMPING WATER LEVEL (FT)	39
DISCHARGE LEVEL (FT)	334.9
DISCHARGE PRESSURE AT GAUGE (PSI)	145
TOTAL LIFT (FT)	373.9
SURVEY LIFT (FT)	-
PGE WATER FLOW RATE (GPM)	1047
WELL YIELD (GPM/FT DRAWDOWN)	69.8
MILL.GALS PER 24 HOURS	1.5
HORSEPOWER INPUT TO MOTOR	147.9
PERCENT OF RATED MOTOR LOAD	-
KILOWATT INPUT TO MOTOR	110.3
KILOWATT HOURS PER MILL.GALS	1755.8
OVERALL PLANT EFFICIENCY (%)	67.3

REMARKS

* THE OVERALL EFFICIENCY OF THIS PLANT IS CONSIDERED TO BE GOOD ASSUMING RUN NUMBER 1 REPRESENTS THE PLANT'S NORMAL OPERATING CONDITIONS.
* DATUM IS CENTER LINE OF DISCHARGE PIPE UNLESS OTHERWISE SPECIFIED.

PG&E Agricultural Services
**** PUMP TEST REPORT ****

Tested By: MICHAEL HANDEL
Test Date: 05/07/97
Customer Plant ID: WELL 11

Location: 1025 CHURCH RD #B

Drive: Electric Motor
H.P.: 100
Drive Make: General Electric
Pump Make: Floway
PG&E Plant ID:

CUSTOMER MAILING ADDRESS

RUSS VAN VORIS
ECO RESOURCES, INC.
PO BOX 417
RIO VISTA, CA 94571

ACCOUNT INFORMATION

Account No: RPK-32-29352
Control No: 6403516 Pump Suffix: A
Meter No: R96141
Pump Usage: 11,560 KWH / YR
Account Usage: 11,560 KWH / YR
Energy Cost: 13.92 Cents / KWH

---------- TEST RESULTS ----------

Run Number:	**1**
Standing Water Level (ft)	54.8
Drawdown (ft)	66.7
Pumping Water Level (ft)	121.5
Discharge Level (ft)	139.7
Discharge Pressure at Gauge (psi)	60.5
Total Lift (ft)	261.2
PG&E Water Flow (gpm)	1,261
Customer Water Flow (gpm)	1,250
Well Yield (gpm/ft)	18.9
KW Input	89.7
Horsepower Input	120.2
Percent of Rated Motor Load	114.0
Acre Feet per 24 Hrs	5.6
KWH per Acre Feet	386.3
Overall Plant Efficiency (%)	69.2

---------- TEST REMARKS ----------

- Standing water level based on 5 minute recovery. Well may still be recovering.
- Pump started for test, pumping water level may still be drawing down.
- Test results may be impaired due to poor hydraulic test section.

---------- POTENTIAL SAVINGS ----------

None Requested

Printed On: 05/19/97
Pump Test version 4.0.0

PG&E Agricultural Services
****** PUMP TEST REPORT ******

Tested By: MICHAEL HANDEL
Test Date: 05/07/97
Customer Plant ID: WELL 12

Location: 35 AUGUSTA CRT

Drive: Electric Motor
H.P.: 100
Drive Make: General Electric
Pump Make: Floway
PG&E Plant ID:

CUSTOMER MAILING ADDRESS

RUSS VAN VORIS
ECO RESOURCES, INC.
PO BOX 417
RIO VISTA, CA 94571

ACCOUNT INFORMATION

Account No: GPK-46-10052
Control No: 6405869 Pump Suffix: A
Meter No: 81417T
Pump Usage: 5,240 KWH / YR
Account Usage: 5,240 KWH / YR
Energy Cost: 27.55 Cents / KWH

TEST RESULTS

Run Number:	**1**
Standing Water Level (ft)	57.0
Drawdown (ft)	123.0
Pumping Water Level (ft)	180.0
Discharge Level (ft)	137.4
Discharge Pressure at Gauge (psi)	59.5
Total Lift (ft)	317.4
PG&E Water Flow (gpm)	929
Customer Water Flow (gpm)	980
Well Yield (gpm/ft)	7.6
KW Input	80.0
Horsepower Input	107.2
Percent of Rated Motor Load	101.0
Acre Feet per 24 Hrs	4.1
KWH per Acre Feet	467.7
Overall Plant Efficiency (%)	69.4

TEST REMARKS

- Standing water level based on 5 minute recovery. Well may still be recovering.
- Pump started for test, pumping water level may still be drawing down.
- Test results may be impaired due to poor hydraulic test section.

POTENTIAL SAVINGS

None Requested

Printed On: 05/19/97
Pump Test version 4.0.0

PG&E Agricultural Services

****** PUMP TEST REPORT ******

Tested By: MICHAEL HANDEL
Test Date: 05/07/97
Customer Plant ID: WELL 7

Location: 2 MAIN ST

Drive: Electric Motor
H.P.: 25
Drive Make: U.S.
Pump Make: Byron Jackson
PG&E Plant ID: 24361

CUSTOMER MAILING ADDRESS

RUSS VAN VORIS
ECO RESOURCES INC
12550 EMILY CRT ATTN ACCTS REC
SUGAR LAND, TX 77478

ACCOUNT INFORMATION

Account No: JPK-69-15002
Control No: 446498 Pump Suffix: A
Meter No: 79800T
Pump Usage: 3,965 KWH / YR
Account Usage: 18,880 KWH / YR
Energy Cost: 11.02 Cents / KWH

TEST RESULTS

Run Number:	**1**
Standing Water Level (ft)	19.1
Drawdown (ft)	28.6
Pumping Water Level (ft)	47.7
Discharge Level (ft)	4.8
Discharge Pressure at Gauge (psi)	2.1
Total Lift (ft)	52.5
PG&E Water Flow (gpm)	774
Customer Water Flow (gpm)	
Well Yield (gpm/ft)	27.1
KW Input	14.0
Horsepower Input	18.8
Percent of Rated Motor Load	66.0
Acre Feet per 24 Hrs	3.4
KWH per Acre Feet	98.2
Overall Plant Efficiency (%)	54.7

TEST REMARKS

- Standing water level based on 5 minute recovery. Well may still be recovering.
- Test results may be impaired due to poor hydraulic test section.

POTENTIAL SAVINGS

Not Applicable

Printed On: 05/19/97
Pump Test version 4.0.0

PG&E Agricultural Services

**** PUMP TEST REPORT ****

Tested By: MICHAEL HANDEL
Test Date: 05/07/97
Customer Plant ID: WELL 7 BOOSTER 1

Location: 2 MAIN ST

Drive: Electric Motor
H.P.: 50
Drive Make: U.S.
Pump Make: Western
PG&E Plant Id:

CUSTOMER MAILING ADDRESS

RUSS VAN VORIS
ECO RESOURCES, INC.
PO BOX 417
RIO VISTA, CA 94571

ACCOUNT INFORMATION

Account No: JPK-69-15002
Control No: 446498 Pump Suffix:B
Meter No: 79800T
Pump Usage: 13,027 KWH / YR
Account Usage: 18,880 KWH / YR
Energy Cost: 11.02 Cents / KWH

---------- TEST RESULTS ----------

Run Number:	**1**
Standing Water Level (ft)	
Drawdown (ft)	
Pumping Water Level (ft)	3.4
Discharge Level (ft)	184.8
Discharge Pressure at Gauge (psi)	80.0
Total Lift (ft)	188.2
PG&E Water Flow (gpm)	804
Customer Water Flow (gpm)	
Well Yield (gpm/ft)	
KW Input	51.0
Horsepower Input	68.4
Percent of Rated Motor Load	123.0
Acre Feet per 24 Hrs	3.6
KWH per Acre Feet	344.5
Overall Plant Efficiency (%)	55.9

---------- TEST REMARKS ----------

- Test results may be impaired due to poor hydraulic test section.

---------- POTENTIAL SAVINGS ----------

The Potential Savings shown below are possible if the overall efficiency of pumping plant is improved to the level indicated under the Estimated After Repairs column.

	PRESENT CONDITIONS	ESTIMATED AFTER REPAIRS	POTENTIAL SAVINGS
Overall Plant Efficiency	55.9	60.9	
Pump Energy Used (KWH)	13,027	11,956	1,071
Annual Cost ($)	$1,436	$1,318	$118
Annual Operating Hours	255	262	-7
Water Flow Rate (gpm)	804	783	-21
Total Lift (ft)	188.2	188.2	
Percent of Rated Motor Load	123.0	110.0	
KWH per Acre Feet	344.5	316.2	28.3
Annual Acre Feet Pumped	37.8	37.8	

Printed On: 05/19/97
Pump Test version 4.0.0

PUMP TEST ANALYSIS

Aquifer Tests from Rio Vista Area Wells:

Pumping Well	Date	Test Duration (hr:min)	Analysis	Transmissivity (ft2/day)	Estimated aquifer thickness (ft)	Hydraulic Conductivity (ft/day)
Well 9	12/14/81	48:00	Cooper-Jacob	3800	352	10.8
Well 9	04/17/98	5:00	Cooper-Jacob	3420	352	9.71
Well 9	04/17/98	5:00	Thies Recovery	3820	352	10.8
Well 12	10/24/95	8:00	Cooper-Jacob	890	52	17.1
Well 12	10/24/95	8:00	Thies Recovery	853	52	16.4

ETIC Engineering, Inc.
2285 Morello Avenue
Pleasant Hill, CA 94523
Phone: 925-602-4710

Pumping test analysis

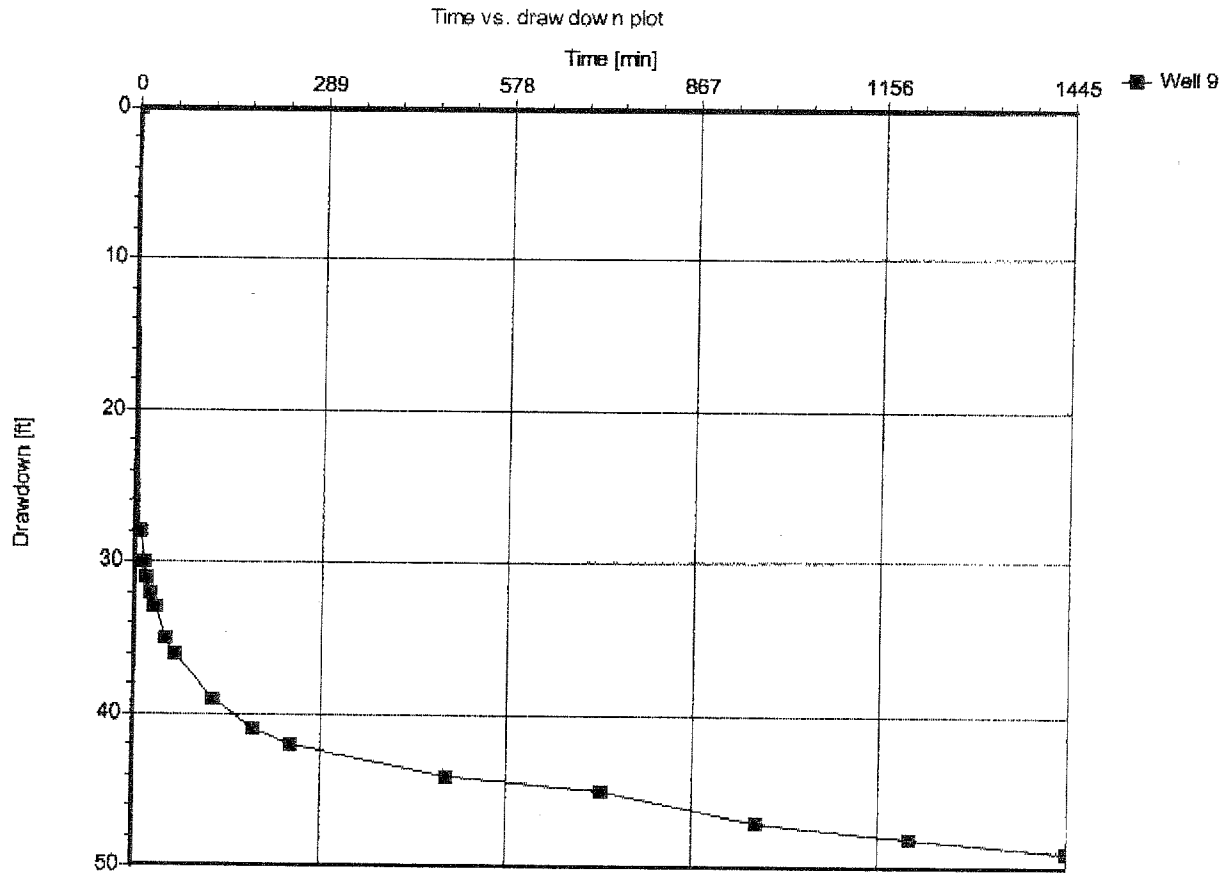
No:

Project: Rio Vista

Client: ENGEO, Inc.

Location: Rio Vista CA	Pumping test: Well 9 - 12/14/81	Pumping well: Well 9

Test performed by: Harris & Assoc	Evaluated by: B. Searcy
Test date: 12/14/1981	Evaluation date: 6/21/2002
Analysis method: Time vs. drawdown plot	Aquifer thickness: 352
	Discharge rate: 1000 [U.S. gal/min]



ETIC Engineering, Inc.
2285 Morello Avenue
Pleasant Hill, CA 94523
Phone: 925-602-4710

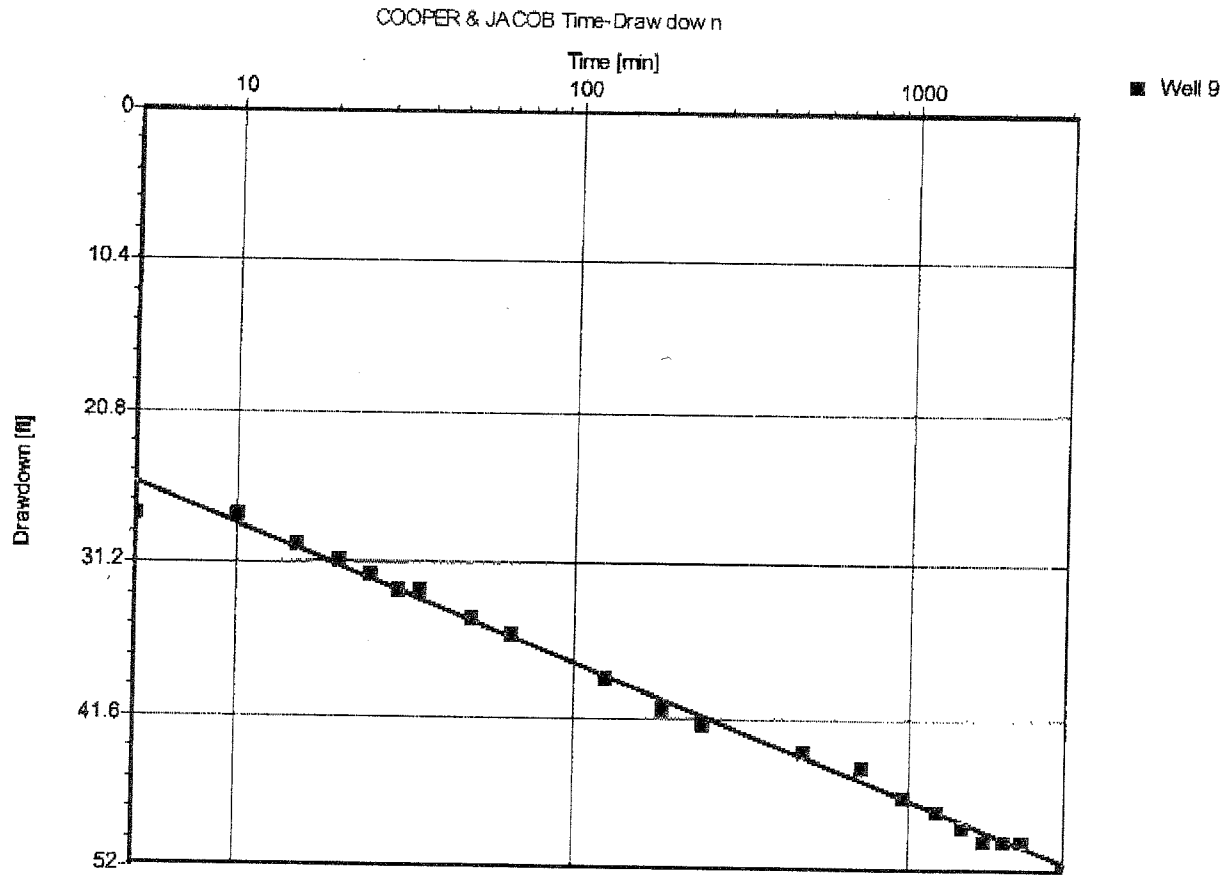
Pumping test analysis

No:

Project: Rio Vista

Client: ENGEO, Inc.

Location:	Rio Vista CA	Pumping test: Well 9 - 12/14/81	Pumping well: Well 9
Test performed by:	Harris & Assoc	Evaluated by:	B. Searcy
Test date:	12/14/1981	Evaluation date:	6/21/2002
Analysis method:	COOPER & JACOB Time-Drawdown	Aquifer thickness:	352
		Discharge rate:	1000 [U.S. gal/min]



Transmissivity: 3.80×10^+3 [ft²/d]

Conductivity: 1.08×10^+1 [ft/d]

ETIC Engineering, Inc.
2285 Morello Avenue
Pleasant Hill, CA 94523
Phone: 925-602-4710

Pumping test analysis

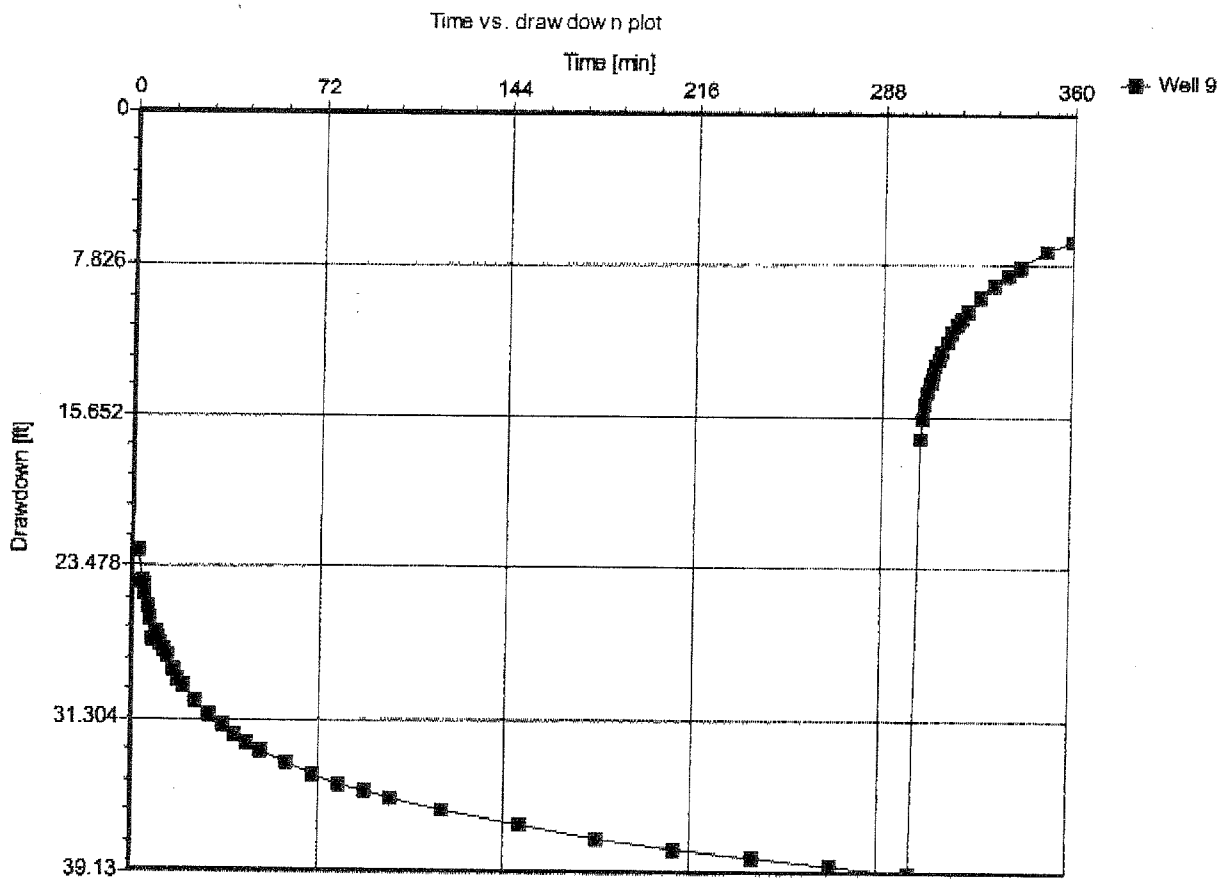
No:

Project: Rio Vista

Client: ENGEO, Inc.

Location: Rio Vista CA	Pumping test: Well 9 - 04/17/98	Pumping well: Well 9

Test performed by: Layne-Western	Evaluated by: B. Searcy
Test date: 4/17/1998	Evaluation date: 6/21/2002
Analysis method: Time vs. drawdown plot	Aquifer thickness: 352
	Discharge rate: 800 [U.S. gal/min]



ETIC Engineering, Inc.
2285 Morello Avenue
Pleasant Hill, CA 94523
Phone: 925-602-4710

Pumping test analysis

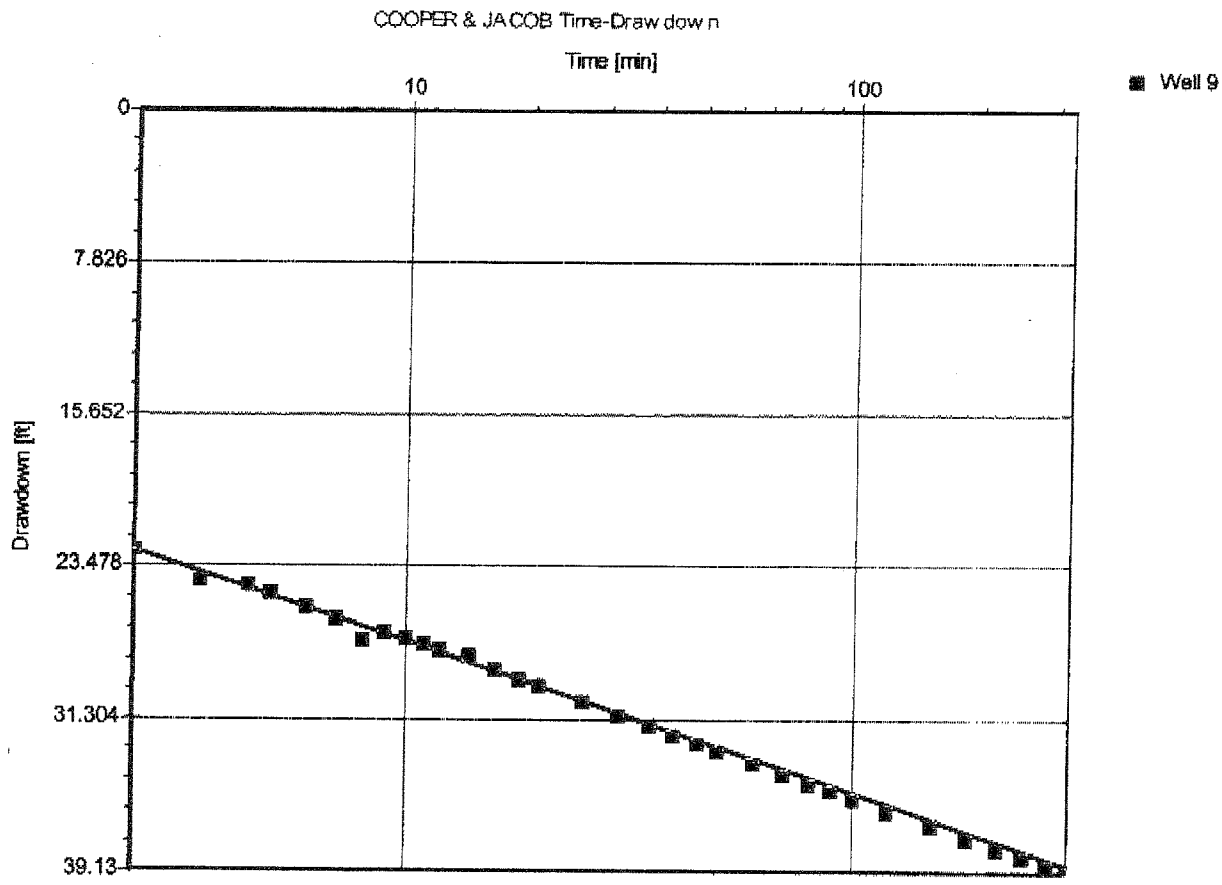
No:

Project: Rio Vista

Client: ENGEO, Inc.

Location: Rio Vista CA	Pumping test: Well 9 - 04/17/98	Pumping well: Well 9

Test performed by:	Layne-Western	Evaluated by:	B. Searcy
Test date:	4/17/1998	Evaluation date:	6/21/2002
Analysis method:	COOPER & JACOB Time-Drawdown	Aquifer thickness:	352
		Discharge rate:	800 [U.S. gal/min]



Transmissivity: 3.64×10^+3 [ft²/d]

Conductivity: 1.03×10^+1 [ft/d]

ETIC Engineering, Inc.
2285 Morello Avenue
Pleasant Hill, CA 94523
Phone: 925-602-4710

Pumping test analysis

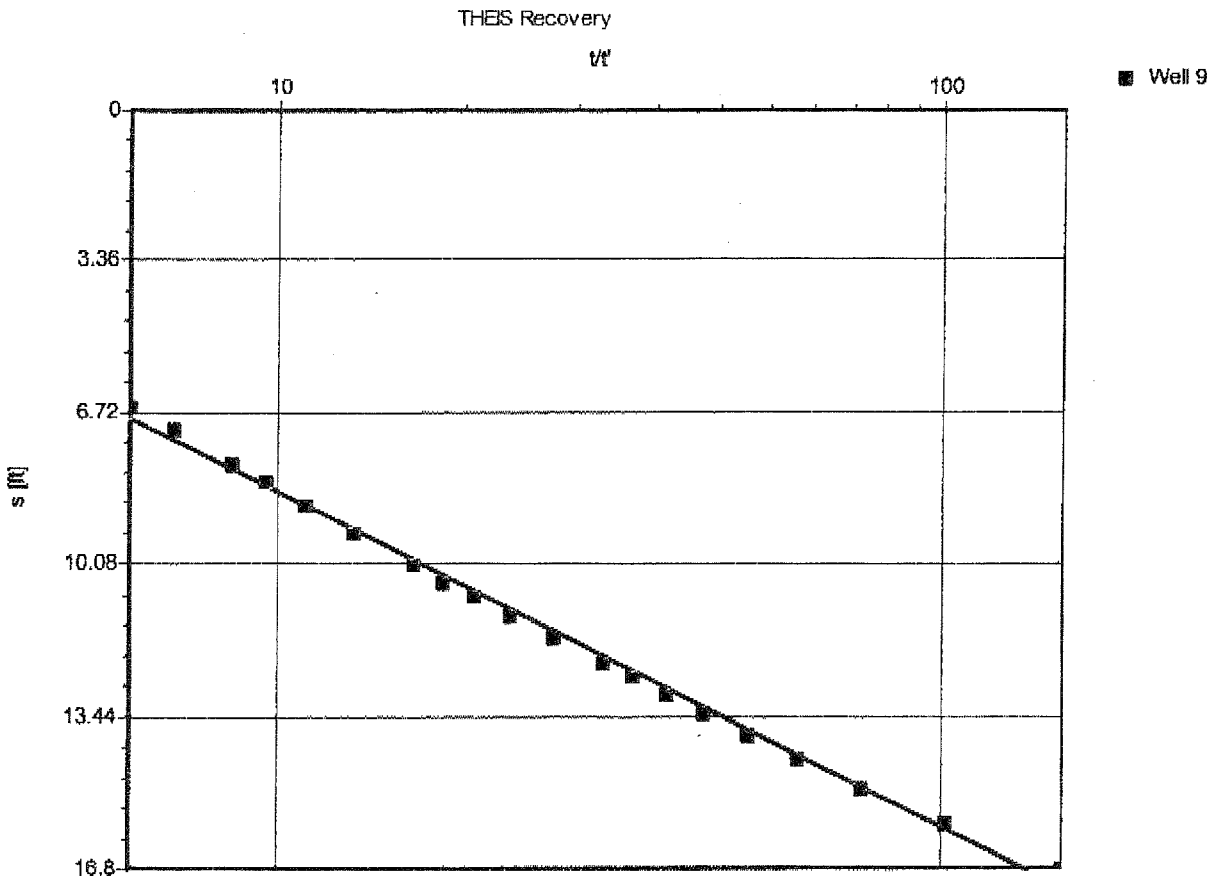
No:

Project: Rio Vista

Client: ENGEO, Inc.

Location: Rio Vista CA	Pumping test: Well 9 - 04/17/98	Pumping well: Well 9

Test performed by: Layne-Western	Evaluated by: B. Searcy
Test date: 4/17/1998	Evaluation date: 6/21/2002
Analysis method: THEIS Recovery	Aquifer thickness: 352
	Discharge rate: 800 [U.S. gal/min]



Transmissivity: 3.82×10^+3 [ft²/d]

Conductivity: 1.08×10^+1 [ft/d]

ETIC Engineering, Inc.
2285 Morello Avenue
Pleasant Hill, CA 94523
Phone: 925-602-4710

Pumping test analysis

No:

Project: Rio Vista

Client: ENGEO, Inc.

Location: Rio Vista CA

Pumping test: Well 12 - 10/24/95

Pumping well: Well 12

Test performed by: Layne-Western

Test date: 10/24/1995

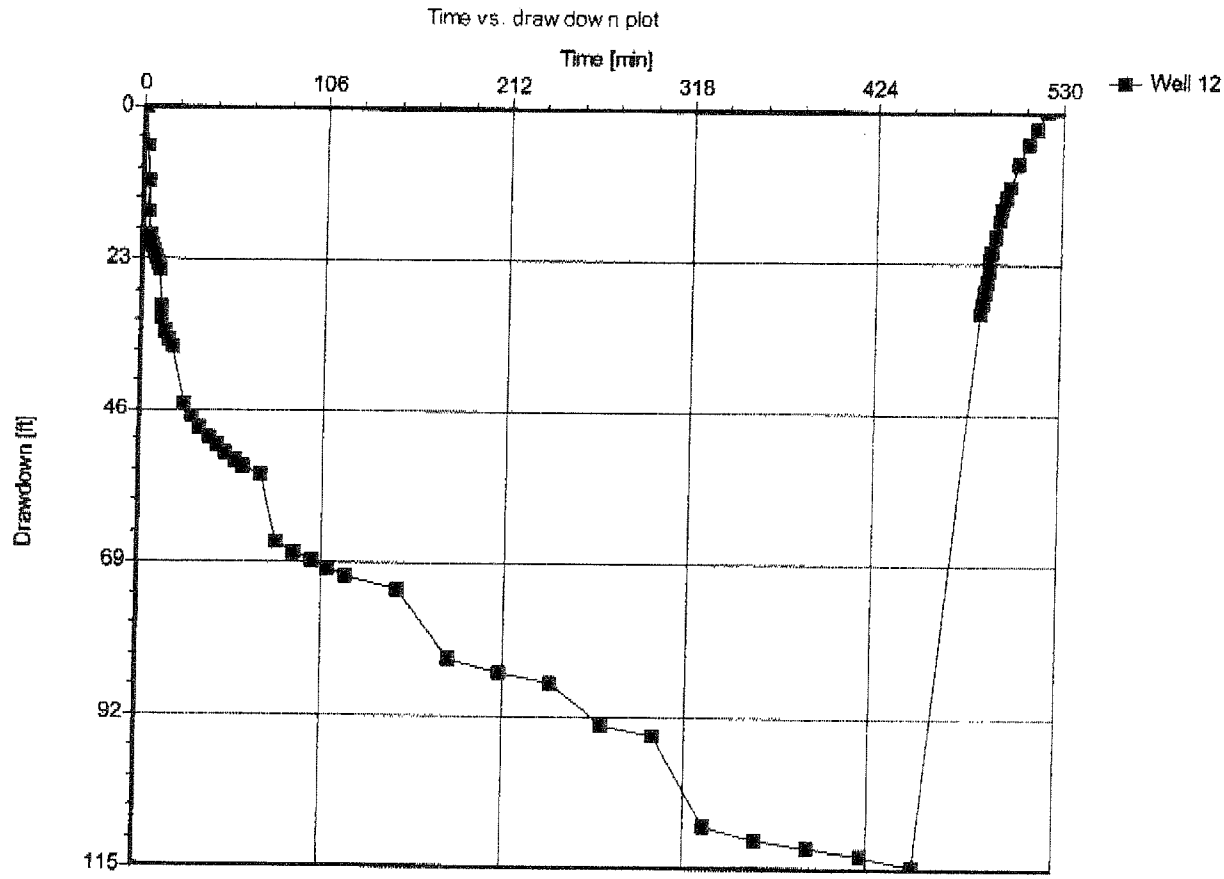
Evaluated by:

Evaluation date: 6/21/2002

Analysis method: Time vs. drawdown plot

Aquifer thickness: 52 [ft]

Discharge rate: 700 [U.S. gal/min]



ETIC Engineering, Inc.
2285 Morello Avenue
Pleasant Hill, CA 94523
Phone: 925-602-4710

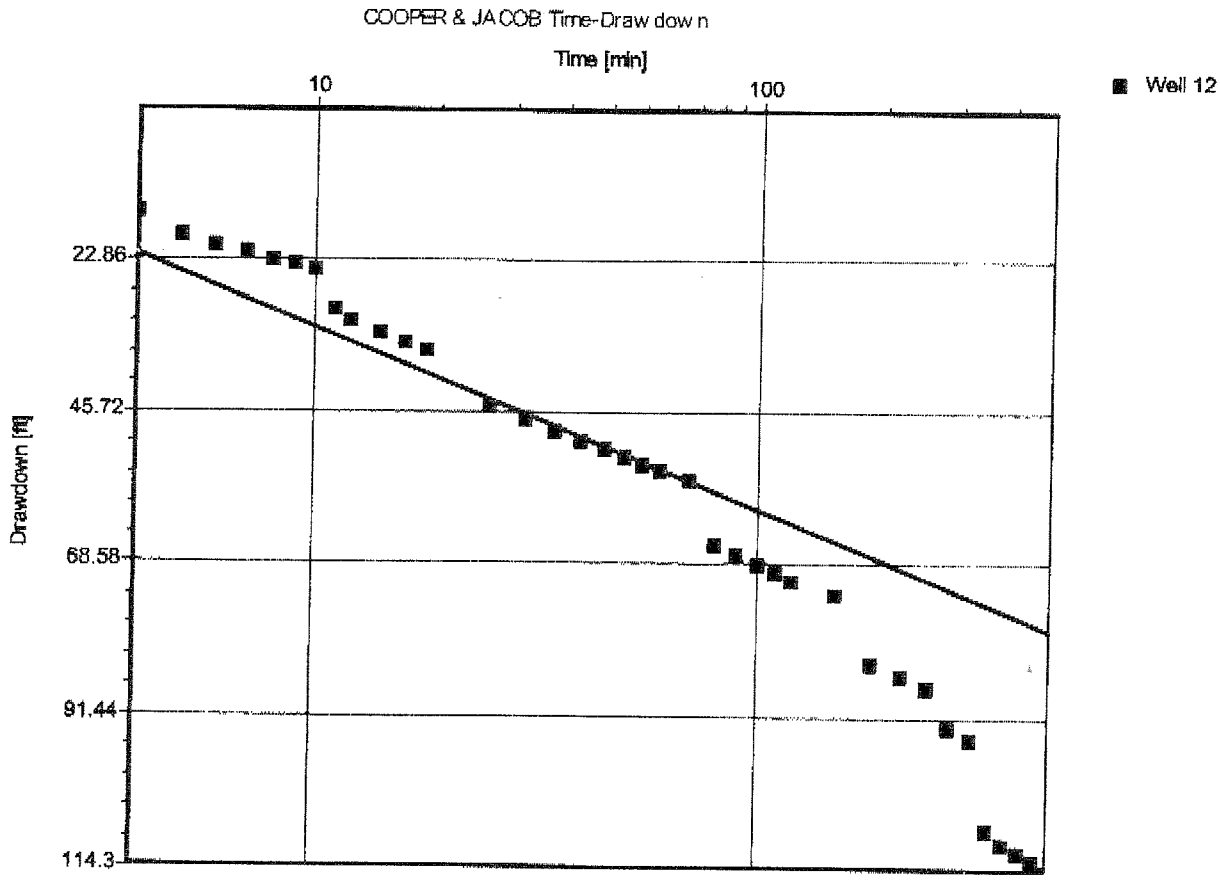
Pumping test analysis

No:

Project: Rio Vista

Client: ENGEO, Inc.

Location:	Rio Vista CA	Pumping test:	Well 12 - 10/24/95	Pumping well:	Well 12
Test performed by:	Layne-Western	Evaluated by:	B. Searcy		
Test date:	10/24/1995	Evaluation date:	6/18/2002		
Analysis method:	COOPER & JACOB Time-Drawdown	Aquifer thickness:	52 [ft]		
		Discharge rate:	700 [U.S. gal/min]		



Transmissivity: 8.94×10^+2 [ft²/d]

Conductivity: 1.72×10^+1 [ft/d]

ETIC Engineering, Inc.
2285 Morello Avenue
Pleasant Hill, CA 94523
Phone: 925-602-4710

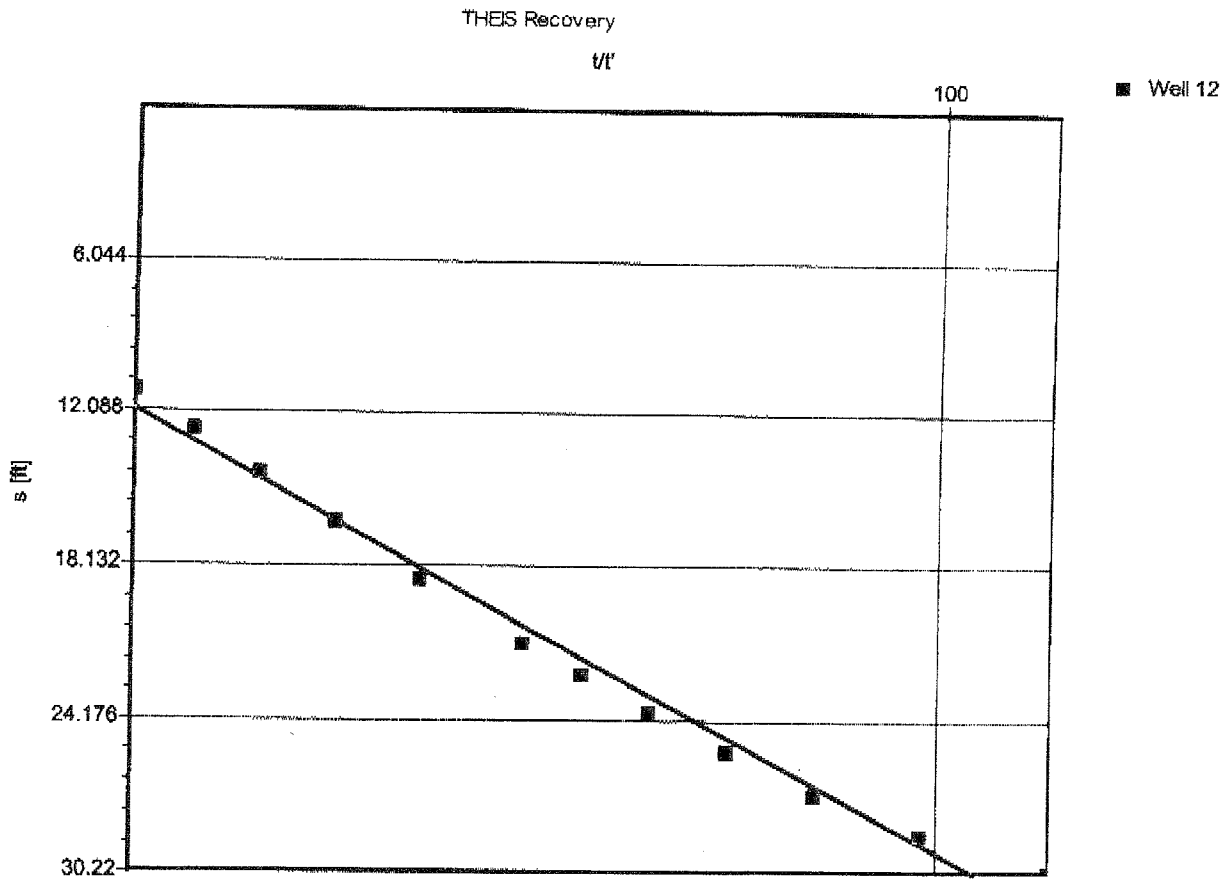
Pumping test analysis

No:

Project: Rio Vista

Client: ENGEO, Inc.

Location:	Rio Vista CA	Pumping test: Well 12 - 10/24/95	Pumping well: Well 12
Test performed by:	Layne-Western	Evaluated by:	B. Searcy
Test date:	10/24/1995	Evaluation date:	6/21/2002
Analysis method:	THEIS Recovery	Aquifer thickness:	52 [ft]
		Discharge rate:	700 [U.S. gal/min]



Transmissivity: 8.53×10^+2 [ft²/d]

Conductivity: 1.64×10^+1 [ft/d]

ECO RESOURCES

2001-2002

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year 3-13-02 **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	136 FT				
Well #10		25 FT			
Well #11	56 FT				
Well #12	54 FT				

Comments

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year 12-20-01 **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	120 FT				
Well #10	24 FT	20 FT			
Well #11	49 FT				
Well #12	52 FT				

Comments

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year 11-15-01 **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	127				
Well #10	22	21			
Well #11	54				
Well #12	53				

Comments

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year 10-18-01 **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	125 FT				
Well #10	23 FT	21 FT			
Well #11	51 FT				
Well #12	50 FT				

Comments

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year 9-10-01 Operator: BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	131 FT	167 FT			
Well #10	23 FT	21 FT			
Well #11	59 FT				
Well #12	54 FT	102 FT			

Comments

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year 8-20-01 **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	130 FT	169 FT			
Well #10	24 FT	23 FT			
Well #11	60 FT				
Well #12					

Comments WELL 10 SOUNDING ON 8-23-01

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year JULY 19 2001 **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	120	171			
Well #10	~~23~~ 22 FT	23 FT			
Well #11	49 FT				
Well #12	130 FT	184			

Comments WELL 12 MAY NOT HAVE BEEN OFF FOR 2 HR. AT THE TIME I DID THE STATIC WELL LEVEL CHECK BB

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year 6-29-01 **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	129 FEET	175 FEET			
Well #10	24 FEET	~~24~~ 22 FEET			
Well #11	61 FEET				
Well #12	58 FEET				

Comments _____

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year 5-29-01 **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	133	178	900		
Well #10	21	23	1300	117	
Well #11	60	163	1630	81.5	
Well #12	44				

Comments

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year 4-26-01 (APRIL) **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	124 FT				
Well #10	25 FT				
Well #11	51 FT				
Well #12	51 FT				

Comments_____

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year MAR 27, 2001 **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	121 FT				
Well #10	24 FT				
Well #11	50 FT				
Well #12					

Comments

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year 2-18-02 **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	123 FT				
Well #10		22 FT			
Well #11	51 FT				
Well #12	419 FT				

Comments

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year FEB 14, 2001 **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	121 FT				
Well #10	30 FT				
Well #11	49 FT				
Well #12					

Comments

ECO Resources, Inc./Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year 1-13-02 **Operator:** BB

Pump Site	SWL	PWL	Flow (GPM)	PSI	Bowls
Well #7					
Well #8					
Well #9	122 FT				
Well #10	23 FT	21 FT			
Well #11	50 FT				
Well #12	51 FT				

Comments

Eco Resources, Inc. / Rio Vista
Monthly Well "Sounding" Data Sheet

Month/Day/Year JULY 20 2000 Operator Kdh – BB

Pump Site	SWL	PWL	Flow (gpm)	PSI	Bowls
Well# 7	8'	10'			
Well# 8					
Well# 9	150'	178'	900		
Well# 10	24'		1350		
Well# 11	49.75'	44.75/~~48.25~~	1075	61.8/93	
Well# 12	2.5'	2.5	1100	—	

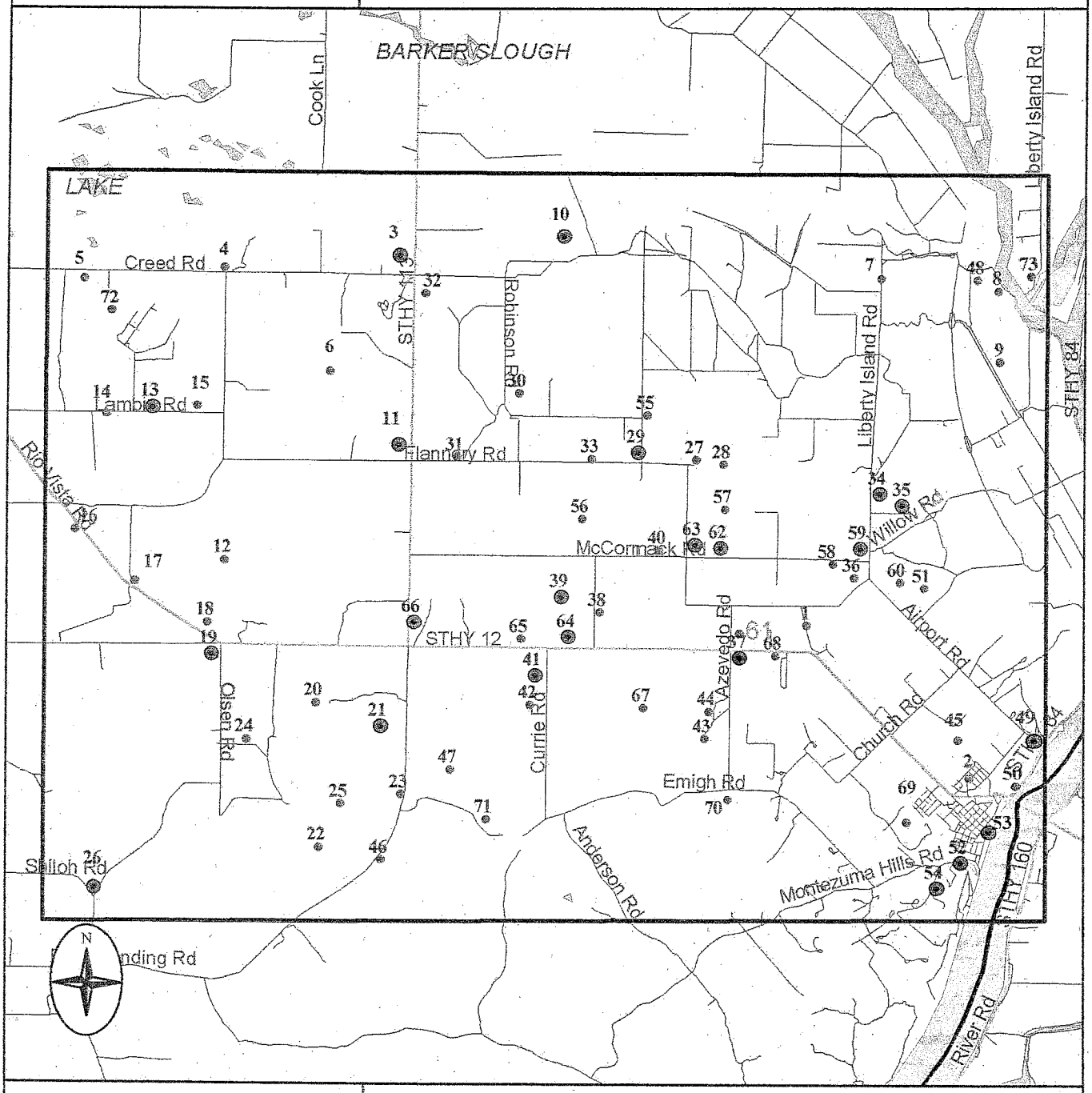
Comments #12 pressure tank o/s.
#8 - unable to access well head. Both 3" lines blocked w/ gravel.

CA Dept of
Water Resources

Banks Information Solutions, Inc.

Water Well Report™

Map of Wells within Defined Polygon



- Subject Site
- Ground Water Wells (Cluster)
- Ground Water Well
- Airport
- Hospital
- Highway
- Primary road
- Secondary and connecting road
- Local road
- Access road
- Water body
- Park
- State

0 1 2 3 4 Miles

Banks Information Solutions, Inc.
P.O. Box 12851, Capitol Station Austin, Texas 78711
1701 Nueces Austin, Texas 78701
512-478-0059 FAX 512-478-1433 E Mail: BANKS@BANKSINFO.COM

May 14, 2002

MAP ID

14

See Attached Documents

ORIGINAL
File with DWR

Page 1 of 4

Owner's Well No. _____

Date Work Began 3-30-93, Ended 5-15-93

Local Permit Agency Solano County

Permit No. W-93-09 Permit Date 3-30-93

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 473519

DWR USE ONLY — DO NOT FILL IN

04N01E03J M

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	2'	gravel
2'	8'	grey clay
8'	22'	br. clay, sticky
22'	58'	lgt. br. sandy clay
58'	62'	sticky brn. clay
62'	99'	sticky lgt. br. clay
99'	110'	sticky clay & little snd. bits
110'	125'	sticky br. clay
125'	139'	streaks of sandy clay
139'	144'	sticky br. clay
144'	145'	fine sand
145'	151'	sandy br. clay
151'	167'	tan to br. clay
167'	201'	sandy lgt br. clay
201'	214'	sandy clay
214'	220'	sandy br. clay
220'	230'	br. sticky clay
230'	235	sandy sticky br. clay
235	240	br. clay
240	250	sandy br. clay
250	260	little sand, br. clay
260	280	sandy br. clay
280	290	sandy br. clay
290	300	sandy br. clay
300	310	sandy br. clay
310	320	grey sandy clay w/sand
320	331	grey clay w/sand streaks
331	341	layered fine sndy br. clay
341	354	br. clay sandy
354	363	coarse snd & fine gravel

TOTAL DEPTH OF BORING 600 (Feet)

TOTAL DEPTH OF COMPLETED WELL 565 (Feet)

WELL OWNER

Name California Dept. of Forestry

Mailing Address P.O. Bx. 670

Santa Rosa (CITY) CA (STATE) 95402-0670 (ZIP)

WELL LOCATION

Address 6246 Lambie Rd.

City Suisun City

County Solano

APN Book 048 Page 010 Parcel 021

or Township 04N Range 01E Section 03 SE 1/4

or Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR

___ Deepen

___ Other (Specify)

___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USE(S) (✓)

___ MONITORING

WATER SUPPLY

___ Domestic

X Public

___ Irrigation

___ Industrial

___ "TEST WELL"

___ CATHODIC PROTECTION

___ OTHER (Specify)

DRILLING METHOD Rotary FLUID Mud

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 60.4 (Ft.) & DATE MEASURED 5-15-93

ESTIMATED YIELD* 40 (GPM) & TEST TYPE Pump

TEST LENGTH 6 (Hrs.) TOTAL DRAWDOWN 124.4 (Ft.)

** May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL/ GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	75	18	x				steel	8	.25	
75	95	18		x			steel	8	.25	.040"
95	105	18	x				steel	8	.25	
105	115	18		x			steel	8	.25	.040"
115	145	18	x				steel	8	.25	
145	155	18		x			steel	8	.25	.040"

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	65	x			
65	565			x	sorted sands 6 x 50

ATTACHMENTS (✓)

___ Geologic Log

___ Well Construction Diagram

X Geophysical Log(s)

___ Soil/Water Chemical Analyses

___ Other _____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME LAYNE WESTERN CO. 147
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

P.O. Box 1326 (ADDRESS) Woodland (CITY) CA (STATE) 95776 (ZIP)

Signed Kenneth W Wonto (WELL DRILLER/AUTHORIZED REPRESENTATIVE) 8-10-93 (DATE SIGNED) 510011 (C-57 LICENSE NUMBER)

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

060950002 9

ORIGINAL
File with DWR

Page 2 of 4

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 4735~~2~~19

Owner's Well No. _____

Date Work Began _____, Ended _____

Local Permit Agency _____

Permit No. _____ Permit Date _____

DWR USE ONLY — DO NOT FILL IN

04N01E03J M

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DEPTH TO FIRST WATER _____ (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
363	372	sandy brn. clay
372	381	sand fine to coarse
381	399	layered sand & br. clay
399	420	brn. sandy clay
420	425	little sandy br. clay
425	427	layered sandy br. clay
427	433	fine sand & br. clay
433	439	fine sand & br. clay
439	444	fine sand & br. clay
444	449	brn clay
449	460	fine sand & br. clay
460	480	layered sand & br. clay
480	500	layered sand & br. clay
500	515	layered sand & br. clay
515	545	sand & coarse w/br. clay
545	574	brn. clay w/streaks of sand
574	581	sandy br. clay
581	584	hard rock stringers
584	600	grey clay w/thin rock stringers

TOTAL DEPTH OF BORING _____ (Feet)

TOTAL DEPTH OF COMPLETED WELL _____ (Feet)

WELL OWNER

Name _____

Mailing Address _____

CITY STATE ZIP

WELL LOCATION

Address _____

City _____

County _____

APN Book 048 Page 010 Parcel 021

or Township 04N Range 01E Section 03 J

or Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR

___ Deepen

___ Other (Specify)

___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USE(S) (✓)

___ MONITORING

WATER SUPPLY

___ Domestic

___ Public

___ Irrigation

___ Industrial

___ "TEST WELL"

___ CATHODIC PROTECTION

___ OTHER (Specify)

DRILLING METHOD _____ FLUID _____

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL _____ (Ft.) & DATE MEASURED _____

ESTIMATED YIELD* _____ (GPM) & TEST TYPE _____

TEST LENGTH _____ (Hrs.) TOTAL DRAWDOWN _____ (Ft.)

** May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL/ GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
155	165	18	x				Steel	8	.25	
165	175	18		x			Steel	8	.25	.04
175	245	18	x				Steel	8	.25	
245	255	18		x			Steel	8	.25	.04
255	330	18	x				Steel	8	.25	
330	340	18		x			Steel	8	.25	.04

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log

___ Well Construction Diagram

___ Geophysical Log(s)

___ Soil/Water Chemical Analyses

___ Other _____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME _____ (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS CITY STATE ZIP

Signed _____ WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR
Page 4

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 473529

Owner's Well No. _____
Date Work Began _____, Ended _____
Local Permit Agency _____
Permit No. _____ Permit Date _____

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.: 04N01 E03J1 M
LATITUDE _____ LONGITUDE _____
APN/TRS/OTHER _____

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DEPTH TO FIRST WATER _____ (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*

TOTAL DEPTH OF BORING _____ (Feet)
TOTAL DEPTH OF COMPLETED WELL _____ (Feet)

WELL OWNER

Name _____
Mailing Address _____
CITY _____ STATE _____ ZIP _____

WELL LOCATION

Address _____
City _____
County _____
APN Book 048 Page 010 Parcel 021
or Township 04N Range 01E Section 03J
or Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH
WEST EAST
SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USE(S) (✓)

___ MONITORING
WATER SUPPLY
___ Domestic
___ Public
___ Irrigation
___ Industrial
___ "TEST WELL"
___ CATHODIC PROTECTION
___ OTHER (Specify)

DRILLING METHOD _____ FLUID _____

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL _____ (Ft.) & DATE MEASURED _____
ESTIMATED YIELD* _____ (GPM) & TEST TYPE _____
TEST LENGTH _____ (Hrs.) TOTAL DRAWDOWN _____ (Ft.)
** May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL/GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
340 to 360	18	x				Steel	8	.25	
360 to 380	18		x			Steel	8	.25	.04
380 to 465	18	x				Steel	8	.25	
465 to 475	18		x			Steel	8	.25	.04
475 to 515	18	x				Steel	8	.25	
515 to 525	18		x			Steel	8	.25	.04

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE: CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other _____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME _____
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS _____ CITY _____ STATE _____ ZIP _____

Signed _____ WELL DRILLER/AUTHORIZED REPRESENTATIVE _____ DATE SIGNED _____ C-57 LICENSE NUMBER _____

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

Page 4 of 4

Owner's Well No. _____

Date Work Began _____, Ended _____

Local Permit Agency _____

Permit No. _____ Permit Date _____

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 473519

DWR USE ONLY — DO NOT FILL IN

04N01E03J M

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DEPTH TO FIRST WATER _____ (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*

TOTAL DEPTH OF BORING _____ (Feet)

TOTAL DEPTH OF COMPLETED WELL _____ (Feet)

WELL OWNER

Name _____

Mailing Address _____

CITY STATE ZIP

WELL LOCATION

Address _____

City _____

County _____

APN Book 048 Page 010 Parcel 021

or Township 04N Range 01E Section 03 J

or Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR

___ Deepen

___ Other (Specify)

___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USE(S) (✓)

___ MONITORING

WATER SUPPLY

___ Domestic

___ Public

___ Irrigation

___ Industrial

___ "TEST WELL"

___ CATHODIC PROTECTION

___ OTHER (Specify)

DRILLING METHOD _____ FLUID _____

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL _____ (Ft.) & DATE MEASURED _____

ESTIMATED YIELD* _____ (GPM) & TEST TYPE _____

TEST LENGTH _____ (Hrs.) TOTAL DRAWDOWN _____ (Ft.)

** May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL/ GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
525 to 535	18	x				Steel	8	.25	
535 to 545	18		x			Steel	8	.25	.04
545 to 565	18	x				Steel	8	.25	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log

___ Well Construction Diagram

___ Geophysical Log(s)

___ Soil/Water Chemical Analyses

___ Other _____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME _____
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS CITY STATE ZIP

Signed _____ DATE SIGNED _____ C-57 LICENSE NUMBER _____
WELL DRILLER/AUTHORIZED REPRESENTATIVE

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

Page 1 of 1

Owner's Well No. 258176

Date Work Began 06/15/93, Ended 06/15/93

Local Permit Agency Solano County Enviromental Mgt.

Permit No. W 93-06 Permit Date N/A

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 420532

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO. 04N02E12

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	3	Soil
3	24	Clay
24	30	Sand & Fine Gravel
30	85	Brown Clay
85	135	Blue Clay
135	160	Brown Clay
160	180	Fine Gravel & Sand

TOTAL DEPTH OF BORING 180 (Feet)

TOTAL DEPTH OF COMPLETED WELL 180 (Feet)

WELL OWNER

Name Manuel Ruiz

Mailing Address 5420 Chauncey Way

Orangevale CA 95662
CITY STATE ZIP

WELL LOCATION

Address 175 Ft. South of B & R Lane

City 450 Ft. East of Liberty Island Rd.

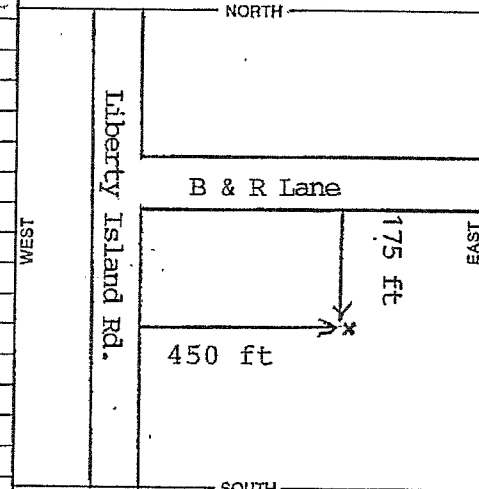
County Solano

APN Book 0048 Page 330 Parcel 020

or Township 4 N Range 2 E Section 12

or Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH



Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR

___ Deepen

___ Other (Specify)

___ DESTROY (*Describe Procedures and Materials Under "GEOLOGIC LOG"*)

PLANNED USE(S) (✓)

___ MONITORING

WATER SUPPLY

X Domestic

___ Public

___ Irrigation

___ Industrial

___ "TEST WELL"

___ CATHODIC PROTECTION

___ OTHER (Specify)

DRILLING METHOD Rotary FLUID Mud

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD* ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL/ GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	160	9"	X				F-480	5"	1/4"	
160	180	9"		X			F-480	5"	1/4"	.032

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	12	X			
12	30		X		
30	180				Pea Gravel 1/4" X 1/2"

ATTACHMENTS (✓)

___ Geologic Log

___ Well Construction Diagram

___ Geophysical Log(s)

___ Soil/Water Chemical Analyses

___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Vaca Drilling Co. / Del Crew Jr.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS P. O. Box 759 Vacaville CA 95696
CITY STATE ZIP

Signed Delbert Crew Jr.
WELL DRILLER/AUTHORIZED REPRESENTATIVE

DATE SIGNED

532679
C-57 LICENSE NUMBER

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

0609500064

190

MAP ID

35

See Attached Documents

ORIGINAL
File with DWR

Page 1 of 1

Owner's Well No. B 05338

Date Work Began 07/21/99, Ended 07/22/99

Local Permit Agency Solano County Environmental Mgt.

Permit No. W-99-28 Permit Date 07/06/99

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 822165

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO. 04N02E12

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD Rotary FLUID Mud

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	2	Soil
2	30	Clay
30	36	Sand
36	65	Clay
65	71	Sand
71	142	Clay
142	148	Sand
148	184	Clay
184	190	Sand
190	200	Clay

TOTAL DEPTH OF BORING 200 (Feet)

TOTAL DEPTH OF COMPLETED WELL 200 (Feet)

WELL OWNER

Name Gustavo Valladares

Mailing Address 301 Santa Clara Street

City Rio Vista State CA Zip 94571

WELL LOCATION

Address 1500 Ft. East of Liberty Island Rd.

City 40 FT. North of B & R Lane

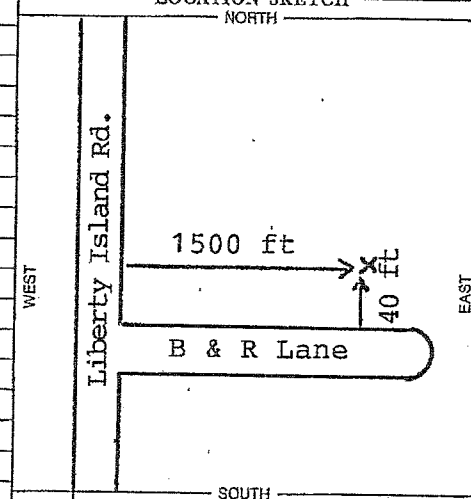
County Solano

APN Book 0048 Page 330 Parcel 080

Township 4N Range 2E Section 12

Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)

WATER SUPPLY
X Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	60	10"	X				F-480	5"	1/4"	
60	80	10"		X			F-480	5"	1/4"	.032
80	140	10"	X				F-480	5"	1/4"	
140	160	10"		X			F-480	5"	1/4"	.032
160	180	10"	X				F-480	5"	1/4"	
180	200	10"		X			F-480	5"	1/4"	.032

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE: CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	24		X		
24	200				Birdseye Gravel

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME VACA DRILLING CO./ Del Crew Jr.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS P. O. Box 759 CITY Vacaville STATE CA ZIP 95696

Signed Delbert Crew Jr. (WELL DRILLER/AUTHORIZED REPRESENTATIVE) DATE SIGNED 7-27-99 C-57 LICENSE NUMBER 532679

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

190

9095800070

MAP ID

36

See Attached Documents

ORIGINAL

File with DWR

Notice of Intent No. 175075

Permit No. or Date

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in

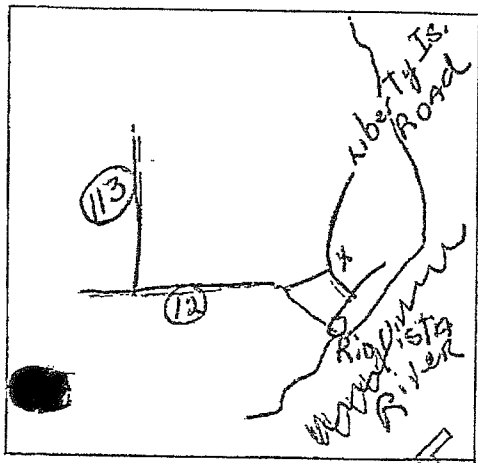
No. 086801

State Well No.

Other Well No. 4N/2E-13

(1) OWNER: Name Gay Forstromm
Address P.O. Bx 328,
City Rio Vista, CA Zip 94571

(2) LOCATION OF WELL (See instructions):
County ~~Sacramento~~ SOLANO Owner's Well Number
Well address if different from above Liberty Island Road
Township Rio Vista Range Section
Distance from cities, roads, railroads, fences, etc. 500 yds. E. of Liberty Isl. Rd. approx.



WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic ☒
Irrigation ☐
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☐
Other ☐

(5) EQUIPMENT:
Rotary ☐ Reverse ☐
Cable ☒ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☐ No ☒ Size
Diameter of bore
Packed from to ft.

(7) CASING INSTALLED:
Steel ☒ Plastic ☐ Concrete ☐

(8) PERFORATIONS:
Type of perforation or size of screen Mill slot

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	272	6	12	256	268	1/16x2

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 20 ft.
Were strata sealed against pollution? Yes ☐ No ☒ Interval ft.
Method of sealing cement grout

(10) WATER LEVELS:
Depth of first water, if known 54 ft.
Standing level after well completion 36 ft.

(11) WELL TESTS:
Was well test made? Yes ☒ No ☐ If yes, by whom? Driller
Type of test Pump ☒ Bailer ☐ Air lift ☐
Depth to water at start of test 36 ft. At end of test 43 ft
Discharge 60 gal/min after 72 hours Water temperature unk
Chemical analysis made? Yes ☒ No ☐ If yes, by whom? Driller
Was electric log made? Yes ☐ No ☒ If yes, attach copy to this report

(12) WELL LOG: Total depth 272 ft. Depth of completed well 272 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	9	Top Soil/ Hard Pan
9	54	Yellow Clay
54	71	San & Yellow Clay
71	258	Yellow Clay
258	266	Sand
266	272	Yellow Clay

Work started December 78 Completed Jan. 1979

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED [signature], owner
(Well Driller)

NAME PACIFIC WATER SYSTEMS
(Person, firm, or corporation) (Typed or printed)
Address Rt. 1 Bx 73, Hwy #4
City Oakley, CA Zip 94561
License No. 284584 Date of this report 4-10-79

DWR 188 (REV. 7-76). IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

UNOFFICIAL COPY
NOT FOR PUBLIC USE
WATER CODE SEC. 13752

0609500071

ENGEO
INCORPORATED