

NAWS CL TP 004
Volume 1

Indian Wells Valley Deep Well Drilling Project

Volume 1. Data Report (1990-1992)

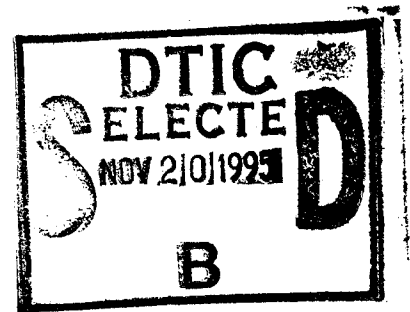
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OCTOBER 1995



NAVAL AIR WEAPONS STATION
CHINA LAKE, CA 93555-6001



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Naval Air Weapons Station China Lake

FOREWORD

The research described in this report was performed at the Naval Air Weapons Station China Lake, Calif., during fiscal years 1990 through 1992 as part of a collaborative effort to define the geohydrologic conditions in the Indian Wells Valley and adjacent canyons. The project was jointly financed and coordinated by the Naval Air Weapons Station China Lake, United States Bureau of Reclamation, Indian Wells Valley Water District, and North American Chemical Company.

The results of this project are reported in a two-volume series and were reviewed for technical accuracy by Thomas Campbell.

Approved by
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Capt. U.S. Navy
Public Works Officer
1 October 1995

Under authority of
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13. ABSTRACT (Maximum 200 words)

(U) The primary objective of the well-drilling project was to refine the geohydrologic conditions in the IWV and adjacent canyons. All wells were drilled between August 1990 and September 1992. Ten well sites were selected using the following criteria: (1) existing geohydrologic condition, (2) interpretation of geophysical surveys, (3) depth to water, (4) potential recharge zone determination, and (5) density of existing well-related data in the area. A location map and description of the drilling procedure for each well is provided. Well data collected included formation samples, electric logs, depth to groundwater, transmissivity estimates, hydraulic connections, and temperature-gradient logs. Water quality analyses and depth-to-groundwater measurements were performed on all completed wells. Appendixes A through E consolidate these data for review.

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INTRODUCTION

In 1990, the Naval Air Weapons Station (NAWS) China Lake, Calif., entered into a memorandum of understanding with the United States Bureau of Reclamation (BR), Indian Wells Valley Water District (IWVWD), and North American Chemical Company (NACC) to drill a series of deep test wells to characterize the geohydrologic conditions in the Indian Wells Valley (IWV).

Ten deep test wells were drilled between August 1990 and September 1992. The drilling of seven wells, designated as BR-1 through BR-6 and BR-10, was funded through a cooperative agreement between the sponsoring agencies. The IWVWD funded the drilling of Monitor Well (MW)-32 and the Neal Ranch (NR)-1 and NR-2 wells.

All wells were drilled to approximately 2000 feet and multiple-cased to 4 feet per borehole. The SNORT well, so named because of its proximity to China Lake's Supersonic Naval Ordnance Research Track, was drilled by the Geothermal Program Office as part of the Geothermal Exploration Project.

The primary objective of the well drilling program was to define the geohydrologic conditions in the IWV and adjacent canyons. All data were collected between August 1990 and September 1992. Appendixes A through E consolidate these data for review.

TEST WELL LOCATIONS

Each member of the Technical Subcommittee submitted a prioritized list of 10 potential test well locations accompanied by a brief rationale for selecting each location. Selection criteria for the 10 sites chosen from the initial list of 16 included the following:

1. Existing geohydrologic condition
2. Interpretation of geophysical surveys
3. Depth to water
4. Potential recharge zone as determined by the existing isohyetal (a line on a map connecting areas of equal rainfall) maps and meteorological data
5. Completeness of existing well-related data in the area

A final prioritized list was made denoting the geographic positions of the test wells. This list included the township, range, and section location of each well. The exact drilling site for each test well was guided by (1) approachability, (2) environmental and safety concerns, and (3) land ownership. All wells were located on public lands to eliminate any future land accessibility problems.

The location of each test well and a rationale for drilling at each site follows in order of decreasing priority.

SITE 1. T27S/R38E—SECTION 23 (BR-1)

Exposures of Pleistocene sediments, coupled with Bouger gravity and refraction studies, indicate the potential for a groundwater divide and/or a structural high in the southwest portion of the IWV. Hydraulic conductivity in BR-1 could be much lower than in the Valley fill, which could impact the estimate of recharge to the Valley from the southwest watersheds.

SITE 2. T27S/R38E—SECTION 11 (BR-2)

The relationship of the water level, water quality, and geologic log of BR-2, as compared to similar attributes in BR-1, may lend insight into the area, which has been modeled as one of the largest recharge sources to the Valley. Distinct water quality and water level differences may exist between BR-1 and BR-2 based on the subsurface configuration of the potential structural high.

BR-2 was completed in Section 02.

SITE 3. T27S/R39E—SECTION 10 (BR-3)

BR-3 was selected to explore the southern portion of the Intermediate Wellfield. Water quality at depth could have some bearing on the long-term operation of the Intermediate Wellfield. Because the valley-fill sediments may be interfingered Sierran-derived sediments and sediments from the El Paso Mountains, a notable difference may exist in hydraulic conductivity when compared to the wells on the west side of the Valley.

BR-3 was completed in Section 11.

SITE 4. T26S/R40E—SECTION 26 (BR-4)

The water quality and stratigraphy below the pumping horizon of the wellfield at BR-4, located in the middle of the Intermediate Wellfield, are of particular interest because of their potential to affect overall wellfield water quality. The refraction survey shows a distinct velocity increase at a depth of approximately 1300 feet—the proposed top of the Ricardo Formation. The existence of an upwelling of deep water into the Intermediate Wellfield has been suggested.

SITE 5. T25S/R38E—SECTION 34 (BR-5)

The Bouger gravity, magnetic, and refraction surveys indicate a potential depositional basin to the east and northeast of BR-5. The geologic and geophysical logs

from BR-5, NR-1, and NR-2 should indicate the depositional history of the area and extent of the apparent fine-grained deposits. The water quality data may have an impact on future groundwater pumping distribution in the western portion of the Valley. The water table elevation at BR-5, when compared to the NR wells, will indicate the recharge gradient.

SITE 6. T25S/R38E—SECTION 10 (BR-6)

The Sierra Nevada watershed, west of BR-6, was modeled as one of the larger recharge sources for the Valley. The BR-6 site also appears to be located above the depositional basin as defined by previous surveys. The combined geologic and geophysical logs from the BR-6 and BR-7 sites should indicate the depositional history of the area in addition to the presence and extent of any fine-grained deposits. The water quality data should indicate the potential for future pumping distribution. The water table elevation at BR-6, when compared with BR-7, will indicate the recharge gradient.

BR-6 was completed in Section 12.

SITE 7. T25S/R30E—SECTION 08 (BR-7)

BR-7 is a "companion" site to BR-6. Data collected from BR-7 will augment the data collected from BR-6. Answers to the following questions may be determined:

1. How extensive is the fine-grained material?
2. How representative is the water quality variation at depth?
3. How steep is the water table gradient in the area?

SITE 8. T25S/R39E—SECTION 34 (BR-8)

Although the BR-8 well was not completed because of funding constraints, the site was selected based on a previous geologic survey. The vertical and horizontal extent of the Pleistocene deposits in the area may impact the long-term pumping potential of the area. The groundwater yield from the deposits is suspected to be very low and, in many cases, water quality is poor.

SITE 9. T25S/R39E—SECTION 30 (BR-9)

A deep well in the China Lake Playa area would provide insight into the depositional history of the Valley. The indication of a Pleistocene depositional basin in the northwest portion of the Valley suggests that the center of the fine-grained deposition was not always on the east side of the Valley. Is there potential for groundwater production below the playa? The horizontal and vertical extent of these deposits in the aquifer horizon can have significant impact on future pumping distribution decisions because the groundwater yield from these deposits is low and, in many cases, the water quality is poor.

The BR-9 well was not completed because of funding constraints.

SITE 10. T24S/R38E—SECTION 22 (BR-10)

Nine Mile Canyon is estimated to be a relatively large contributor of recharge to the northwest portion of the Valley. Water quality differences with depth may yield insight as to the depth of section through which the recharge flows. BR-10 also was selected because of the potential depositional center migration during recent geologic time. BR-10 was completed in Section 21.

DRILL HOLE COMPLETIONS

A brief narrative of the drilling procedure and completion description of each well follows in order of well location priority. A location map (Figure 1) is provided.

BUREAU OF RECLAMATION (BR) WELLS

BR-1

BR-1 is approximately 200 feet west of Red Rock Road and 5.2 miles south of Inyokern. Drilling by the Southern California Drilling Company began on 15 February 1991 and was completed on 5 March 1991. The 12 1/4-inch borehole was drilled to a depth of 1910 feet. The drilling rate was relatively consistent until a depth of 1700 feet. The drilling time per 30-foot joint to 1700 feet was approximately 1 hour. From 1700 to 1830 feet, the time required for drilling per joint increased to 2 hours. The drilling of the last full 30-foot joint took approximately 6 hours. Although the change in penetration rate per joint is characteristic of drill-bit failure, the bit was reported to be in relatively good shape. Four wells were set, with the bottom of the 20-foot sections of screen at 1770, 1520, 1060, and 635 feet below the surface.

BR-2

BR-2 is approximately 1 1/4 miles south of Highway 178 at the south end of Sierra Vista Road. Drilling by the Southern California Drilling Company began on 1 October 1990 and was completed on 24 October 1991. The 12 1/4-inch borehole was drilled to a depth of 2020 feet. The penetration rate was relatively consistent throughout the borehole. Three wells were set with the bottom of the 20-foot sections of screen at 1960, 1480, and 640 feet below the surface.

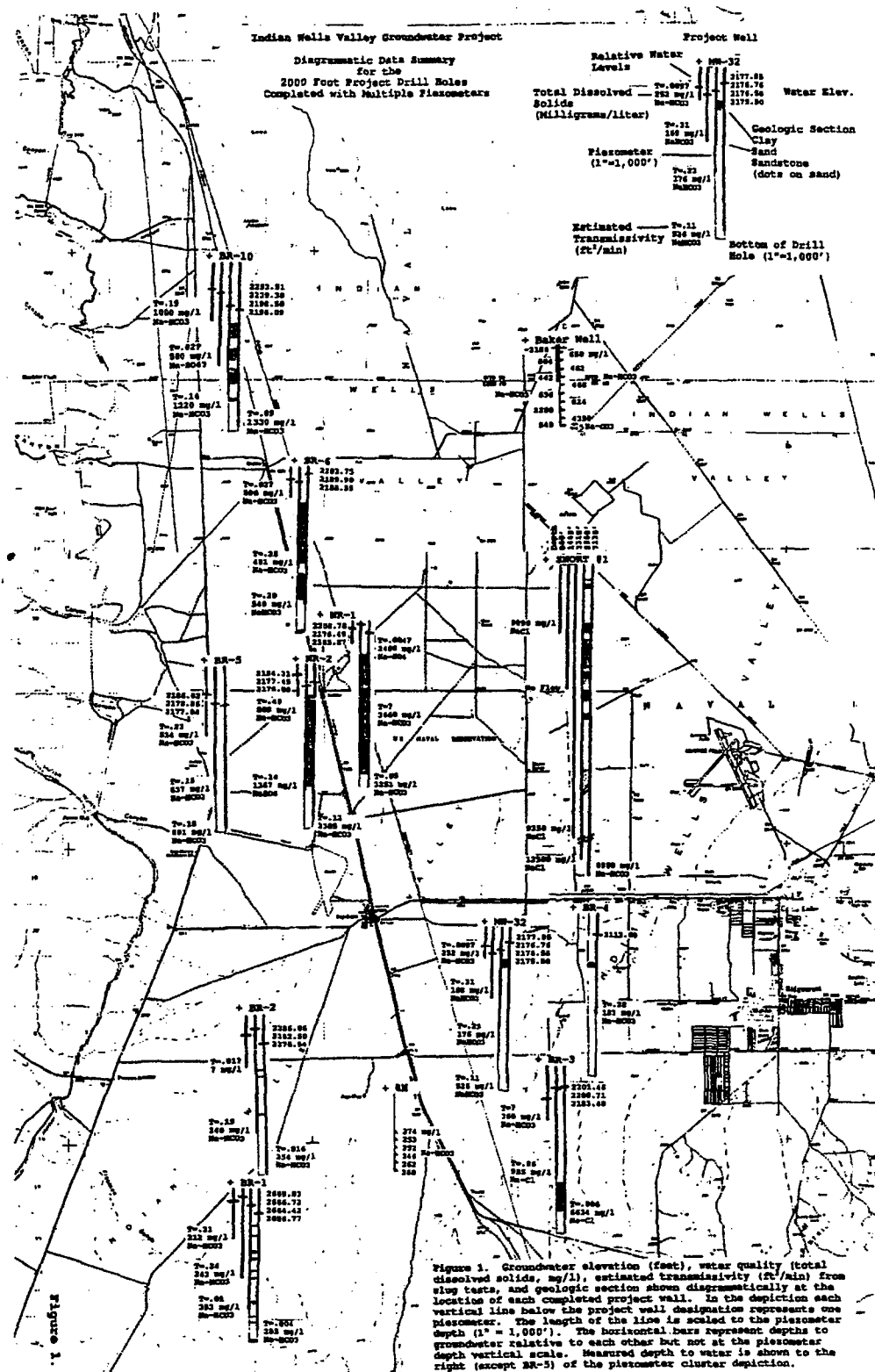


FIGURE 1. Test Well Map Location.

BR-3

BR-3 is located approximately 100 feet south of Bowman Road and 1500 feet east of Highway 395. Drilling by the Southern California Drilling Company began on 16 March 1991 and was completed on 19 March 1991. The 12 1/4-inch borehole was drilled to a depth of 2024 feet. The penetration rate was relatively constant. Three wells were set with the bottom of the 20-foot sections of screen set at 1870, 1340, and 670 feet below the surface.

BR-4

BR-4 is located approximately 600 feet south of Inyokern Road and 300 feet west of the north-south dirt road on the eastern section line of Section 26 (T26S/R40E). Drilling by the BR began on 28 August 1990 and was completed on 27 September 1990. The borehole was drilled to a depth of 2020 feet and electric-logged. After the deep piezometer was set, the previously set filter-pack tremie pipe could not be moved. The deep piezometer was removed from the hole, and 3 days were spent removing the tremie pipe from the borehole. Because the annulus appeared to be increasingly packed with sand, the Technical Subcommittee decided to install just one piezometer in the remaining open hole. One well was set with the bottom of the 20-foot sections of screen at 1200 feet below the surface.

BR-5

BR-5 is located approximately 200 feet west of Highway 395 and one-half mile north of the Leliter Road and Highway 395 intersection. Drilling by the Welch and Howell Drilling Company began on 19 December 1991 and was completed on 3 January 1992. The borehole was drilled to a depth of 1014 feet with a 14 3/4-inch bit. A 12 1/4-inch bit was used to drill out the remaining 2013 feet. The drilling rate was relatively consistent. Coarse alluvial fill, mostly sand, was penetrated to the total depth of the hole. Three wells were set with the bottom of the 20-foot sections of screen at 1980, 1610, and 870 feet below the surface.

BR-6

BR-6 is located just inside the NAWS China Lake west boundary that parallels Brown Road, along a dirt road—an eastern extension of the east-west section of Brown Road. Drilling by the Welch and Howell Drilling Company began on 6 January 1992 and was completed on 17 January 1992. The hole was drilled to a depth of 1008 feet with a 14 3/4-inch bit. Total clay thickness penetrated by the hole was significant. Drilling rates were fairly consistent while penetrating sand and clay units.

Three wells were completed with the bottom of the 20-foot sections of screen at 1660, 1210, and 350 feet below the surface.

BR-10

BR-10 is located about one-tenth mile southeast of the intersection of Highway 395 and Nine Mile Road in the northwest portion of the IWV. Drilling by the Welch and Howell Drilling Company began on 24 August 1992 and was completed on 12 September 1992. The hole was drilled with a 17 1/2-inch bit to a depth of 591 feet, a 14 3/4-inch bit to 1002 feet, and a 12 1/4-inch bit to 2005 feet. The cuttings from 680 to 1440 feet are described as clays; however, the electric logs indicate significant sands interbedded with the clays. Four piezometers were set with the bottom of the 20-foot sections of screen at 1950, 1580, 1200, and 660 feet below the surface.

Neal Ranch Wells, Monitor Well 32, and SNORT Well

NR-1, NR-2, and MW 32, all completed by the IWVWD, are to be used for geohydrologic data collection purposes only. All three wells were completed as a standard project test well. The Navy's SNORT test well was drilled by the Welch and Howell Drilling Company as part of the Geothermal Program Office exploration efforts in the IWV.

NR-1

NR-1 is located in the northeast portion of the Neal Ranch property (T25S/R38E). Drilling by the Southern California Drilling Company began on 7 January 1991 and was completed on 19 February 1991. The 12 1/4-inch borehole was completed to a depth of 2012 feet. An extremely thick and continuous clay section was penetrated by the hole. The top of the clay lies at a depth of 340 feet, and the bottom lies at 1810 feet. Three wells were set, with the bottom of the 20-foot sections of screen at 1980, 1190, and 270 feet below the surface.

NR-2

NR-2 is located in the southwest corner of the southwestern block of the Neal Ranch Property. Drilling by the Southern California Drilling Company began on 4 February 1991 and was completed on 15 February 1991. The 12 1/4-inch borehole was drilled to a depth of 1994 feet. A thick section of clay also penetrated the borehole. The top of the clay is at a depth of 445 feet, and the bottom lies at about 1490 feet. Three wells were set with the bottom sections of screen at 1930, 1560, and 350 feet below the surface.

MW-32

MW-32 is located about 600 feet west of Victor Street and 1200 feet south of Highway 178. Drilling by the Southern California Drilling Company began on 23 September 1991 and was completed on 8 October 1991. The 12 1/4-inch borehole was drilled to a depth of 1968 feet. The section that was penetrated displayed a sandy alluvial fill with little silt or clay. Four wells were set with the bottom of the 20-foot sections of screen at 1920, 900, and 360 feet below the surface.

Supersonic Naval Ordnance Research Track (SNORT) Well

The NAWS China Lake Geothermal Program Office allowed for the perforation of two intervals in the upper portion of the geothermal exploration test well, which is located in the central portion of the IWV. Based on the drilling rates, geologic descriptions, and electric logs, the Technical Subcommittee selected 840 to 880 and 1430 to 1470 feet below surface as the appropriate depth intervals.

The SNORT well is located about 1 mile northwest of the north end of SNORT. Drilling by the Welch and Howell Drilling Company began on 8 September 1991 and was completed to a total depth of 7394 feet on 30 September 1991.

WELL DATA COLLECTED

Information collected from each of the piezometers included formation samples taken at 10-foot intervals throughout the section, electric logs, water quality analyses, depth-to-water measurements every 2 months, slug tests for transmissivity estimations, hydraulic connection tests, and temperature-gradient logs. All data collected at each well site, including detailed temperature-gradient logs, can be found in the appendixes.

Formation Samples

Formation samples were taken at 10-foot intervals during the drilling operation. Direct rotary methods were used to drill all the wells. Steady flows of drilling muds carrying formation samples were grabbed prior to entering the mud pits for recirculation into the drill stem. Each sample was analyzed and logged by a member of the Technical Subcommittee. Once logged, the samples were analyzed in a certified laboratory. These data were used to correlate various geologic units, thickness of the units, relationships between depth of groundwater and groundwater quality, and prediction of groundwater yield to a well.

Electric Logs

A suite of borehole geophysical tests was conducted at each well site. The suite included caliper tests and gamma, resistivity, self-potential, and temperature logs. The tests were used for correlation and comparison of geologic units and water-quality parameters.

Depth to Groundwater

Each well was measured for depth-to-groundwater information after completion. Each well was surveyed for land surface elevation relative to mean sea level. The data will be used for trend analysis with respect to groundwater depth and elevation fluctuations over time.

Slug Tests/Transmissivity Estimates

A pneumatic slug test was performed at each of the test wells, and the recovery rate was recorded to estimate the transmissivity of the formation opposite the screened interval. The pneumatic technique, with an electric data-logging device used in conjunction with downhole pressure transducers, is a recent advancement and increases the range and application of slug tests. The method in well-digging technology involves either injecting air into a sealed well to lower the water level or applying a partial vacuum to a sealed well to raise the water level. The recovery rate within the well is then recorded and an estimation of transmissivity is made. Slug test data are not presented in this report; however, estimated transmissivity values are included in the well completion diagrams.

Hydraulic Connection Tests

Slug test equipment also was used to test for an "open" hydraulic connection between the screens of each well. To conduct the test, the electric sounder was lowered to approximately 0.02 foot above the water level in the next to deepest piezometer. The pneumatic slug test wellhead assembly was secured to the deepest piezometer, and air from a SCUBA tank was used to bring the pressure in the well up to about 15 pounds per square inch (psi). Testing continued by moving the electric sounder and wellhead assembly to the next piezometer up-hole. An open connection between screens through the annulus could provide a conduit for pressure transmission, which would manifest itself by a rise in piezometer water level subsequent to pressurizing the next piezometer down-hole. Water level changes in the nearest up-hole piezometer were not observed during any of the tests.

Temperature logs

Temperature logs were completed at each of the deepest piezometers. Each of the wells was logged by lowering the temperature tool down the hole at the rate of 5 feet per minute. Both the NAWS China Lake Geothermal Program Office and NACC were responsible for temperature logging.

WATER QUALITY ANALYSES

Water samples were collected from each piezometer near the end of the air lift development procedure. Water was air lifted for about 12 hours for each piezometer at 5 to 10 gallons per minute, based on the drillers' reports. The water samples were submitted to a California certified laboratory for water quality in accordance with California Code of Regulations Title 22 standards.

The water samples were believed to be representative of aquifer water; however, poor development is suspected in some of the piezometers based on slow water-level recovery rates estimated during the slug tests. Some constituent concentration differences between filtered and unfiltered water samples from MW-32 also suggest less than full development.

DEPTH-TO-GROUNDWATER MEASUREMENTS

Depth to groundwater in each piezometer was measured each time the BR hydrologist visited the Valley during the test well-drilling activities. Since that time, the wells have been incorporated into a Valley-wide water level monitoring program. All measurements were recorded with a 1000-foot electric water level sounder. The cable on the sounder is the same as a 300-ohm, twin-lead, television antenna wire calibrated at 0.05-foot intervals. Some piezometers have fewer depth-to-groundwater measurements than others. The number of depth-to-groundwater measurements is a function of the date the well was completed. The later the well was completed, the fewer measurements were recorded.

All depth-to-groundwater measurements were made from the top of each piezometer. On the depth-to-water data sheet, the column headed "TOC to TOP" is the distance, in feet, from the top of the casing (TOC), or large-diameter surface casing, to the top of the piezometer (TOP). Water level elevation is equal to the TOC minus the sum of depth to water and TOC to TOP.

The TOC elevation was established at a mark on the casing as determined by the BR. The elevation survey was considered closed, and the closure error and length of the run were noted. A closed survey begins and ends at the same known elevation point. The difference between the starting elevation and ending elevation at the known elevation point is an indication of the survey quality.

Both BR-3—a medium well—and MW-32—a shallow well—had an oil film on the inside of the piezometer pipe above the water table. The film was especially heavy in BR-3. Based on a chemical analysis conducted by the NACC, the oil probably came from the air compressor used for well development or air lift.

Appendix A
DIAGRAMMATIC COMPLETION AND
DATA SUMMARY SHEETS

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Indian Wells Valley Groundwater Project (IWVGWP)* Diagrammatic Completion and Data Summary Sheet

**** Well BR-1 ****
4 - 2" Piezometers

Completion		Data		Ground Elevation - 2848.3
Depth of Screened Interval		Depth to Water		
		181.3'		
		184.9'		
		186.8'		
		196.1'		
Depth of Bensealed Interval				
615'	*	T=.21		
	*	212 mg/L		
635'	*			
	*			
800'	//////////			
820'	//////////			
1040'	*	T=.24		
	*	243 mg/L		
1060'	*			
	*			
1400'	//////////			
1420'	//////////			
1500'	*	T=.01		
	*	353 mg/L		
1520'	*			
	*			
1750'	//////////			
1770'	*	T=.004		
	*	285 mg/L		
	*			
	*			
Depth Drilled				
1910'				

Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:

The well is located about 200 feet west of the Red Rock-Inyokern Road about 5.2 miles south of Hwy. 178.

DRILLING METHOD:

Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:

Installed four 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each.

DEVELOPMENT:

Each piezometer was air-lifted for about 12 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development.

DEPTH TO WATER:

All depths reported below were measured on October 22, 1991 from the top of the protective casing.

SLUG TEST RESULTS:

Estimated transmissivity (T) (ft²/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

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Indian Wells Valley Groundwater Project (IWVGWP)* Diagrammatic Completion and Data Summary Sheet

**** Well BR-2 ****
3 - 2" Piezometers

Completion		Data	Ground Elevation - 2655.9
Depth of Screened Interval		Depth to Water 272.7' 276.1' 282.0'	Notes T = Transmissivity. See note below on slug tests. mg/L = Total filterable residue at 180 C in milligrams per liter. DRILL SITE: The well is located about 1 1/4 miles south of Hwy. 178 at the end of Sierra Vista Road. DRILLING METHOD: Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth. HOLE COMPLETION: Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. DEVELOPMENT: Each piezometer was air-lifted for about 12 hours and discharged an estimated 10 gallons per minute. Water samples for lab analysis were collected at the end of development. DEPTH TO WATER: All depths reported below were measured on October 22, 1991 from the top of the outer casing. SLUG TEST RESULTS: Estimated transmissivity (ft ² /min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.
Depth of Cemented Interval			
620'	*	T=.01?	
640'	*	7 mg/L	
	////		
1140'			
1160'	////		
1460'	*	T=.19	
1480'	*	240 mg/L	
	*		
1550'	////		
1570'			
1740'	////		
1760'			
1940'	*	T=.016	
1960'	*	354 mg/L	
	*		
Depth Drilled 2020'			* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

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Indian Wells Valley Groundwater Project (IWVGWP)* Diagrammatic Completion and Data Summary Sheet

**** Well BR-3 ****
3 - 2" Piezometers

Completion		Data	Ground Elevation - 2508.6
Depth of Screened Interval		Depth to Water	
		307.9'	
Depth of Bensealed Interval		310'	
		327.2'	
440'	////		
460'			
650'	*		
670'	*	T= ?	
	*	360 mg/l	
960'	////		
980'			
1320'	*		
1340'	*	T=.06	
	*	955 mg/l	
1400'	////		
1420'			
1850'	*		
1870'	*	T=.006	
	*	6634 mg/L	
2024'			
Depth Drilled			
2024'			

Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:

The well is located on the south side of Bowman Road about 1500 east of Hwy. 395.

DRILLING METHOD:

Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:

Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each.

DEVELOPMENT:

Each piezometer was air-lifted for about 12-20 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development.

DEPTH TO WATER:

All depths reported below were measured on December 12, 1991 from the top of the outer casing. Shallow was measured with temperature logger.

SLUG TEST RESULTS:

Estimated transmissivity (ft²/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

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Indian Wells Valley Groundwater Project (IWVGWP)* Diagrammatic Completion and Data Summary Sheet

**** Well BR-4 ****
1 - 2" Piezometer

Completion		Data	Ground Elevation - 2375.2
Depth of Screened Interval		Depth to Water 252'	Notes
Depth of Bensealed Interval			T = Transmissivity. See note below on slug tests.
			mg/L = Total filterable residue at 180 C in milligrams per liter.
			DRILL SITE: The well is located about 600 feet south of Hwy. 170, 1.05 miles west of Jack Ranch Road.
			DRILLING METHOD: Direct rotary with bentonite mud. 7 7/8 inch roller cone bit to total depth. Reamed to total depth with a 10 1/4 inch roller cone bit.
960'	//////		HOLE COMPLETION: Installed one 2" diameter steel pipe with a 10' two inch diameter screen on the bottom.
1130'	//////		DEVELOPMENT: The piezometer was air-lifted and discharged an estimated 5-10 gallons per minute. The water sample for lab analysis was collected at the end of development.
1190'	*	T=.28	DEPTH TO WATER: Depth was measured on December 12, 1991 from the top of the outer casing.
1200'	*	183 mg/L	SLUG TEST RESULTS: Estimated transmissivity (ft ² /min) by the Cooper (1967) method for the 10 feet of aquifer at the screen.
Depth Drilled 2020'			* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

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Indian Wells Valley Groundwater Project (IWVGWP)* Diagrammatic Completion and Data Summary Sheet

** Well BR-5 **
3 - 2" Piezometers

Completion		Data	Ground Elevation - 2518.6
Depth of Screened Interval		Depth to Water	
Depth of Cemented Interval		334.9'	
		341.9'	
		343.7'	
			Notes
			T = Transmissivity. See note below on slug tests.
			mg/L = Total filterable residue at 180 C in milligrams per liter.
			DRILL SITE: The well is about 200 feet west of Hwy. 395 at a point about 1/2 mile north of the intersection of Leliter Road and Hwy. 395.
			DRILLING METHOD: Direct rotary with bentonite mud. 14 3/4 inch roller cone bit from 56 to 1014 feet. 12 1/4 roller cone bit from 1014 to total depth.
			HOLE COMPLETION: Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each.
			DEVELOPMENT: Each piezometer was air-lifted 3-4 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development.
			DEPTH TO WATER: All depths reported below were measured on January 28, 1992 from the top of the protective casing.
			SLUG TEST RESULTS: Estimated transmissivity (T) (ft ² /min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.
850'	*	T=.23	
870'	*	534 mg/l	
	*		
1365'	////		
1385'	////		
1590'	*	T=.15	
1610'	*	837 mg/l	
	*		
1696'?	////		
1706'?	////		
1788'	////		
1800'	////		
1960'	*	T=.18	
1980'	*	891 mg/l	
	*		
Depth Drilled 2013'			

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

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Indian Wells Valley Groundwater Project (IWVGWP)* Diagrammatic Completion and Data Summary Sheet

**** Well BR-6 ****
3 - 2" Piezometers

Completion		Data	Ground Elevation - 2352.2
Depth of Screened Interval		Depth to Water	
		149.9'	
Depth of Cemented Interval		163.9'	
		164.6'	
330'	*	T=.02?	Notes T = Transmissivity. See note below on slug tests. mg/L = Total filterable residue at 180 C in milligrams per liter. DRILL SITE: The well is just inside (east) the Naval Air Warfare Station boundary (which is parallel Brown Road) along dirt eastward extension of the east-west section of Brown Road. DRILLING METHOD: Direct rotary with bentonite mud. 14 3/4 inch roller cone bit from 56 to 1010 feet. 12 1/4 roller cone bit from 1010 to total depth. HOLE COMPLETION: Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. DEVELOPMENT: Each piezometer was air-lifted about <u>2 hours and discharged an estimated 5-10 gallons per minute</u> . Water samples for lab analysis were collected at the end of development. DEPTH TO WATER: All depths reported below were measured on January 28, 1992 from the top of the protective casing. SLUG TEST RESULTS: Estimated transmissivity (T) (ft ² /min) by the Cooper (1967) method for the 20 feet of aquifer at each screen. * The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.
350'	*	596 mg/l	
	*		
520'	////		
550'			
900'	////		
925'?			
1190'	*	T=.25	
1210'	*	481 mg/l	
	*		
1400'	////		
1420'			
1640'	*	T=.20	
1660'	*	540 mg/l	
	*		
Depth Drilled 2012'			

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Indian Wells Valley Groundwater Project (IWVGWP)* Diagrammatic Completion and Data Summary Sheet

**** Well NR-1 ****
[Water District Well]
3 - 2" Piezometers

Completion		Data	Ground Elevation - 2275.7
Depth of Screened Interval		Depth to Water 76.8' 95.1' 101.3'	
Depth of Bensealed Interval			
220'	////		Notes T = Transmissivity. See note below on slug tests. mg/L = Total filterable residue at 180 C in milligrams per liter. DRILL SITE: The well is located in the extreme northeast corner of the Indian Wells Valley Water District's Neal Ranch property. DRILLING METHOD: Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth. SOLE COMPLETION: Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. DEVELOPMENT: Each piezometer was air-lifted for about 12 hours and discharged an estimated 10 gallons per minute. Water samples for lab analysis were collected at the end of development. DEPTH TO WATER: All depths reported below were measured on October 22, 1991 from the top of the outer casing. SLUG TEST RESULTS: Estimated transmissivity (ft ² /min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.
240'	////		
250'	***	T=.004* Damaged	
270'	***	2406 mg/L	
290'	////		
300'	////		
1130'	////		
1150'	***	T= ?	
1170'	////	3660 mg/L	
1190'	////		
192'	////		
194'	////		
1960'	***	T=.05	* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.
1980'	***	3251 mg/L	
Depth Drilled	***		
2012'	***		

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Indian Wells Valley Groundwater Project (IWVGWP)* Diagrammatic Completion and Data Summary Sheet

**** Well NR-2 ****
[Water District Well]
3 - 2" Piezometers

Completion		Data	Ground Elevation - 2314.7
Depth of Screened Interval			
Depth of Bensealed Interval			
250'	//////		
270'			
330'	*	T=.48	
350'	*	808 mg/L	
450'			
470'	//////		
1480'			
1500'	//////		
1540'	*	T=.14	
1560'	*	1367 mg/L	
1620'			
1640'	//////		
1910'	*	T=.12	
1930'	*	3305 mg/L	
Depth Drilled 1994'			

Notes

T = Transmissivity. See note below on slug tests.

mg/L = Total filterable residue at 180 C in milligrams per liter.

DRILL SITE:

The well is located in the southwest corner of the southwestern block of the Indian Wells Valley Water District's Neal Ranch property.

DRILLING METHOD:

Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.

HOLE COMPLETION:

Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each.

DEVELOPMENT:

Each piezometer was air-lifted for about 12 hours and discharged an estimated 10 gallons per minute. Water samples for lab analysis were collected at the end of development.

DEPTH TO WATER:

All depths reported below were measured on October 22, 1991 from the top of the outer casing.

SLUG TEST RESULTS:

Estimated transmissivity (ft²/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.

* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.

**Indian Wells Valley Groundwater Project (IWVGWP)*
Diagrammatic Completion and Data Summary Sheet**

**** Well MW-32 **
[Water District Well]
4 - 2" Piezometers**

Completion		Data	
Depth of Screened Interval		Depth to Water	
		240.4'	
		241.0'	
		241.2'	
		241.7'	
Depth of Bensealed Interval			
360'	*	T=.009?	T = Transmissivity. See note below on slug tests.
380'	*	252 mg/l	
430'	////		mg/L = Total filterable residue at 180 C in milligrams per liter.
450'	////		
	////		DRILL SITE: The well is located just north of the east west dirt road just to the east of the center of the Indian Wells Valley Water District's Victor Street property.
	////		
880'	*	T=.31	DRILLING METHOD: Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.
900'	*	169 mg/l	
980'	////		HOLE COMPLETION: Installed four 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each.
1000'	////		
1240'	*	T=.23	DEVELOPMENT: Each piezometer was air-lifted for about 12 hours and discharged an estimated 5-15 gallons per minute. Water samples for lab analysis were collected at the end of development.
1260'	*	176 mg/l	
1290'	////		DEPTH TO WATER: All depths reported below were measured on December 12, 1991 from the top of the outer casing.
1310'	////		
1680'	////		SLUG TEST RESULTS: Estimated transmissivity (ft ² /min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.
1700'	////		
1900'	*	T=.11	* The IWVGWP (1990-1992) was a cooperative endeavor by Indian Wells Valley Water District, China Lake Naval Weapons Center, North American Chemical Company, and the U.S. Bureau of Reclamation to install nested piezometers, such as the one shown, in holes drilled to 2000 +/- feet.
1920'	*	526 mg/l	
Depth Drilled			
1968'			

Appendix B
DRILL HOLE COMPLETION AND GEOLOGIC LOGS

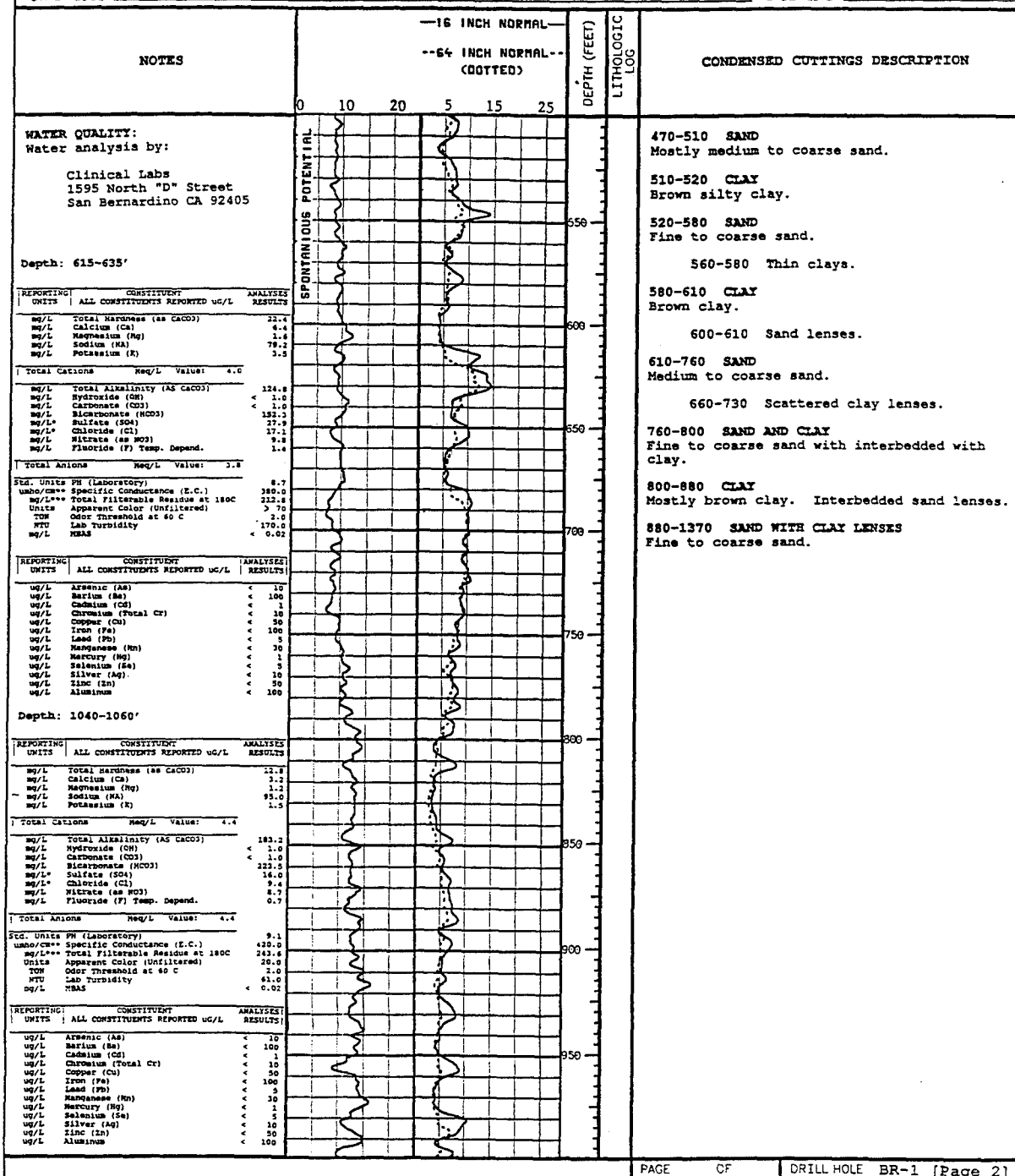
USBR Drill Hole Completion and Data Log Monitoring Well BR-1			
FEATURE <u>Drill Hole Completed with Nested Piezometers</u>	DRILLED DEPTH <u>1910 Ft.</u>		
PROJECT <u>Indian Wells Valley Groundwater Project</u>	COMPLETED DEPTH <u>1790 Ft.</u>		
LOCATION <u>T.27 S., R.38 E., Sec. 23b</u>	STATE <u>CA</u>	BEGUN <u>2-15-91</u>	
TYPE OF WELL <u>Observation</u>	FINISHED <u>3-5-91</u>		
PURPOSE <u>Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity</u>	GROUND ELEVATION <u>2848.3</u>		
COORDINATES _____	TOP OF CASING ELEV. <u>2852.2</u>		
HOLE LOGGED BY <u>Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA</u>	DEPTH TO WATER (DATE) <u>See Notes</u>		
GEOPHYSICAL LOGS <u>Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature</u>	LAB ANALYSIS <u>Yes, See Notes</u>		
OTHER LOGS <u>Drilling Time</u>	TDS <u>See Notes</u>		
	REVIEWED BY <u>Dennis Watt, USBR</u>		

NOTES	BARBOUR CORP WELL SURVEYING 805-482-4988 ELECTRIC LOG	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION																				
DRILL SITE: The well is located about 200 feet west of the Red Rock-Inyokern Road about 5.2 miles south of Hwy. 178. DRILLED BY: Southern California Drilling Company of Lancaster CA. DRILLING RIG: Custom built, small oil-field rotary rig. DRILLING METHOD: Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth. HOLE COMPLETION: Installed four 2" diameter steel pipes with a 20" two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 615'-635', 1040'-1060', 1500'-1520', 1750'-1770'. Twenty feet of 2" pipe below each screen. Benseal (bentonite) plugs set at the following depth intervals: 800'-820', 1400'-1420', 1690'-1710'. DEVELOPMENT: Each piezometer was air-lifted for about 12 hours and discharged an estimated 5-10 gallons per minute. DEPTH TO WATER: All depths reported below were measured on October 22, 1991 from the top of the protective casing. <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Screen Interval</th> <th style="text-align: left;">Depth (Ft.)</th> </tr> <tr> <td>615'-635'</td> <td>184.9</td> </tr> <tr> <td>1040'-1060'</td> <td>181.3</td> </tr> <tr> <td>1500'-1520'</td> <td>186.8</td> </tr> <tr> <td>1750'-1770'</td> <td>196.1</td> </tr> </table> All depth to water measurements are available in the Geohydrologic Appendix for this project. SLUG TEST RESULTS: Estimated transmissivity (ft²/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen. <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Piezometer</th> <th style="text-align: left;">T</th> </tr> <tr> <td>Shallow</td> <td>.21</td> </tr> <tr> <td>Shallow Medium</td> <td>.24</td> </tr> <tr> <td>Deep Medium</td> <td>.01</td> </tr> <tr> <td>Deep</td> <td>.004</td> </tr> </table>	Screen Interval	Depth (Ft.)	615'-635'	184.9	1040'-1060'	181.3	1500'-1520'	186.8	1750'-1770'	196.1	Piezometer	T	Shallow	.21	Shallow Medium	.24	Deep Medium	.01	Deep	.004	—16 INCH NORMAL— --64 INCH NORMAL-- (DOTTED)	0 50 100 150 200 250 300 350 400 450	SPONTANEOUS POTENTIAL	The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return. GENERAL The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth. Depth intervals are feet below land surface. 0-250 SAND Mostly medium to coarse sand with scattered fine gravel layers. 250-280 CLAY Light brown to light gray clay. 280-350 SAND Fine to coarse sand with clay lenses. 350-380 CLAY Brown-white to brown clay. 380-400 SAND Medium to coarse sand. 400-430 CLAY Light brown to yellow brown clay with sand lenses. 430-450 SAND Medium to coarse sand. 450-470 CLAY Brown clay with sand lenses. 470-510 SAND Mostly medium to coarse sand.
Screen Interval	Depth (Ft.)																							
615'-635'	184.9																							
1040'-1060'	181.3																							
1500'-1520'	186.8																							
1750'-1770'	196.1																							
Piezometer	T																							
Shallow	.21																							
Shallow Medium	.24																							
Deep Medium	.01																							
Deep	.004																							

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USBR Drill Hole Completion and Data Log
Monitoring Well BR-1

FEATURE Drill Hole Completed with Nested Piezometers DRILLED DEPTH 1910 Ft.
 PROJECT Indian Wells Valley Groundwater Project COMPLETED DEPTH 1790 Ft.
 LOCATION T.27 S., R.38 E., Sec. 23b STATE CA BEGUN 2-15-91
 TYPE OF WELL Observation FINISHED 3-5-91
 PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity GROUND ELEVATION 2848.3
 COORDINATES TOP OF CASING ELEV. 2852.2
 HOLE LOGGED BY Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA DEPTH TO WATER (DATE) See Notes
 GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral LAB ANALYSIS Yes, See Notes
Temperature TDS See Notes
 OTHER LOGS Drilling Time REVIEWED BY Dennis Watt, USBR



PAGE CF DRILL HOLE BR-1 [Page 2]

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USBR Drill Hole Completion and Data Log Monitoring Well BR-1				
FEATURE	Drill Hole Completed with Nested Piezometers		DRILLED DEPTH	1910 Ft.
PROJECT	Indian Wells Valley Groundwater Project		COMPLETED DEPTH	1790 Ft.
LOCATION	T.27 S., R.38 E., Sec. 23b		STATE	CA
TYPE OF WELL	Observation		BEGUN	2-15-91
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity		FINISHED	3-5-91
COORDINATES			GROUND ELEVATION	2848.3
HOLE LOGGED BY	Cuttings Description by Dipati Barari, N. Amer. Chem. Co., Trona CA		TOP OF CASING ELEV.	2852.2
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature		DEPTH TO WATER (DATE)	See Notes
OTHER LOGS	Drilling Time		LAB ANALYSIS	Yes, See Notes
			TDS	See Notes
			REVIEWED BY	Dennis Watt, USBR

NOTES	--16 INCH NORMAL-- --64 INCH NORMAL-- (DOTTED)					DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
	0	10	20	5	15			
Depth: 1500-1520'								
REPORTING UNITS	CONSTITUENT							
ALL CONSTITUENTS REPORTED UG/L								
mg/L	TOTAL HARDNESS (as CaCO3)					72.0		
mg/L	Calcium (Ca)					20.0		
mg/L	Magnesium (Mg)					5.2		
mg/L	Sodium (Na)					110.2		
mg/L	Potassium (K)					7.9		
Total Cations						Req/L Value: 6.4		
mg/L	TOTAL ALKALINITY (AS CaCO3)					248.8		
mg/L	Hydroxide (OH)					< 1.0		
mg/L	Carbonate (CO3)					< 1.0		
mg/L	Bicarbonate (HCO3)					365.5		
mg/L	Sulfate (SO4)					25.3		
mg/L	Chloride (Cl)					14.2		
mg/L	Nitrate (as NO3)					9.1		
mg/L	Fluoride (F) Temp. Depend.					5.2		
Total Anions						Req/L Value: 4.2		
STD. UNITS	PH (Laboratory)					8.8		
umho/cm	Specific Conductance (E.C.)					610.0		
mg/L	Total Filterable Residue at 180C					353.8		
Units	Apparent Color (Unfiltered)					> 70.0		
TDN	Odor Threshold at 60 C					1.0		
NTU	Lab Turbidity					> 200.0		
mg/L	MBAS					< 0.02		
REPORTING UNITS	CONSTITUENT							
ALL CONSTITUENTS REPORTED UG/L								
ug/L	Arsenic (As)					< 10		
ug/L	Barium (Ba)					< 100		
ug/L	Cadmium (Cd)					< 1		
ug/L	Chromium (Total Cr)					< 10		
ug/L	Copper (Cu)					< 50		
ug/L	Iron (Fe)					< 100		
ug/L	Lead (Pb)					< 5		
ug/L	Manganese (Mn)					< 30		
ug/L	Mercury (Hg)					< 1		
ug/L	Selenium (Se)					< 5		
ug/L	Silver (Ag)					< 10		
ug/L	Zinc (Zn)					< 100		
ug/L	Aluminum					< 100		
Depth: 1750-1770'								
REPORTING UNITS	CONSTITUENT							
ALL CONSTITUENTS REPORTED UG/L								
mg/L	TOTAL HARDNESS (as CaCO3)					32.0		
mg/L	Calcium (Ca)					9.4		
mg/L	Magnesium (Mg)					1.9		
mg/L	Sodium (Na)					107.9		
mg/L	Potassium (K)					4.8		
Total Cations						Req/L Value: 5.4		
mg/L	TOTAL ALKALINITY (AS CaCO3)					218.0		
mg/L	Hydroxide (OH)					< 1.0		
mg/L	Carbonate (CO3)					< 1.0		
mg/L	Bicarbonate (HCO3)					266.0		
mg/L	Sulfate (SO4)					16.4		
mg/L	Chloride (Cl)					10.2		
mg/L	Nitrate (as NO3)					7.1		
mg/L	Fluoride (F) Temp. Depend.					3.3		
Total Anions						Req/L Value: 5.3		
STD. UNITS	PH (Laboratory)					8.7		
umho/cm	Specific Conductance (E.C.)					500.0		
mg/L	Total Filterable Residue at 180C					289.0		
Units	Apparent Color (Unfiltered)					> 70.0		
TDN	Odor Threshold at 60 C					1.0		
NTU	Lab Turbidity					> 200.0		
mg/L	MBAS					< 0.02		
REPORTING UNITS	CONSTITUENT							
ALL CONSTITUENTS REPORTED UG/L								
ug/L	Arsenic (As)					< 10		
ug/L	Barium (Ba)					< 100		
ug/L	Cadmium (Cd)					< 1		
ug/L	Chromium (Total Cr)					< 10		
ug/L	Copper (Cu)					< 50		
ug/L	Iron (Fe)					< 100		
ug/L	Lead (Pb)					< 5		
ug/L	Manganese (Mn)					< 30		
ug/L	Mercury (Hg)					< 1		
ug/L	Selenium (Se)					< 5		
ug/L	Silver (Ag)					< 10		
ug/L	Zinc (Zn)					< 100		
ug/L	Aluminum					< 100		

PAGE	OF	DRILL HOLE BR-1 [Page 3]
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USBR Drill Hole Completion and Data Log Monitoring Well BR-1					
FEATURE	Drill Hole Completed with Nested Piezometers		DRILLED DEPTH	1910 Ft.	
PROJECT	Indian Wells Valley Groundwater Project		COMPLETED DEPTH	1790 Ft.	
LOCATION	T.27 S., R.38 E., Sec. 23b	STATE	CA	BEGUN	2-15-91
TYPE OF WELL	Observation			FINISHED	3-5-91
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity		GROUND ELEVATION	2848.3	
COORDINATES			TOP OF CASING ELEV.	2852.2	
HOLE LOGGED BY	Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA		DEPTH TO WATER (DATE)	See Notes	
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature		LAB ANALYSIS	Yes, See Notes	
OTHER LOGS	Drilling Time		TDS	See Notes	
			REVIEWED BY	Dennis Watt, USBR	

NOTES	--16 INCH NORMAL-- --64 INCH NORMAL-- (DOTTED)	DEPTH (FEET) LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
	0 10 20 5 15 25	550 600 650 700 750 800 850 900 950	1420-1890 SAND Mostly fine to coarse sand with interbedded clays. 1610-1760 Driller reports volcanic conglomerate. 1760-1830 Volcanic sands reported by driller. 1830 Drilling time doubling with each added drill rod. 1890-1910 CLAY Cemented dark brown clay with bluish tint.

USBR Drill Hole Completion and Data Log Monitoring Well BR-2			
FEATURE	Drill Hole Completed with Nested Piezometers	DRILLED DEPTH	2020 Ft.
PROJECT	Indian Wells Valley Groundwater Project	COMPLETED DEPTH	1984 Ft.
LOCATION	T.27 S., R 38 E., Sec. 2c	STATE	CA
TYPE OF WELL	Observation	BEGUN	10-01-90
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity	FINISHED	10-24-90
COORDINATES		GROUND ELEVATION	2655.9
HOLE LOGGED BY	Cuttings Description by Ken Turner, Kern Co. Water Agency	TOP OF CASING ELEV.	2658.8
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature	DEPTH TO WATER (DATE)	See Notes
OTHER LOGS	Drilling Time	LAB ANALYSIS	Yes, See Notes
		TDS	See Notes
		REVIEWED BY	Dennis Watt, USBR

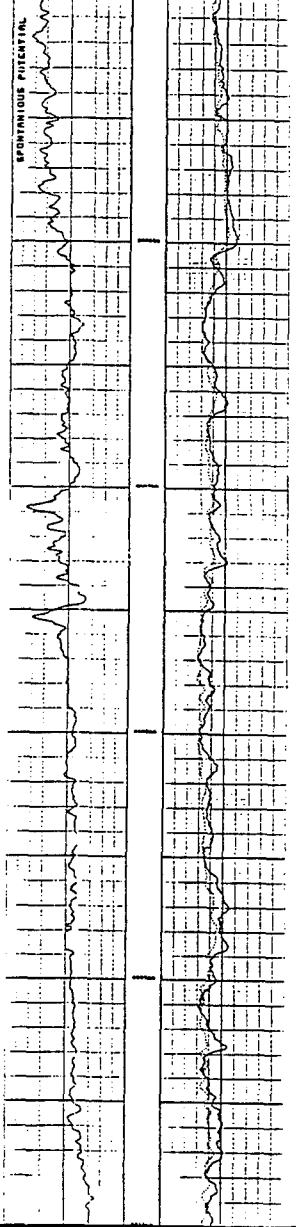
NOTES	BARBOUR CORP WELL SURVEYING 805-482-4988 ELECTRIC LOG	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION																
DRILL SITE: The well is located about 1 1/4 miles south of Hwy. 178 at the end of Sierra Vista Road. DRILLED BY: Southern California Drilling Company of Lancaster CA. DRILLING RIG: Custom built small oil-field rotary rig. DRILLING METHOD: Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth. ROLE COMPLETION: Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 570'-590', 1460'-1480', 1940'-1960'. Twenty feet of 2" pipe below each screen. Neat cement plugs set at the following depth intervals: 680'-700', 1140'-1160', 1550'-1570', 1740'-1760'. DEVELOPMENT: Each piezometer was air-lifted for about 12 hours and discharged an estimated 10 gallons per minute. DEPTH TO WATER: All depths reported below were measured on October 22, 1991 from the top of the outer casing. <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Screen Interval</th> <th style="text-align: left;">Depth (Ft.)</th> </tr> <tr> <td>620'-640'</td> <td>276.1</td> </tr> <tr> <td>1460'-1480'</td> <td>282.0</td> </tr> <tr> <td>1940'-1960'</td> <td>272.7</td> </tr> </table> All depth to water measurements are available in an attachment to the Geohydrologic Appendix for this project. SLUG TEST RESULTS: Estimated transmissivity (ft²/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen. <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Piezometer</th> <th style="text-align: left;">T</th> </tr> <tr> <td>Shallow</td> <td>.017</td> </tr> <tr> <td>Medium</td> <td>.19</td> </tr> <tr> <td>Deep</td> <td>.016</td> </tr> </table>	Screen Interval	Depth (Ft.)	620'-640'	276.1	1460'-1480'	282.0	1940'-1960'	272.7	Piezometer	T	Shallow	.017	Medium	.19	Deep	.016		50 100 150 200 250 300 350 400 450	16 INCH NORMAL 64 INCH NORMAL (DOTTED)	The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return. GENERAL The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth. Depth intervals are feet below land surface. 0-80 SAND Fine to coarse, subangular to subrounded, brown to light brown sand. 0-10 Silty. 30-40 Coarse to very coarse. 70-80 Some small pebbles. 80-250 SAND Medium to very coarse, mostly subangular with some subrounded, light brownish gray to light gray sand. 150-160 Some pebbles. 170-180 Some pebbles. 190-220 Some pebbles. 250-380 SAND Fine to coarse, subangular to subround, light gray sand. 270-290 Medium to coarse. 310-330 Medium to very coarse. 330-340 Very fine to medium. 350-370 Medium to very coarse. 380-490 SILTY SAND Fine to coarse, subangular to subrounded, light gray, silty sand. 400-490 Well rounded.
Screen Interval	Depth (Ft.)																			
620'-640'	276.1																			
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Deep	.016																			

PAGE	CF	DRILL HOLE BR-2 [Page 1]
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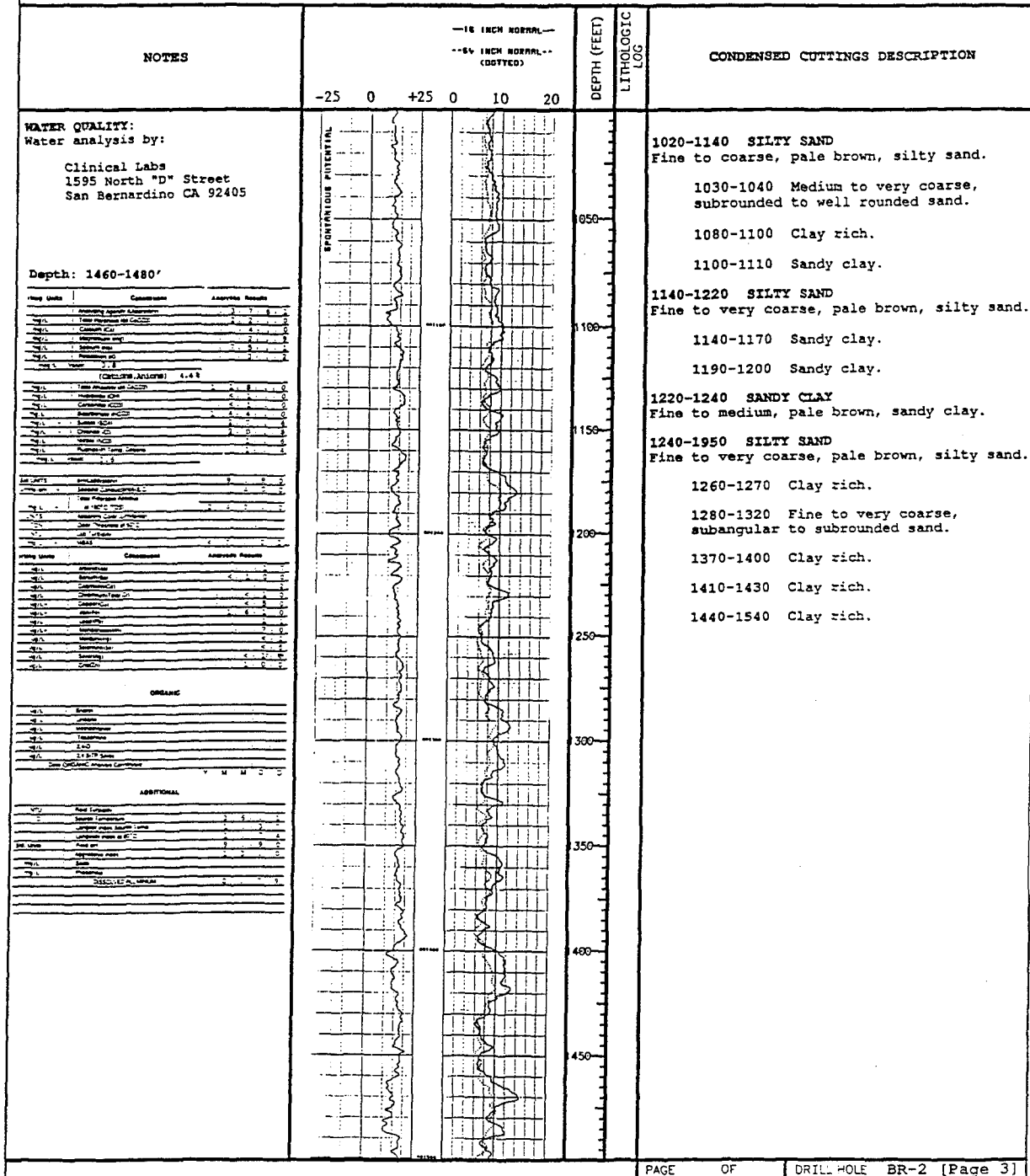
USBR Drill Hole Completion and Data Log
Monitoring Well BR-2

FEATURE Drill Hole Completed with Nested Piezometers DRILLED DEPTH 2020 Ft.
 PROJECT Indian Wells Valley Groundwater Project COMPLETED DEPTH 1984 Ft.
 LOCATION T.27 S., R 38 E., Sec. 2c STATE CA BEGUN 10-01-90
 TYPE OF WELL Observation FINISHED 10-24-90
 PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity GROUND ELEVATION 2655.9
 COORDINATES TOP OF CASING ELEV. 2658.8
 HOLE LOGGED BY Cuttings Description by Ken Turner, Kern Co. Water Agency DEPTH TO WATER (DATE) See Notes
 GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature LAB ANALYSIS Yes, See Notes
 OTHER LOGS Drilling Time TDS See Notes
 REVIEWED BY Dennis Watt, USBR

NOTES	-16 INCH NORMAL- --64 INCH NORMAL-- (DOTTED)	DEPTH (FEET) LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
WATER QUALITY: Water analysis by: Clinical Labs 1595 North "D" Street San Bernardino CA 92405 Depth: 620'-640' Water quality sample not available. See following pages for water quality analyses from medium and deep piezometers.		550 600 650 700 750 800 850 900 950	490-550 SAND (CLAY RICH) Fine to coarse, subangular to well rounded, light gray sand. 500-510 Very coarse sand. 550-580 SILTY SAND Medium to coarse, subround to well rounded, light gray silty sand. 580-630 SAND Medium to very coarse, subround, pale brown sand. 630-760 SANDY CLAY Fine to medium, pale brown, sandy clay. 690-710 Silty. 760-1020 SILTY SAND Clay rich, pale brown, silty sand. 800-810 Sandy clay. 850-870 Fine to coarse silty sand. 900-910 Sandy clay. 940-950 Sandy clay. 950-990 Fine to coarse, silty sand.

USBR Drill Hole Completion and Data Log Monitoring Well BR-2

FEATURE	<u>Drill Hole Completed with Nested Piezometers</u>	DRILLED DEPTH	<u>2020 Ft.</u>
PROJECT	<u>Indian Wells Valley Groundwater Project</u>	COMPLETED DEPTH	<u>1984 Ft.</u>
LOCATION	<u>T.27 S., R 38 E., Sec. 2c</u>	STATE	<u>CA</u> <u>BEGUN</u> <u>10-01-90</u>
TYPE OF WELL	<u>Observation</u>		<u>FINISHED</u> <u>10-24-90</u>
PURPOSE	<u>Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity</u>	GROUND ELEVATION	<u>2655.9</u>
COORDINATES		TOP OF CASING ELEV.	<u>2658.8</u>
HOLE LOGGED BY	<u>Cuttings Description by Ken Turner, Kern Co. Water Agency</u>	DEPTH TO WATER (DATE)	<u>See Notes</u>
GEOPHYSICAL LOGS	<u>Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral.</u>	LAB ANALYSIS	<u>Yes, See Notes</u>
	<u>Temperature</u>	TDS	<u>See Notes</u>
OTHER LOGS	<u>Drilling Time</u>	REVIEWED BY	<u>Dennis Watt, USBR</u>



USBR Drill Hole Completion and Data Log
Monitoring Well BR-2

FEATURE	<u>Drill Hole Completed with Nested Piezometers</u>	DRILLED DEPTH	<u>2020 Ft.</u>
PROJECT	<u>Indian Wells Valley Groundwater Project</u>	COMPLETED DEPTH	<u>1984 Ft.</u>
LOCATION	<u>T.27 S., R.38 E., Sec. 2c</u>	STATE	<u>CA</u>
TYPE OF WELL	<u>Observation</u>	BEGUN	<u>10-01-90</u>
PURPOSE	<u>Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity</u>	FINISHED	<u>10-24-90</u>
COORDINATES		GROUND ELEVATION	<u>2655.9</u>
HOLE LOGGED BY	<u>Cuttings Description by Ken Turner, Kern Co. Water Agency</u>	TOP OF CASING ELEV.	<u>2658.8</u>
GEOPHYSICAL LOGS	<u>Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature</u>	DEPTH TO WATER (DATE)	<u>See Notes</u>
OTHER LOGS	<u>Drilling Time</u>	LAB ANALYSIS	<u>Yes, See Notes</u>
		TDS	<u>See Notes</u>
		REVIEWED BY	<u>Dennis Watt, USBR</u>

[illegible]

USBR Drill Hole Completion and Data Log Monitoring Well BR-3																		
FEATURE <u>Drill Hole Completed with Nested Piezometers</u>		DRILLED DEPTH <u>2024 Ft.</u>																
PROJECT <u>Indian Wells Valley Groundwater Project</u>		COMPLETED DEPTH <u>1990 Ft.</u>																
LOCATION <u>T.27 S., R.39 E., Sec. 11d</u>		STATE <u>CA</u> BEGUN <u>3-06-91</u>																
TYPE OF WELL <u>Observation</u>		FINISHED <u>3-19-91</u>																
PURPOSE <u>Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity</u>		GROUND ELEVATION <u>2508.6</u>																
COORDINATES _____		TOP OF CASING ELEV. <u>2511.9</u>																
HOLE LOGGED BY <u>Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA</u>		DEPTH TO WATER (DATE) <u>See Notes</u>																
GEOPHYSICAL LOGS <u>Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature</u>		LAB ANALYSIS <u>Yes, See Notes</u>																
OTHER LOGS <u>Drilling Time</u>		TDS <u>See Notes</u>																
		REVIEWED BY <u>Dennis Watt, USBR</u>																
NOTES	BARBOUR CORP WELL SURVEYING 805-482-4988 ELECTRIC LOG	DEPTH (FEET) LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION															
DRILL SITE: The well is located on the south side of Bowman Road about 1500 east of Hwy. 395. DRILLED BY: Southern California Drilling Company of Lancaster CA. DRILLING RIG: Custom built, small oil-field rotary rig. DRILLING METHOD: Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth. HOLE COMPLETION: Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 650'-670', 1320'-1340', 1850'-1870'. Twenty feet of 2" pipe below each screen. Benseal (bentonite) plugs set at the following depth intervals: 440'-460', 960'-980', 1400'-1420', 1615'-1625'. DEVELOPMENT: Each piezometer was air-lifted for about 12-20 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development. DEPTH TO WATER: All depths reported below were measured on December 12, 1991 from the top of the outer casing. Medium was measured with temperature logger. <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Screen Interval</th> <th style="text-align: left;">Depth (Ft)</th> </tr> <tr> <td>650'-670'</td> <td>327.6'</td> </tr> <tr> <td>1320'-1340'</td> <td>310'</td> </tr> <tr> <td>1850'-1870'</td> <td>308.6'</td> </tr> </table> All depth to water measurements are available in the Geohydrologic Appendix for this project. SLUG TEST RESULTS: Estimated transmissivity (ft²/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen. <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Piezometer</th> <th style="text-align: left;">T</th> </tr> <tr> <td>Shallow</td> <td>.06</td> </tr> <tr> <td>Medium</td> <td>.00005*</td> </tr> <tr> <td>Deep</td> <td>.006</td> </tr> </table> *Note - This is believed to be too low. Poor development?	Screen Interval	Depth (Ft)	650'-670'	327.6'	1320'-1340'	310'	1850'-1870'	308.6'	Piezometer	T	Shallow	.06	Medium	.00005*	Deep	.006		The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return. GENERAL The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth. Depth intervals are feet below land surface. 0-1380 SAND Fine to coarse sand with scattered gravel lenses down to 600 feet. 180-200 Clay lenses. 240-480 Thin clay lenses.
Screen Interval	Depth (Ft)																	
650'-670'	327.6'																	
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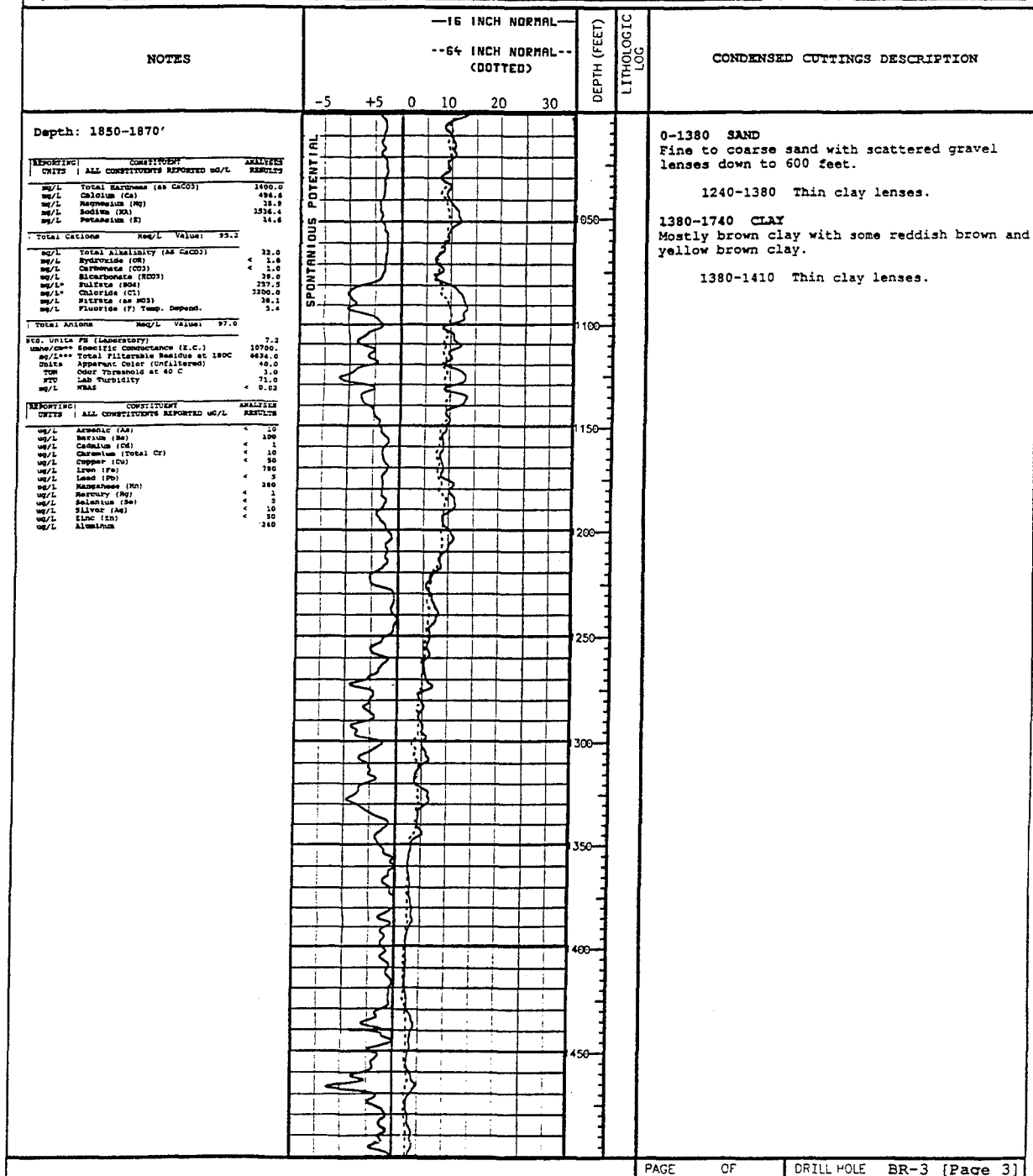
USBR Drill Hole Completion and Data Log Monitoring Well BR-3			
FEATURE	Drill Hole Completed with Nested Piezometers	DRILLED DEPTH	2024 Ft.
PROJECT	Indian Wells Valley Groundwater Project	COMPLETED DEPTH	1990 Ft.
LOCATION	T.27 S., R.39 E., Sec. 11d	STATE	CA
TYPE OF WELL	Observation	BEGUN	3-06-91
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity	FINISHED	3-19-91
COORDINATES		GROUND ELEVATION	2508.6
HOLE LOGGED BY	Cuttings Description by Dipri Barari, N. Amer. Chem. Co., Trona CA	TOP OF CASING ELEV.	2511.9
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature	DEPTH TO WATER (DATE)	See Notes
OTHER LOGS	Drilling Time	LAB ANALYSIS	Yes, See Notes
		TDS	See Notes
		REVIEWED BY	Dennis Watt, USBR

NOTES	-16 INCH NORMAL --64 INCH NORMAL-- (DOTTED)	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION																																																																																																														
WATER QUALITY: Water analysis by: Clinical Labs 1595 North "D" Street San Bernardino CA 92405 Depth: 650-670' <table border="1" style="width: 100%; font-size: small;"> <thead> <tr> <th>REPORTING UNITS</th> <th>CONSTITUENT</th> <th>ANALYSIS RESULTS</th> </tr> </thead> <tbody> <tr><td>mg/L</td><td>Total Hardness (as CaCO₃)</td><td>26.0</td></tr> <tr><td>mg/L</td><td>Calcium (Ca)</td><td>17.6</td></tr> <tr><td>mg/L</td><td>Magnesium (Mg)</td><td>12.4</td></tr> <tr><td>mg/L</td><td>Sodium (Na)</td><td>91.4</td></tr> <tr><td>mg/L</td><td>Potassium (K)</td><td>5.9</td></tr> <tr><td colspan="3">Total Cations mg/L Value: 6.0</td></tr> <tr><td>mg/L</td><td>Total Alkalinity (as CaCO₃)</td><td>132.8</td></tr> <tr><td>mg/L</td><td>Hydroxide (OH)</td><td>< 1.0</td></tr> <tr><td>mg/L</td><td>Carbonate (CO₃)</td><td>< 1.0</td></tr> <tr><td>mg/L</td><td>Bicarbonate (HCO₃)</td><td>132.8</td></tr> <tr><td>mg/L</td><td>Sulfate (SO₄)</td><td>78.5</td></tr> <tr><td>mg/L</td><td>Chloride (Cl)</td><td>47.2</td></tr> <tr><td>mg/L</td><td>Fluoride (as F)</td><td>11.1</td></tr> <tr><td>mg/L</td><td>Fluoride (F) Temp. Depend.</td><td>0.5</td></tr> <tr><td colspan="3">Total Anions mg/L Value: 5.8</td></tr> <tr><td>mg/L</td><td>EC (Lab)</td><td>8.4</td></tr> <tr><td>umho/cm</td><td>Specific Conductance (S.C.)</td><td>800.0</td></tr> <tr><td>mg/L</td><td>Total Filterable Residue at 180C</td><td>346.0</td></tr> <tr><td>Units</td><td>Apparent Color (Unfiltered)</td><td>76.0</td></tr> <tr><td>mg/L</td><td>Odor Threshold at 50 C</td><td>1.0</td></tr> <tr><td>NTU</td><td>Lab Turbidity</td><td>71.0</td></tr> <tr><td>mg/L</td><td>TOC</td><td>< 0.02</td></tr> </tbody> </table> Depth: 1320-1340' <table border="1" style="width: 100%; font-size: small;"> <thead> <tr> <th>REPORTING UNITS</th> <th>CONSTITUENT</th> <th>ANALYSIS RESULTS</th> </tr> </thead> <tbody> <tr><td>mg/L</td><td>Arsenic (As)</td><td>< 10</td></tr> <tr><td>mg/L</td><td>Barium (Ba)</td><td>< 100</td></tr> <tr><td>mg/L</td><td>Cadmium (Cd)</td><td>< 1</td></tr> <tr><td>mg/L</td><td>Chromium (Total Cr)</td><td>< 10</td></tr> <tr><td>mg/L</td><td>Copper (Cu)</td><td>< 50</td></tr> <tr><td>mg/L</td><td>Iron (Fe)</td><td>6350</td></tr> <tr><td>mg/L</td><td>Lead (Pb)</td><td>120</td></tr> <tr><td>mg/L</td><td>Manganese (Mn)</td><td>< 10</td></tr> <tr><td>mg/L</td><td>Mercury (Hg)</td><td>< 1</td></tr> <tr><td>mg/L</td><td>Selenium (Se)</td><td>< 5</td></tr> <tr><td>mg/L</td><td>Silver (Ag)</td><td>< 10</td></tr> <tr><td>mg/L</td><td>Zinc (Zn)</td><td>< 50</td></tr> <tr><td>mg/L</td><td>Aluminum</td><td>878</td></tr> </tbody> </table>	REPORTING UNITS	CONSTITUENT	ANALYSIS RESULTS	mg/L	Total Hardness (as CaCO ₃)	26.0	mg/L	Calcium (Ca)	17.6	mg/L	Magnesium (Mg)	12.4	mg/L	Sodium (Na)	91.4	mg/L	Potassium (K)	5.9	Total Cations mg/L Value: 6.0			mg/L	Total Alkalinity (as CaCO ₃)	132.8	mg/L	Hydroxide (OH)	< 1.0	mg/L	Carbonate (CO ₃)	< 1.0	mg/L	Bicarbonate (HCO ₃)	132.8	mg/L	Sulfate (SO ₄)	78.5	mg/L	Chloride (Cl)	47.2	mg/L	Fluoride (as F)	11.1	mg/L	Fluoride (F) Temp. Depend.	0.5	Total Anions mg/L Value: 5.8			mg/L	EC (Lab)	8.4	umho/cm	Specific Conductance (S.C.)	800.0	mg/L	Total Filterable Residue at 180C	346.0	Units	Apparent Color (Unfiltered)	76.0	mg/L	Odor Threshold at 50 C	1.0	NTU	Lab Turbidity	71.0	mg/L	TOC	< 0.02	REPORTING UNITS	CONSTITUENT	ANALYSIS RESULTS	mg/L	Arsenic (As)	< 10	mg/L	Barium (Ba)	< 100	mg/L	Cadmium (Cd)	< 1	mg/L	Chromium (Total Cr)	< 10	mg/L	Copper (Cu)	< 50	mg/L	Iron (Fe)	6350	mg/L	Lead (Pb)	120	mg/L	Manganese (Mn)	< 10	mg/L	Mercury (Hg)	< 1	mg/L	Selenium (Se)	< 5	mg/L	Silver (Ag)	< 10	mg/L	Zinc (Zn)	< 50	mg/L	Aluminum	878	SPONTANEOUS POTENTIAL	550 600 650 700 750 800 850 900 950	0-1380 SAND Fine to coarse sand with scattered gravel lenses down to 600 feet. 580-600 Thin clay lenses. 750-760 Some gravel. 860-1000 Thin clay lenses.
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PAGE	OF	DRILL HOLE BR-3 [Page 2]
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**USBR Drill Hole Completion and Data Log
Monitoring Well BR-3**

FEATURE	Drill Hole Completed with Nested Piezometers	DRILLED DEPTH	2024 Ft.
PROJECT	Indian Wells Valley Groundwater Project	COMPLETED DEPTH	1990 Ft.
LOCATION	T.27 S., R.39 E., Sec. 11d	STATE	CA
TYPE OF WELL	Observation	BEGUN	3-06-91
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity	FINISHED	3-19-91
COORDINATES		GROUND ELEVATION	2508.6
HOLE LOGGED BY	Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA	TOP OF CASING ELEV.	2511.9
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature	DEPTH TO WATER (DATE)	See Notes
OTHER LOGS	Drilling Time	LAB ANALYSIS	Yes, See Notes
		TDS	See Notes
		REVIEWED BY	Dennis Watt, USBR



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USBR Drill Hole Completion and Data Log Monitoring Well BR-3			
FEATURE	Drill Hole Completed with Nested Piezometers	DRILLED DEPTH	2024 Ft.
PROJECT	Indian Wells Valley Groundwater Project	COMPLETED DEPTH	1990 Ft.
LOCATION	T.27 S., R.39 E., Sec. 11d	STATE	CA
TYPE OF WELL	Observation	BEGUN	3-06-91
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity	FINISHED	3-19-91
COORDINATES		GROUND ELEVATION	2508.6
HOLE LOGGED BY	Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA	TOP OF CASING ELEV.	2511.9
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature	DEPTH TO WATER (DATE)	See Notes
OTHER LOGS	Drilling Time	LAB ANALYSIS	Yes, See Notes
		TDS	See Notes
		REVIEWED BY	Dennis Watt, USBR

NOTES		DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
				1380-1740 CLAY Mostly brown clay with some reddish brown and yellow brown clay. 1680-1740 Sand layers. 1740-1880 SAND WITH CLAY LAYERS Fine to coarse sand with brown clay layers. 1880-1970 SAND Medium to coarse sand with a few thin clay lenses. 1970-2024 SAND WITH CLAY LAYERS Mostly medium to coarse sand. Twenty to thirty percent of the cuttings were clay.

PAGE	OF	DRILL HOLE BR-3 [Page 4]
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USBR Drill Hole Completion and Data Log Monitoring Well BR-4			
FEATURE	Drill Hole Completed with Single Piezometer (Intended Multiple Completion)		DRILLED DEPTH
PROJECT	Indian Wells Valley Groundwater Project		COMPLETED DEPTH
LOCATION	T.26 S., R.39 E., Sec. 26a	STATE	CA
TYPE OF WELL	Observation	FINISHED	9-14-90
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity	GROUND ELEVATION	2375.2
COORDINATES		TOP OF CASING ELEV.	2377.5
HOLE LOGGED BY	Cuttings Description by Ken Turner, Kern Co. Water Agency	DEPTH TO WATER (DATE)	See Notes
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature	LAB ANALYSIS	Yes, See Notes
OTHER LOGS	Drilling Time	TDS	See Notes
		REVIEWED BY	Dennis Watt, USBR

NOTES	 ELECTRIC LOG	DEPTH (FEET) LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION			
DRILL SITE: The well is located about 600 feet south of Hwy. 170, 1.05 miles west of Jack Ranch Road. DRILLED BY: U.S. Bureau of Reclamation. One crew from Sacramento and the other from Phoenix. DRILLING RIG: Truck mounted Portadrill TLS-542 rotary. DRILLING METHOD: Direct rotary with bentonite mud. 7 7/8 inch roller cone bit to total depth. Reamed to total depth with a 10 1/4 inch roller cone bit. HOLE COMPLETION: Installed one 2" diameter steel pipe with a 10' two inch diameter screen on the bottom. The screen is at a depth interval of 1190'-1200'. Benseal (bentonite) plug set at the following depth interval: 960'-1130'. This hole was to be completed with multiple piezometers. However, much difficulty ensued when the 2" filter pack tremie pipe could not be moved from the bottom of the hole. The deep piezometer (2000 ft.) was pulled out and the tremie broke during the attempt to pull it. An overshot was washed and rotated over the top of the stuck tremie. The overshot twisted off near the bottom after retrieving most of the tremie. Numerous fishing trips removed pipe down to 1220 feet. Lead impression showed that the hole was filled around the pipes at 1220 feet. Decided to complete the remaining open hole with one piezometer to 1200 feet. Nearby production wells are screened down to about 1000 feet. DEVELOPMENT: The piezometer was air-lifted and discharged an estimated 5-10 gallons per minute. The water sample for lab analysis was collected at the end of development. DEPTH TO WATER: Depth was measured on December 12, 1991 from the top of the outer casing. <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black;">Screen Interval</td> <td style="border-bottom: 1px solid black;">Depth (Ft.)</td> </tr> <tr> <td>1190'-1200'</td> <td>252'</td> </tr> </table> All depth to water measurements are available in the Geohydrologic Appendix for this project.	Screen Interval	Depth (Ft.)	1190'-1200'	252'		The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return. GENERAL The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth. Depth intervals are feet below land surface. 0-160 SAND Light brown, medium to coarse. 40-60 Coarse. 60-120 Coarse, occasional fine gravel. 120-130 Yellowish brown, very fine to fine. 130-140 Brownish gray. 140-150 Pinkish gray. 150-160 Gravelly, pinkish gray. 160-250 GRAVELLY SAND Pinkish gray, fine to coarse. 240-250 Dark gray to black, medium to coarse. 250-270 Gray, medium to coarse. 330-390 Silty with fine gravel, brownish gray. 390-420 Brown. 420-510 SILTY SAND Brown, fine to coarse.
Screen Interval	Depth (Ft.)					
1190'-1200'	252'					

FEATURE	<u>Drill Hole Completed with Single Piezometer (Intended Multiple Completion)</u>	DRILLED DEPTH	<u>2020 Ft.</u>
PROJECT	<u>Indian Wells Valley Groundwater Project</u>	COMPLETED DEPTH	<u>1210 Ft.</u>
LOCATION	<u>T.26 S., R.39 E., Sec. 26a</u>	STATE	<u>CA</u>
TYPE OF WELL	<u>Observation</u>	BEGUN	<u>8-29-90</u>
PURPOSE	<u>Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity</u>	FINISHED	<u>9-14-90</u>
COORDINATES		GROUND ELEVATION	<u>2375.2</u>
HOLE LOGGED BY	<u>Cuttings Description by Ken Turner, Kern Co. Water Agency</u>	TOP OF CASING ELEV.	<u>2377.5</u>
GEOPHYSICAL LOGS	<u>Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature</u>	DEPTH TO WATER (DATE)	<u>See Notes</u>
OTHER LOGS	<u>Drilling Time</u>	LAB ANALYSIS	<u>Yes, See Notes</u>
		TDS	<u>See Notes</u>
		REVIEWED BY	<u>Dennis Watt, USBR</u>

NOTES	SPONTANEOUS POTENTIAL mV	DEPTH (FEET) LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION																																																																																																											
SLUG TEST RESULTS: Estimated transmissivity (ft²/min) by the Cooper (1967) method for the 10 feet of aquifer at the screen. Piezometer T Medium .28 WATER QUALITY: Water analysis by: Clinical Labs 1595 North "D" Street San Bernardino CA 92405 Depth 1190'-1200' <table border="1" style="width: 100%; font-size: small;"> <thead> <tr> <th>Units</th> <th>Concentration</th> <th>Analyzing Results</th> </tr> </thead> <tbody> <tr><td colspan="3">Heavy Metals Laboratory</td></tr> <tr><td>TOTAL</td><td>Total dissolved solids (TDS)</td><td>2.7 g/l</td></tr> <tr><td>Ca</td><td>Calcium (Ca)</td><td>2.1 g/l</td></tr> <tr><td>Mg</td><td>Magnesium (Mg)</td><td>0.4 g/l</td></tr> <tr><td>K</td><td>Potassium (K)</td><td>0.1 g/l</td></tr> <tr><td>Na</td><td>Sodium (Na)</td><td>0.2 g/l</td></tr> <tr><td>Cl</td><td>Chloride (Cl)</td><td>0.1 g/l</td></tr> <tr><td colspan="3">(Oxidation-Reduction) 3.7%</td></tr> <tr><td>TOTAL</td><td>Total dissolved solids (TDS)</td><td>2.7 g/l</td></tr> <tr><td>Ca</td><td>Calcium (Ca)</td><td>2.1 g/l</td></tr> <tr><td>Mg</td><td>Magnesium (Mg)</td><td>0.4 g/l</td></tr> <tr><td>K</td><td>Potassium (K)</td><td>0.1 g/l</td></tr> <tr><td>Na</td><td>Sodium (Na)</td><td>0.2 g/l</td></tr> <tr><td>Cl</td><td>Chloride (Cl)</td><td>0.1 g/l</td></tr> <tr><td colspan="3">Water Quality Analysis</td></tr> <tr><td>TOTAL</td><td>Total dissolved solids (TDS)</td><td>2.7 g/l</td></tr> <tr><td>Ca</td><td>Calcium (Ca)</td><td>2.1 g/l</td></tr> <tr><td>Mg</td><td>Magnesium (Mg)</td><td>0.4 g/l</td></tr> <tr><td>K</td><td>Potassium (K)</td><td>0.1 g/l</td></tr> <tr><td>Na</td><td>Sodium (Na)</td><td>0.2 g/l</td></tr> <tr><td>Cl</td><td>Chloride (Cl)</td><td>0.1 g/l</td></tr> <tr><td colspan="3">Organic Compounds</td></tr> <tr><td>TOTAL</td><td>Total dissolved solids (TDS)</td><td>2.7 g/l</td></tr> <tr><td>Ca</td><td>Calcium (Ca)</td><td>2.1 g/l</td></tr> <tr><td>Mg</td><td>Magnesium (Mg)</td><td>0.4 g/l</td></tr> <tr><td>K</td><td>Potassium (K)</td><td>0.1 g/l</td></tr> <tr><td>Na</td><td>Sodium (Na)</td><td>0.2 g/l</td></tr> <tr><td>Cl</td><td>Chloride (Cl)</td><td>0.1 g/l</td></tr> <tr><td colspan="3">Additional Data</td></tr> <tr><td>TOTAL</td><td>Total dissolved solids (TDS)</td><td>2.7 g/l</td></tr> <tr><td>Ca</td><td>Calcium (Ca)</td><td>2.1 g/l</td></tr> <tr><td>Mg</td><td>Magnesium (Mg)</td><td>0.4 g/l</td></tr> <tr><td>K</td><td>Potassium (K)</td><td>0.1 g/l</td></tr> <tr><td>Na</td><td>Sodium (Na)</td><td>0.2 g/l</td></tr> <tr><td>Cl</td><td>Chloride (Cl)</td><td>0.1 g/l</td></tr> </tbody> </table>	Units	Concentration	Analyzing Results	Heavy Metals Laboratory			TOTAL	Total dissolved solids (TDS)	2.7 g/l	Ca	Calcium (Ca)	2.1 g/l	Mg	Magnesium (Mg)	0.4 g/l	K	Potassium (K)	0.1 g/l	Na	Sodium (Na)	0.2 g/l	Cl	Chloride (Cl)	0.1 g/l	(Oxidation-Reduction) 3.7%			TOTAL	Total dissolved solids (TDS)	2.7 g/l	Ca	Calcium (Ca)	2.1 g/l	Mg	Magnesium (Mg)	0.4 g/l	K	Potassium (K)	0.1 g/l	Na	Sodium (Na)	0.2 g/l	Cl	Chloride (Cl)	0.1 g/l	Water Quality Analysis			TOTAL	Total dissolved solids (TDS)	2.7 g/l	Ca	Calcium (Ca)	2.1 g/l	Mg	Magnesium (Mg)	0.4 g/l	K	Potassium (K)	0.1 g/l	Na	Sodium (Na)	0.2 g/l	Cl	Chloride (Cl)	0.1 g/l	Organic Compounds			TOTAL	Total dissolved solids (TDS)	2.7 g/l	Ca	Calcium (Ca)	2.1 g/l	Mg	Magnesium (Mg)	0.4 g/l	K	Potassium (K)	0.1 g/l	Na	Sodium (Na)	0.2 g/l	Cl	Chloride (Cl)	0.1 g/l	Additional Data			TOTAL	Total dissolved solids (TDS)	2.7 g/l	Ca	Calcium (Ca)	2.1 g/l	Mg	Magnesium (Mg)	0.4 g/l	K	Potassium (K)	0.1 g/l	Na	Sodium (Na)	0.2 g/l	Cl	Chloride (Cl)	0.1 g/l		420-510 SILTY SAND Brown, fine to coarse. 500-510 Clayey, light gray to pale yellow. 510-600 GRAVELLY SAND Light brown, medium to coarse sand, fine gravel. 520-530 Silty, fine to coarse. 580-600 Silty, light gray to yellow brown, very fine to medium. 600-630 CLAY Dark gray, plastic. 630-680 SILTY, CLAYEY SAND Dark gray, very fine to medium 680-990 GRAVELLY SAND Light brown, fine to coarse sand, fine gravel. 740-810 Silty, gray to light brown. 810-950 Pink to gray to light brown, medium to coarse sand. 950-970 Silty, pink to gray to light brown. 970-990 Sand, light brown to gray. 990-1200 SANDY SILT Grayish brown, fine to medium sand. 990-1000 Very fine to coarse.
Units	Concentration	Analyzing Results																																																																																																												
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USBR Drill Hole Completion and Data Log Monitoring Well BR-4				
FEATURE	Drill Hole Completed with Single Piezometer (Intended Multiple Completion)		DRILLED DEPTH	2020 Ft.
PROJECT	Indian Wells Valley Groundwater Project		COMPLETED DEPTH	1210 Ft.
LOCATION	T.26 S., R.39 E., Sec. 26a	STATE	CA	BEGUN 8-29-90
TYPE OF WELL	Observation		FINISHED	9-14-90
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity		GROUND ELEVATION	2375.2
COORDINATES			TOP OF CASING ELEV.	2377.5
HOLE LOGGED BY	Cuttings Description by Ken Turner, Kern Co. Water Agency		DEPTH TO WATER (DATE)	See Notes
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature		LAB ANALYSIS	Yes, See Note
OTHER LOGS	Drilling Time		TDS	See Notes
			REVIEWED BY	Dennis Watt, USBR

NOTES	SHORT NORMAL 16 inch LONG NORMAL 64 inch 5 mv 0 25 50	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
	SPONTANEOUS POTENTIAL			990-1200 SANDY SILT Grayish brown, fine to medium sand. 1050-1080 Clayey. 1140-1160 Pinkish gray, medium to coarse sand, chunks of olive green dense clay. 1160-1200 Light brown to gray, fine to coarse sand, some gravel. 1200-1500 SAND Pale brown, fine to coarse. 1230-1300 Silty. 1300-1340 Clayey, very fine to coarse. 1340-1450 Very fine to coarse. 1450-1460 Coarse to very coarse, chunks of olive green clay. 1460-1490 Silty, light brown to gray, very fine to coarse. 1490-1500 Light brown to gray, medium to coarse.

PAGE	OF	DRILL HOLE BR-4 [Page 3]
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USBR Drill Hole Completion and Data Log Monitoring Well BR-4				
FEATURE	Drill Hole Completed with Single Piezometer (Intended Multiple Completion)		DRILLED DEPTH	2020 Ft.
PROJECT	Indian Wells Valley Groundwater Project		COMPLETED DEPTH	1210 Ft.
LOCATION	T.26 S., R.39 E., Sec. 26a	STATE	CA	BEGUN 8-29-90
TYPE OF WELL	Observation		FINISHED	9-14-90
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity		GROUND ELEVATION	2375.2
COORDINATES			TOP OF CASING ELEV.	2377.5
HOLE LOGGED BY	Cuttings Description by Ken Turner, Kern Co. Water Agency		DEPTH TO WATER (DATE)	See Notes
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature		LAB ANALYSIS	Yes, See Note
OTHER LOGS	Drilling Time		TDS	See Notes
			REVIEWED BY	Dennis Watt, USBR

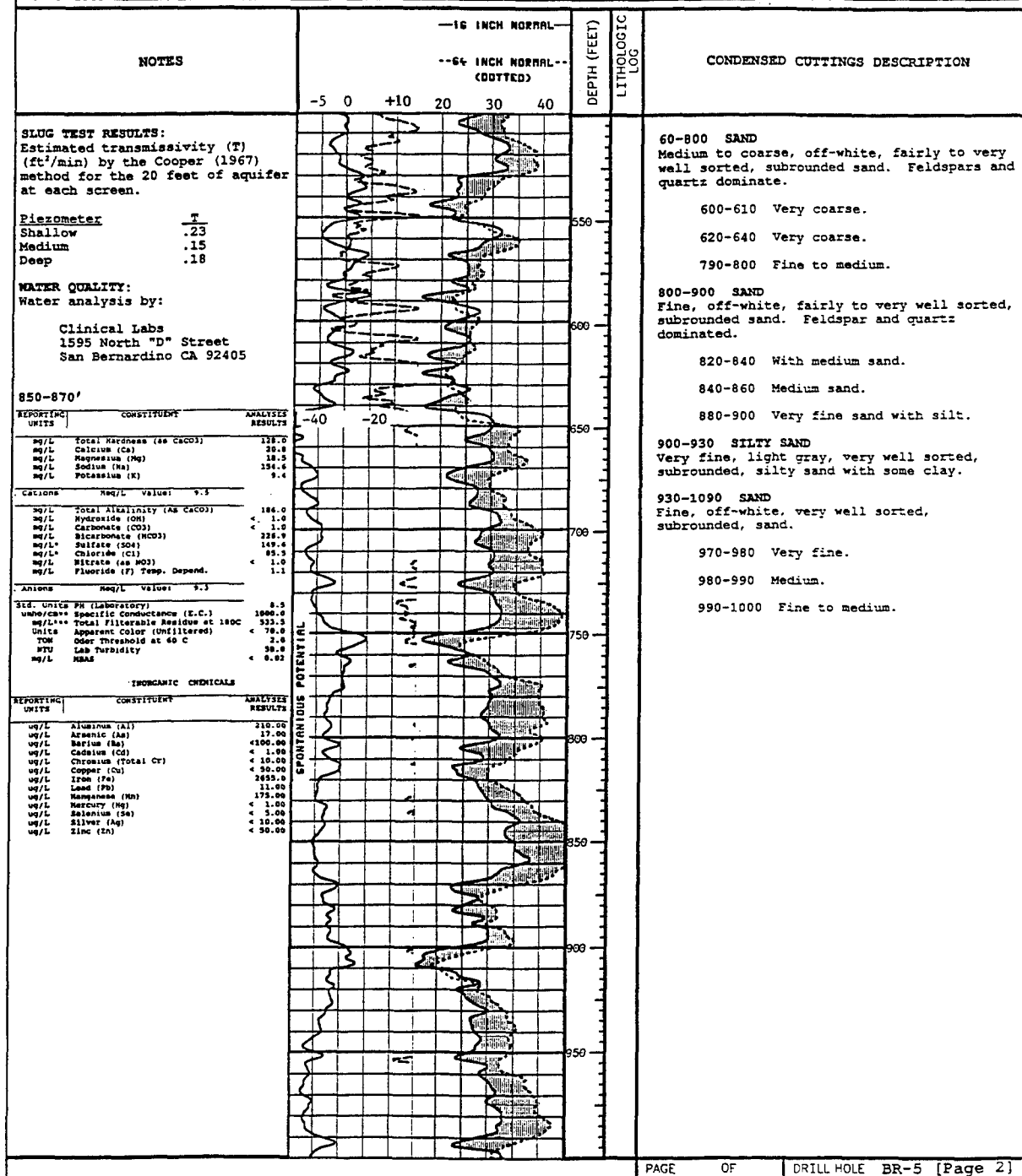
NOTES	SHORT NORMAL 16 inch LONG NORMAL 64 inch	10 mv 0 25 50	DEPTH (FEET) LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
	SPONTANEOUS POTENTIAL mV/meters	10 mv 0 25 50	550	1500-1995 SAND Light brown to gray, fine to coarse.
			600	1560-1570 Silty.
			650	1600-1610 Silty.
			700	1630-1650 Silty.
			750	1680-1720 Silty.
			800	1740-1780 Silty.
			850	1780-1840 Gray, medium to coarse.
			900	1840-1880 Silty, pale brown.
			950	1880-1995 Pale brown to light gray.
			2000	

USBR Drill Hole Completion and Data Log Monitoring Well BR-5				
FEATURE	Drill Hole Completed with Nested Piezometers		DRILLED DEPTH	2013 Ft.
PROJECT	Indian Wells Valley Groundwater Project		COMPLETED DEPTH	1980 Ft.
LOCATION	T.25 S., R.38 E., Sec. 34	STATE	BEGUN	12-19-91
TYPE OF WELL	Observation		FINISHED	1-03-92
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity		GROUND ELEVATION	2518.6
COORDINATES			TOP OF CASING ELEV.	2512.5
HOLE LOGGED BY	Cuttings Description by Mike Stoner, Naval Air Warfare Station		DEPTH TO WATER (DATE)	See Notes
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral Temperature		LAB ANALYSIS	Yes, See Notes
OTHER LOGS	Drilling Time		TDS	See Notes
			REVIEWED BY	Dennis Watt, USBR

NOTES	BARBOUR CORP WELL SURVEYING 805-482-4888 ELECTRIC LOG	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION															
DRILL SITE: The well is about 200 feet west of Hwy. 395 at a point about 1/2 mile north of the intersection of Leliter Road and Hwy. 395. DRILLED BY: Welch and Howell Drilling of El Centro CA. DRILLING RIG: Mac double (106' total height) direct rotary rig. DRILLING METHOD: Direct rotary with bentonite mud. 14 3/4 inch roller cone bit from 56 to 1014 feet. 12 1/4 roller cone bit from 1014 to total depth. HOLE COMPLETION: Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 850'-870', 1590'-1610', 1960'-1980'. Cement plugs set at the following depth intervals: 1365'-1385', 1696'-1706', 1788'-1800'. DEVELOPMENT: Each piezometer was air-lifted 3-4 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development. DEPTH TO WATER: All depths reported below were measured on January 28, 1992 from the top of the protective casing. These depths were measured only about 5 minutes after the cap was removed. Actual and relative depths may be different in subsequent measurements. <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black;">Screen Interval</td> <td style="border-bottom: 1px solid black;">Depth (Ft.)</td> </tr> <tr> <td>850'-870'</td> <td>334.9</td> </tr> <tr> <td>1590'-1610'</td> <td>341.9</td> </tr> <tr> <td>1960'-1980'</td> <td>343.7</td> </tr> </table> All depth to water measurements made during the project life are available in the Geohydrologic Appendix for this project. SLUG TEST RESULTS: Estimated transmissivity (T) (ft²/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen. <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black;">Piezometer</td> <td style="border-bottom: 1px solid black;">T</td> </tr> <tr> <td>Shallow</td> <td>.23</td> </tr> <tr> <td>Medium</td> <td>.15</td> </tr> <tr> <td>Deep</td> <td>.18</td> </tr> </table>	Screen Interval	Depth (Ft.)	850'-870'	334.9	1590'-1610'	341.9	1960'-1980'	343.7	Piezometer	T	Shallow	.23	Medium	.15	Deep	.18		50 100 150 200 250 300 350 400 450	The description below is reduced from a description of samples collected every 10 feet from the drilling mud return. GENERAL The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth. Depth intervals are feet below land surface. 0-60 No samples. 60-800 SAND Medium to coarse, off-white, fairly to very well sorted, subrounded sand. Feldspars and quartz dominate. 60-80 Well rounded. 100-110 Very coarse. 120-130 Coarse to very coarse. 180-190 Very coarse. 240-250 Very coarse. 250-260 Subangular. 300-310 Fine to medium and unsorted. 440-450 Very coarse. 490-500 Coarse to very coarse.
Screen Interval	Depth (Ft.)																		
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Piezometer	T																		
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Medium	.15																		
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**USBR Drill Hole Completion and Data Log
Monitoring Well BR-5**

FEATURE Drill Hole Completed with Nested Piezometers DRILLED DEPTH 2013 Ft.
 PROJECT Indian Wells Valley Groundwater Project COMPLETED DEPTH 1980 Ft.
 LOCATION T.25 S., R.38 E., Sec. 34 STATE BEGUN 12-19-91
 TYPE OF WELL Observation FINISHED 1-03-92
 PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity GROUND ELEVATION 2518.6
 COORDINATES TOP OF CASING ELEV. 2512.5
 HOLE LOGGED BY Cuttings Description by Mike Stoner, Naval Air Warfare Station DEPTH TO WATER (DATE) See Notes
 GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral LAB ANALYSIS Yes, See Notes
Temperature TDS See Notes
 OTHER LOGS Drilling Time REVIEWED BY Dennis Watt, USBR



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FEATURE	<u>Drill Hole Completed with Nested Piezometers</u>	DRILLED DEPTH	<u>2013 Ft.</u>
PROJECT	<u>Indian Wells Valley Groundwater Project</u>	COMPLETED DEPTH	<u>1980 Ft.</u>
LOCATION	<u>T.25 S., R.38 E., Sec. 34j</u>	STATE	<u>BEGUN 12-19-91</u>
TYPE OF WELL	<u>Observation</u>	FINISHED	<u>1-03-92</u>
PURPOSE	<u>Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity</u>	GROUND ELEVATION	<u>2518.6</u>
COORDINATES		TOP OF CASING ELEV.	<u>2512.5</u>
HOLE LOGGED BY	<u>Cuttings Description by Mike Stoner, Naval Air Warfare Station</u>	DEPTH TO WATER (DATE)	<u>See Notes</u>
GEOPHYSICAL LOGS	<u>Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral Temperature</u>	LAB ANALYSIS	<u>Yes, See Notes</u>
		TDS	<u>See Notes</u>
OTHER LOGS	<u>Drilling Time</u>	REVIEWED BY	<u>Dennis Watt, USBR</u>



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USBR Drill Hole Completion and Data Log Monitoring Well BR-5				
FEATURE	Drill Hole Completed with Nested Piezometers		DRILLED DEPTH	2013 Ft.
PROJECT	Indian Wells Valley Groundwater Project		COMPLETED DEPTH	1980 Ft.
LOCATION	T.25 S., R.38 E., Sec. 341	STATE	BEGUN	12-19-91
TYPE OF WELL	Observation		FINISHED	1-03-92
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity		GROUND ELEVATION	2518.6
COORDINATES			TOP OF CASING ELEV.	2512.5
HOLE LOGGED BY	Cuttings Description by Mike Stoner, Naval Air Warfare Station		DEPTH TO WATER (DATE)	See Notes
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral Temperature		LAB ANALYSIS	Yes, See Notes
OTHER LOGS	Drilling Time		TDS	See Notes
			REVIEWED BY	Dennis Watt, USBR

NOTES	--16 INCH NORMAL-- --64 INCH NORMAL-- (DOTTED) +20 +40 20 30 40	DEPTH (FEET) LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
		550 600 650 700 750 800 850 900 950	1500-1720 SAND Fine, off-white, fairly to very well sorted, subrounded sand. Feldspars and quartz dominate.
			1580-1610 Fine to medium sand.
			1610-1630 Medium sand.
			1640-1650 Medium sand.
			1660-1670 Medium with some coarse sand.
			1700-1710 Some medium sand.
			1720-2000 SAND Medium, off-white, fairly to very well sorted, subrounded sand. Feldspars and quartz dominate.
			1850-1860 Fine to medium sand.
			1860-1870 Some coarse sand.
			1880-1890 Some coarse sand.
1910-1920 Some coarse sand.			
1930-1950 Some fine sand.			
1960-1970 Some fine sand.			
1970-1980 Some coarse sand.			
1990-2000 Fine to medium sand.			

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USBR Drill Hole Completion and Data Log Monitoring Well BR-6				
FEATURE	Drill Hole Completed with Nested Piezometers		DRILLED DEPTH	2012 Ft.
PROJECT	Indian Wells Valley Groundwater Project		COMPLETED DEPTH	1660 Ft.
LOCATION	T.25 S., R. 38 E., Sec. 12m	STATE	CA	BEGUN
TYPE OF WELL	Observation			FINISHED
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity		GROUND ELEVATION	2352.2
COORDINATES			TOP OF CASING ELEV.	2354.1
HOLE LOGGED BY	Cuttings Description by Mike Stoner, Naval Air Warfare Station		DEPTH TO WATER (DATE)	See Notes
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral		LAB ANALYSIS	Yes, See Notes
	Temperature		TDS	See Notes
OTHER LOGS	Drilling Time		REVIEWED BY	Dennis Watt, USBR

NOTES	BARBOUR CORP WELL SURVEYING 805-482-4888 ELECTRIC LOG	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION																
DRILL SITE: The well is just inside (east) the Naval Weapons Center boundary (which is parallel Brown Road) along dirt eastward extension of the east-west section of Brown Road. DRILLED BY: Welch and Howell Drilling of El Centro CA. DRILLING RIG: Mac double (106' total height) direct rotary rig. DRILLING METHOD: Direct rotary with bentonite mud. 14 3/4 inch roller cone bit from 56 to 1010 feet. 12 1/4 roller cone bit from 1010 to total depth. HOLE COMPLETION: Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 330'-350', 1190'-1210', 1640'-1660'. Cement plugs set at the following depth intervals: 520'-550', 900'-925', 1400'-1420'. DEVELOPMENT: Each piezometer was air-lifted about 2 hours and discharged an estimated 5-10 gallons per minute. Water samples for lab analysis were collected at the end of development. DEPTH TO WATER: All depths reported below were measured on January 28, 1992 from the top of the protective casing. These depths were measured only about 5 minutes after the cap was removed. Actual and relative depths may be different in subsequent measurements. <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th>Screen Interval</th> <th>Depth (Ft.)</th> </tr> </thead> <tbody> <tr> <td>330'-350'</td> <td>163.9</td> </tr> <tr> <td>1190'-1210'</td> <td>164.6</td> </tr> <tr> <td>1640'-1660'</td> <td>149.9</td> </tr> </tbody> </table> All depth to water measurements made during the project life are available in the Geohydrologic Appendix for this project. SLUG TEST RESULTS: Estimated transmissivity (T) (ft²/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen. <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th>Piezometer</th> <th>T</th> </tr> </thead> <tbody> <tr> <td>Shallow</td> <td>.02*</td> </tr> <tr> <td>Medium</td> <td>.25</td> </tr> <tr> <td>Deep</td> <td>.20</td> </tr> </tbody> </table> *Note - This is suspiciously low.	Screen Interval	Depth (Ft.)	330'-350'	163.9	1190'-1210'	164.6	1640'-1660'	149.9	Piezometer	T	Shallow	.02*	Medium	.25	Deep	.20		50 100 150 200 250 300 350 400 450	LITHOLOGIC LOG	The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return. GENERAL The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth. Depth intervals are feet below land surface. 0-60 Missing samples. 60-90 SAND Light brown medium sand. 90-210 SAND Light brown coarse sand. 90-100 Medium to coarse sand. 120-130 Medium to coarse sand. 140-150 Medium to coarse sand. 170-180 Trace of volcanics. 180-190 Very coarse sand and fine gravel. 200-210 Medium to coarse sand. 210-230 SAND Light brown medium sand. 230-260 SAND Light brown, medium to coarse sand. 260-290 SAND Light brown very coarse sand with fine gravel. 290-320 SAND Light brown coarse to very coarse sand. 310-320 Coarse. 320-340 SAND Light brown medium to coarse sand. 340-370 SAND Light brown medium sand. 350-360 Silty. 360-370 Medium to coarse, silty. 370-400 CLAY Light gray-green clay. 380-400 Some fine to medium sand. 400-510 CLAY Sandy gray-green clay. 440-450 Silty medium sand. 460-470 Gray-green clay.
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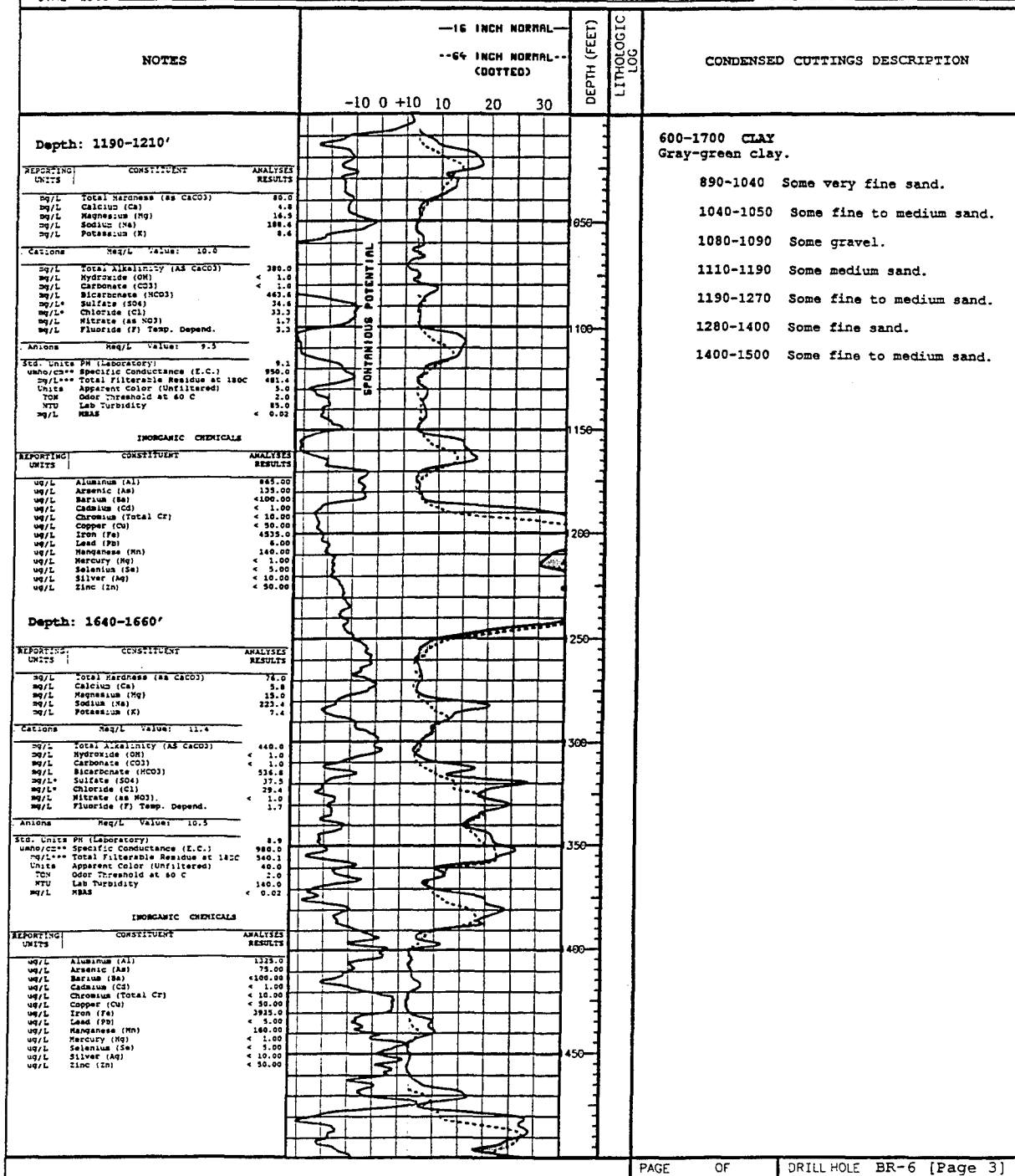
USBR Drill Hole Completion and Data Log Monitoring Well BR-6			
FEATURE	Drill Hole Completed with Nested Piezometers	DRILLED DEPTH	2012 Ft.
PROJECT	Indian Wells Valley Groundwater Project	COMPLETED DEPTH	1660 Ft.
LOCATION	T.25 S., R. 38 E., Sec. 12m	STATE	CA
TYPE OF WELL	Observation	BEGUN	1-10-92
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity	FINISHED	1-17-92
COORDINATES		GROUND ELEVATION	2352.2
HOLE LOGGED BY	Cuttings Description by Mike Stoner, Naval Air Warfare Station	TOP OF CASING ELEV.	2354.1
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral	DEPTH TO WATER (DATE)	See Notes
OTHER LOGS	Drilling Time	LAB ANALYSIS	Yes, See Notes
		TDS	See Notes
		REVIEWED BY	Dennis Watt, USBR

NOTES	SPONTANEOUS POTENTIAL	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION																																																																																																														
WATER QUALITY: Water analysis by: Clinical Labs 1595 North "D" Street San Bernardino CA 92405 Depth: 330-350' <table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>REPORTING UNITS</th> <th>CONSTITUENT</th> <th>ANALYSIS RESULTS</th> </tr> </thead> <tbody> <tr><td>mg/L</td><td>Total Hardness (as CaCO₃)</td><td>100.3</td></tr> <tr><td>mg/L</td><td>Calcium (Ca)</td><td>24.0</td></tr> <tr><td>mg/L</td><td>Magnesium (Mg)</td><td>9.7</td></tr> <tr><td>mg/L</td><td>Sodium (Na)</td><td>198.7</td></tr> <tr><td>mg/L</td><td>Potassium (K)</td><td>13.9</td></tr> <tr><td colspan="3">Cations meq/L Value: 11.0</td></tr> <tr><td>mg/L</td><td>Total Alkalinity (as CaCO₃)</td><td>192.0</td></tr> <tr><td>mg/L</td><td>Hydroxide (OH)</td><td>< 1.0</td></tr> <tr><td>mg/L</td><td>Carbonate (CO₃)</td><td>< 1.0</td></tr> <tr><td>mg/L</td><td>Bicarbonate (HCO₃)</td><td>234.2</td></tr> <tr><td>mg/L</td><td>Sulfate (SO₄)</td><td>168.0</td></tr> <tr><td>mg/L</td><td>Chloride (Cl)</td><td>74.0</td></tr> <tr><td>mg/L</td><td>Nitrate (as NO₃)</td><td>6.0</td></tr> <tr><td>mg/L</td><td>Fluoride (F) Temp. Depend.</td><td>3.7</td></tr> <tr><td colspan="3">Anions meq/L Value: 9.8</td></tr> <tr><td>Std. Units</td><td>PH (Laboratory)</td><td>8.9</td></tr> <tr><td>µmhos/cm</td><td>Specific Conductance (K.C.)</td><td>1030.0</td></tr> <tr><td>mg/L</td><td>Total Filterable Residue at 180C</td><td>594.3</td></tr> <tr><td>Units</td><td>Apparent Color (Intitared)</td><td>15.0</td></tr> <tr><td>TCU</td><td>Odor threshold at 60 C</td><td>2.0</td></tr> <tr><td>VTU</td><td>Lab Turbidity</td><td>180.0</td></tr> <tr><td>mg/L</td><td>NRAS</td><td>< 0.02</td></tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>REPORTING UNITS</th> <th>CONSTITUENT</th> <th>ANALYSIS RESULTS</th> </tr> </thead> <tbody> <tr><td>ug/L</td><td>Aluminum (Al)</td><td>1403.0</td></tr> <tr><td>ug/L</td><td>Arsenic (As)</td><td>195.00</td></tr> <tr><td>ug/L</td><td>Barium (Ba)</td><td><100.00</td></tr> <tr><td>ug/L</td><td>Cadmium (Cd)</td><td>< 1.00</td></tr> <tr><td>ug/L</td><td>Chromium (Total Cr)</td><td>< 10.00</td></tr> <tr><td>ug/L</td><td>Copper (Cu)</td><td>< 30.00</td></tr> <tr><td>ug/L</td><td>Iron (Fe)</td><td>1320.0</td></tr> <tr><td>ug/L</td><td>Lead (Pb)</td><td>7.00</td></tr> <tr><td>ug/L</td><td>Manganese (Mn)</td><td>310.00</td></tr> <tr><td>ug/L</td><td>Mercury (Hg)</td><td>< 1.00</td></tr> <tr><td>ug/L</td><td>Selenium (Se)</td><td>< 5.00</td></tr> <tr><td>ug/L</td><td>Silver (Ag)</td><td>< 10.00</td></tr> <tr><td>ug/L</td><td>Zinc (Zn)</td><td>91.00</td></tr> </tbody> </table>	REPORTING UNITS	CONSTITUENT	ANALYSIS RESULTS	mg/L	Total Hardness (as CaCO ₃)	100.3	mg/L	Calcium (Ca)	24.0	mg/L	Magnesium (Mg)	9.7	mg/L	Sodium (Na)	198.7	mg/L	Potassium (K)	13.9	Cations meq/L Value: 11.0			mg/L	Total Alkalinity (as CaCO ₃)	192.0	mg/L	Hydroxide (OH)	< 1.0	mg/L	Carbonate (CO ₃)	< 1.0	mg/L	Bicarbonate (HCO ₃)	234.2	mg/L	Sulfate (SO ₄)	168.0	mg/L	Chloride (Cl)	74.0	mg/L	Nitrate (as NO ₃)	6.0	mg/L	Fluoride (F) Temp. Depend.	3.7	Anions meq/L Value: 9.8			Std. Units	PH (Laboratory)	8.9	µmhos/cm	Specific Conductance (K.C.)	1030.0	mg/L	Total Filterable Residue at 180C	594.3	Units	Apparent Color (Intitared)	15.0	TCU	Odor threshold at 60 C	2.0	VTU	Lab Turbidity	180.0	mg/L	NRAS	< 0.02	REPORTING UNITS	CONSTITUENT	ANALYSIS RESULTS	ug/L	Aluminum (Al)	1403.0	ug/L	Arsenic (As)	195.00	ug/L	Barium (Ba)	<100.00	ug/L	Cadmium (Cd)	< 1.00	ug/L	Chromium (Total Cr)	< 10.00	ug/L	Copper (Cu)	< 30.00	ug/L	Iron (Fe)	1320.0	ug/L	Lead (Pb)	7.00	ug/L	Manganese (Mn)	310.00	ug/L	Mercury (Hg)	< 1.00	ug/L	Selenium (Se)	< 5.00	ug/L	Silver (Ag)	< 10.00	ug/L	Zinc (Zn)	91.00			
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USBR Drill Hole Completion and Data Log
Monitoring Well BR-6

FEATURE Drill Hole Completed with Nested Piezometers DRILLED DEPTH 2012 Ft.
 PROJECT Indian Wells Valley Groundwater Project COMPLETED DEPTH 1660 Ft.
 LOCATION T.25 S., R. 38 E., Sec. 12m STATE CA BEGUN 1-10-92
 TYPE OF WELL Observation FINISHED 1-17-92
 PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity GROUND ELEVATION 2352.2
 COORDINATES _____ TOP OF CASING ELEV. 2354.1
 HOLE LOGGED BY Cuttings Description by Mike Stoner, Naval Air Warfare Station DEPTH TO WATER (DATE) See Notes
 GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral LAB ANALYSIS Yes, See Notes
 Temperature _____ TDS _____
 OTHER LOGS Drilling Time REVIEWED BY Dennis Watt, USBR



PAGE OF DRILL HOLE BR-6 [Page 3]

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USBR Drill Hole Completion and Data Log Monitoring Well BR-6			
FEATURE	Drill Hole Completed with Nested Piezometers	ORILLED DEPTH	2012 Ft.
PROJECT	Indian Wells Valley Groundwater Project	COMPLETED DEPTH	1660 Ft.
LOCATION	T.25 S., R. 38 E., Sec. 12m	STATE	CA
TYPE OF WELL	Observation	BEGUN	1-10-92
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity	FINISHED	1-17-92
COORDINATES		GROUND ELEVATION	2352.2
HOLE LOGGED BY	Cuttings Description by Mike Stoner, Naval Air Warfare Station	TOP OF CASING ELEV.	2354.1
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral	DEPTH TO WATER (DATE)	See Notes
	Temperature	LAB ANALYSIS	Yes, See Notes
OTHER LOGS	Drilling Time	TDS	See Notes
		REVIEWED BY	Dennis Watt, USBR

NOTES	--16 INCH NORMAL-- --64 INCH NORMAL-- (DOTTED) -10 0 +10 10 20 30	DEPTH (FEET) LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
	SPONTANEOUS POTENTIAL	550 600 650 700 750 800 850 900 950	600-1700 CLAY Gray-green clay. 1500-1520 Some fine sand. 1520-1610 Some fine to medium sand. 1620-1640 Some fine sand. 1640-1700 Some fine to medium sand. 1700-1850 SAND Gray-green, clayey fine to medium sand. 1850-1920 SAND Gray-green medium sand with some silt and clay. 1870-1890 Missing samples. 1920-1980 SAND Medium to coarse sand with some dark gray-green silty clay. 1980-2000 CLAY Dark gray-green clay with a trace of fine sand.

PAGE	OF	DRILL HOLE BR-6 [Page 4]
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USBR Drill Hole Completion and Data Log Monitoring Well BR-10			
FEATURE	Drill Hole Completed with Nested Piezometers	DRILLED DEPTH	2005 Ft.
PROJECT	Indian Wells Valley Groundwater Project	COMPLETED DEPTH	1950 Ft.
LOCATION	T.24 S., R.38 E., Sec. 21J	STATE	CA
TYPE OF WELL	Observation	BEGUN	8-24-92
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity	FINISHED	9-02-92
COORDINATES		GROUND ELEVATION	
HOLE LOGGED BY	Cuttings Description by Mike Stoner, Naval Air Warfare Station	TOP OF CASING ELEV.	2561.4
GEOPHYSICAL LOGS	Dual Induction, Natural Gamma Ray Spectrometry, Caliper	DEPTH TO WATER (DATE)	See Notes
	Long Spaced Sonic Waveforms, Long Spaced Sonic, Temperature	LAB ANALYSIS	See Notes
OTHER LOGS	Drilling Time	TDS	See Notes
		REVIEWED BY	Dennis Watt, USBR

NOTES	SFL Averaged (SFLA) 0.0 (OHMM) 20.0	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION																		
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DRILL SITE: The well is about 0.1 mile southeast of the intersection of Hwy 395 and Ninemile Canyon Road DRILLED BY: Welch and Howell Drilling of El Centro CA. DRILLING RIG: Mac double (106' total height) direct rotary rig. DRILLING METHOD: Direct rotary with bentonite mud. 14 3/4 inch roller cone bit from 56 to 1010 feet. 12 1/4 roller cone bit from 1010 to total depth. SOLE COMPLETION: Installed three 2" diameter steel pipes with a 20' two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 640'-660', 1180'-1200', 1560'-1580', and 1930'-1950'. Cement plugs set at the following depth intervals: 890'-910', 1310'-1330', and 1770'-1790'. DEVELOPMENT: Each piezometer was air-lifted at least 4 hours. Water samples for lab analysis were collected at the end of development. DEPTH TO WATER: All depths reported below were measured on September 30, 1992 from the top of the outer casing. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Screen Interval</th> <th>Depth (Ft)</th> </tr> </thead> <tbody> <tr> <td>640'-660'</td> <td>308.4</td> </tr> <tr> <td>1180'-1200'</td> <td>321.8</td> </tr> <tr> <td>1560'-1580'</td> <td>362.1</td> </tr> <tr> <td>1930'-1950'</td> <td>364.0</td> </tr> </tbody> </table> All depth to water measurements made during the project life are available in the Geohydrologic Appendix for this project. SLUG TEST RESULTS: Estimated transmissivity (T) (ft²/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Piezometer</th> <th>T</th> </tr> </thead> <tbody> <tr> <td>Shallow</td> <td>.19</td> </tr> <tr> <td>Shal/Med</td> <td>.02*</td> </tr> <tr> <td>Deep/Med</td> <td>.14</td> </tr> <tr> <td>Deep</td> <td>.09</td> </tr> </tbody> </table> *Note - This is suspiciously low.	Screen Interval	Depth (Ft)	640'-660'	308.4	1180'-1200'	321.8	1560'-1580'	362.1	1930'-1950'	364.0	Piezometer	T	Shallow	.19	Shal/Med	.02*	Deep/Med	.14	Deep	.09		The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return. GENERAL The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth. Depth intervals are feet below land surface. 0-40 Missing samples. 40-60 GRAVEL Dark salt and pepper color with basalt. 80-680 SAND Tan-gray medium to coarse sand. 80-120 Very coarse with gravel to 1/4 inch. 160-180 Coarse sand with gravel. 180-300 Medium sand with silt. 300-320 Fine to medium sand with some silt. 320-360 Silty. 360-380 Medium sand with silt. 380-400 Silt. 400-420 Silty medium sand. 420-460 Medium sand with silt. 460-520 Silty.
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USBR Drill Hole Completion and Data Log Monitoring Well BR-10			
FEATURE	Drill Hole Completed with Nested Piezometers	DRILLED DEPTH	2005 Ft.
PROJECT	Indian Wells Valley Groundwater Project	COMPLETED DEPTH	1950 Ft.
LOCATION	T.24 S., R.38 E., Sec. 21J	STATE	CA
TYPE OF WELL	Observation	BEGUN	8-24-92
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity	FINISHED	9-02-92
COORDINATES		GROUND ELEVATION	
HOLE LOGGED BY	Cuttings Description by Mike Stoner, Naval Air Warfare Station	TOP OF CASING ELEV.	2561.4
GEOPHYSICAL LOGS	Dual Induction, Natural Gamma Ray Spectrometry, Caliper	DEPTH TO WATER (DATE)	See Notes
	Long Spaced Sonic Waveforms, Long Spaced Sonic, Temperature	LAB ANALYSIS	See Notes
OTHER LOGS	Drilling Time	TDS	See Notes
		REVIEWED BY	Dennis Watt, USBR

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WATER QUALITY: Water analysis by: BC Laboratories 4100 Atlas Ct. 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NT Units	NOAS	0.40	mg/L	Hardness as CaCO3	131.	mg/L	Alkalinity as CaCO3	313.	mg/L	Ammonia as NH3	0.02	mg/L	Nitrate Nitrogen	0.1	mg/L	Ortho-phosphate	0.36	mg/L	Constituents	Results	Units	Aluminum	2790.	µg/L	Antimony	None Detected	µg/L	Arsenic	16.	µg/L	Barium	None Detected	µg/L	Boron	4.9	µg/L	Cadmium	None Detected	µg/L	Chromium	None Detected	µg/L	Copper	None Detected	µg/L	Lead	None Detected	µg/L	Lithium	250.	µg/L	Manganese	285.	µg/L	Mercury	None Detected	µg/L	Selenium	2.7	µg/L	Si as SiO2	48.	µg/L	Silver	None Detected	µg/L	Strontium	199.	µg/L	Thallium	None Detected	µg/L	Zinc	None Detected	µg/L	Total Iron	3530.	µg/L		80-680 SAND Tan-gray medium to coarse sand. 520-540 Silt with medium sand. 540-560 Silty medium sand. 560-580 Silty. 580-620 Some silt. 620-640 Fine to medium sand with silt. 640-680 Silty. 680-1000 CLAY Light gray-green clay with some sand. 680-740 Tan-gray clay with medium sand. 740-780 Some fine to medium sand. 780-820 Some fine sand. 820-840 Tan-gray, lots of fine to medium sand. 840-860 Tan-gray fine sand with clay. 860-1000 Some fine to medium sand.
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NAWS CL TP 004, Volume 1

USBR Drill Hole Completion and Data Log Monitoring Well BR-10			
FEATURE	Drill Hole Completed with Nested Piezometers	DRILLED DEPTH	2005 Ft.
PROJECT	Indian Wells Valley Groundwater Project	COMPLETED DEPTH	1950 Ft.
LOCATION	T.24 S., R.38 E., Sec. 21J	STATE	CA
TYPE OF WELL	Observation	BEGUN	8-24-92
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity	FINISHED	9-02-92
COORDINATES		GROUND ELEVATION	
HOLE LOGGED BY	Cuttings Description by Mike Stoner, Naval Air Warfare Station	TOP OF CASING ELEV.	2561.4
GEOPHYSICAL LOGS	Dual Induction, Natural Gamma Ray Spectrometry, Caliper	DEPTH TO WATER (DATE)	See Notes
	Long Spaced Sonic Waveforms, Long Spaced Sonic, Temperature	LAB ANALYSIS	See Notes
OTHER LOGS	Drilling Time	TDS	See Notes
		REVIEWED BY	Dennis Watt, USBR

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PAGE	OF	DRILL HOLE BR-10 [Page 3]
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FEATURE	<u>Drill Hole Completed with Nested Piezometers</u>	DRILLED DEPTH	<u>2005 Ft.</u>
PROJECT	<u>Indian Wells Valley Groundwater Project</u>	COMPLETED DEPTH	<u>1950 Ft.</u>
LOCATION	<u>T.24 S., R.38 E., Sec. 21J</u>	STATE	<u>CA</u>
TYPE OF WELL	<u>Observation</u>	BEGUN	<u>8-24-92</u>
PURPOSE	<u>Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity</u>	FINISHED	<u>9-02-92</u>
COORDINATES		GROUND ELEVATION	
HOLE LOGGED BY	<u>Cuttings Description by Mike Stoner, Naval Air Warfare Station</u>	TOP OF CASING ELEV.	<u>2561.4</u>
GEOPHYSICAL LOGS	<u>Dual Induction, Natural Gamma Ray Spectrometry, Caliper</u>	DEPTH TO WATER (DATE)	<u>See Notes</u>
	<u>Long Spaced Sonic Waveforms, Long Spaced Sonic, Temperature</u>	LAB ANALYSIS	<u>See Notes</u>
OTHER LOGS	<u>Drilling Time</u>	TDS	<u>See Notes</u>
		REVIEWED BY	<u>Dennis Watt, USBR</u>

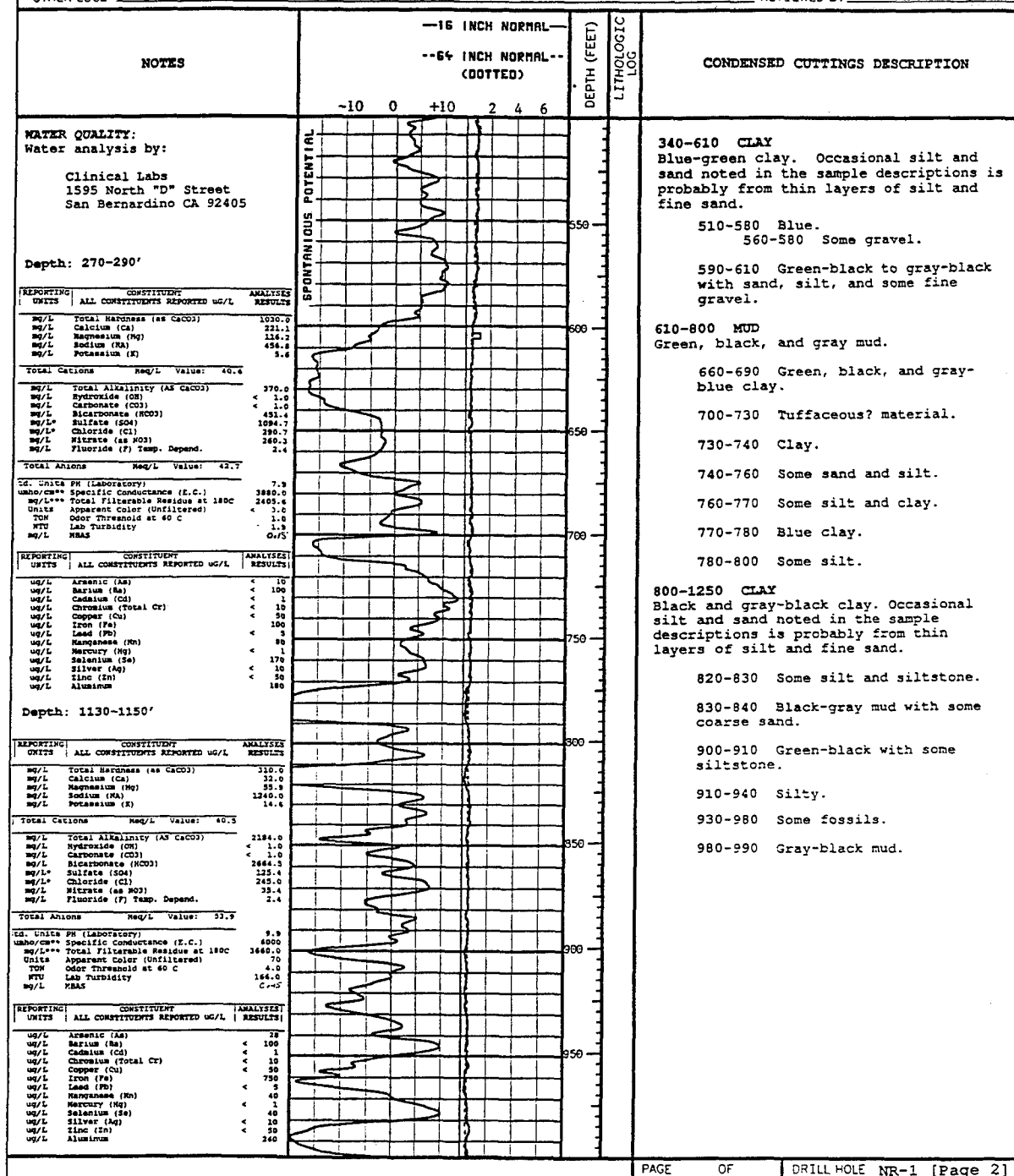
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NT Units	NRAS	0.96	mg/L	Hardness as CaCO3	576.	mg/L	Alkalinity as CaCO3	1050.	mg/L	Ammonia as NH3	0.05	mg/L	Nitrate Nitrogen	0.1	mg/L	Ortho-phosphate	0.39	mg/L	Constituents	Results	Units	Aluminum	None Detected	µg/L	Antimony	None Detected	µg/L	Arsenic	7.8	µg/L	Barium	None Detected	µg/L	Boron	1.1	µg/L	Cadmium	None Detected	µg/L	Chromium	None Detected	µg/L	Copper	None Detected	µg/L	Lead	None Detected	µg/L	Lithium	250.	µg/L	Manganese	286.	µg/L	Mercury	None Detected	µg/L	Selenium	None Detected	µg/L	Si as SiO2	59.	µg/L	Silver	None Detected	µg/L	Strontium	554.	µg/L	Thallium	None Detected	µg/L	Zinc	None Detected	µg/L	Total Iron	5820.	µg/L		1440-1600 SAND Medium to coarse, gray-green sand with a trace of clay. 1600-1640 CLAY Gray-green clay with medium sand. 1600-1620 With medium to coarse sand. 1640-2000 SAND Fine to medium, gray-green sand with a trace of clay. 1760-1780 Silty clay with medium sand. 1800-1840 Medium sand a with trace of clay. 1860-1940 Medium sand with clay. 1960-2005 Medium to coarse sand with a trace of clay.
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PAGE 0F DRILL HOLE BR-10 [Page 4]

USBR Drill Hole Completion and Data Log Monitoring Well NR-1																										
FEATURE <u>Drill Hole Completed with Nested Piezometers</u> PROJECT <u>Indian Wells Valley Groundwater Project (Water District Well)</u> LOCATION <u>T.25 S., R.38 E., Sec. 25j</u> STATE <u>CA</u> BEGUN <u>1-07-91</u> TYPE OF WELL <u>Observation</u> FINISHED <u>2-06-91</u> PURPOSE <u>Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity</u> GROUND ELEVATION <u>2275.7</u> COORDINATES _____ TOP OF CASING ELEV. <u>2278.6</u> HOLE LOGGED BY <u>Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA</u> DEPTH TO WATER (DATE) <u>See Notes</u> GEOPHYSICAL LOGS <u>Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature</u> LAB ANALYSIS <u>Yes, See Notes</u> TDS <u>See Notes</u> OTHER LOGS <u>Drilling Time</u> REVIEWED BY <u>Dennis Watt, USBR</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%; text-align: center; padding: 2px;">NOTES</th> <th style="width: 30%; text-align: center; padding: 2px;"> BARBOUR CORP WELL SURVEYING 805-482-4988 ELECTRIC LOG </th> <th style="width: 10%; text-align: center; padding: 2px;">DEPTH (FEET) LITHOLOGIC LOG</th> <th style="width: 30%; text-align: center; padding: 2px;">CONDENSED CUTTINGS DESCRIPTION</th> </tr> <tr> <td style="vertical-align: top; padding: 5px;"> DRILL SITE: The well is located in the extreme northeast corner of the Indian Wells Valley Water District's Neal Ranch property. DRILLED BY: Southern California Drilling Company of Lancaster CA. 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PAGE OF		DRILL HOLE NR-1 [Page 1]																								

**USBR Drill Hole Completion and Data Log
Monitoring Well NR-1**

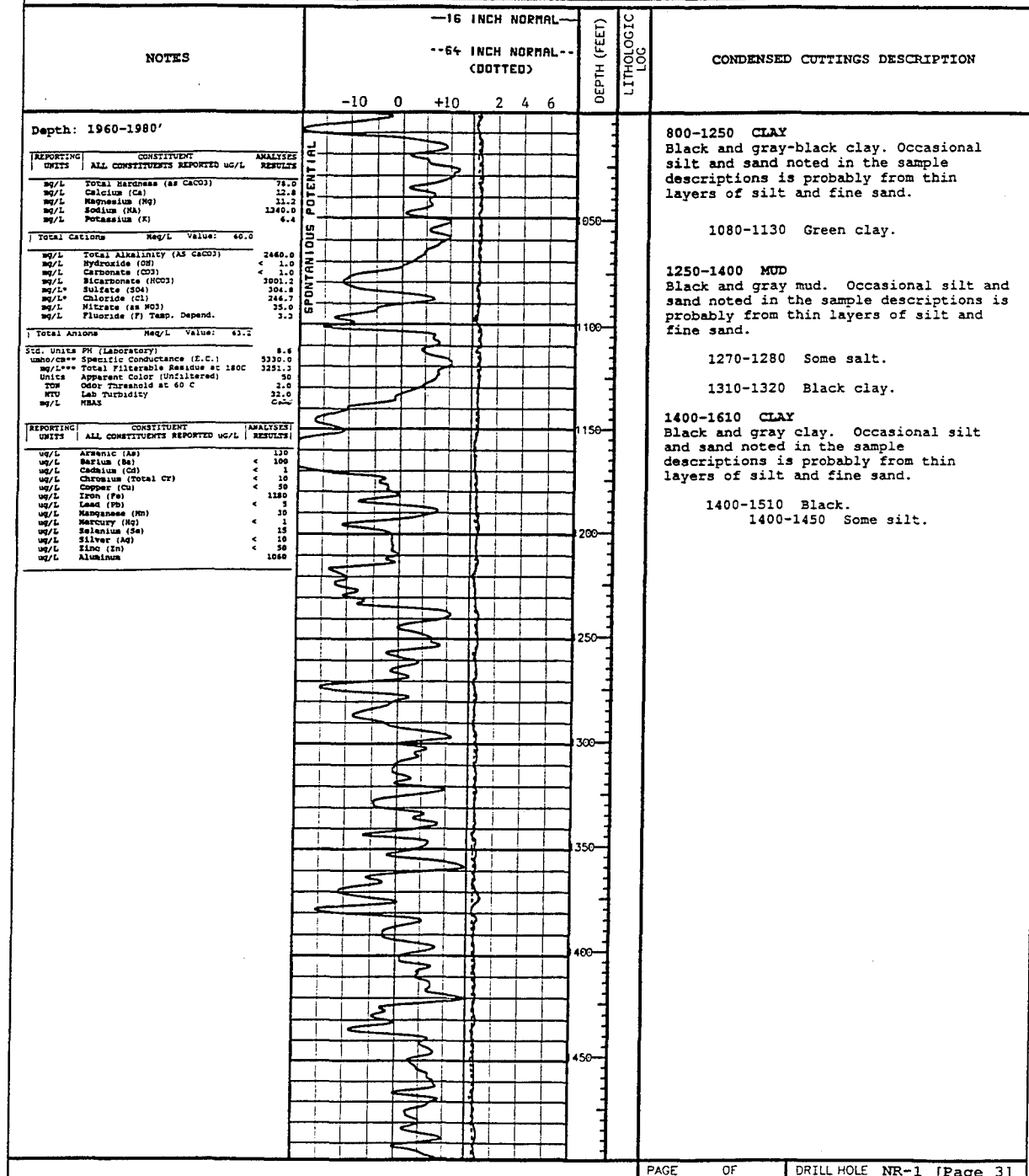
FEATURE Drill Hole Completed with Nested Piezometers DRILLED DEPTH 2012 Ft.
 PROJECT Indian Wells Valley Groundwater Project (Water District Well) COMPLETED DEPTH 2001 Ft.
 LOCATION T.25 S., R.38 E., Sec. 25 STATE CA BEGUN 1-07-91
 TYPE OF WELL Observation FINISHED 2-06-91
 PURPOSE Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity GROUND ELEVATION 2275.7
 COORDINATES TOP OF CASING ELEV. 2278.6
 HOLE LOGGED BY Cuttings Description by Diptri Barari, N. Amer. Chem. Co., Trona CA DEPTH TO WATER (DATE) See Notes
 GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, LAB ANALYSIS Yes, See Notes
Temperature TDS See Notes
 OTHER LOGS Drilling Time REVIEWED BY Dennis Watt, USBR



NAWS CL TP 004, Volume 1

USBR Drill Hole Completion and Data Log
Monitoring Well NR-1

FEATURE Drill Hole Completed with Nested Piezometers DRILLED DEPTH 2012 Ft.
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LOCATION T.25 S., R.38 E., Sec. 25 STATE CA BEGUN 1-07-91
TYPE OF WELL Observation FINISHED 2-06-91
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HOLE LOGGED BY Cuttings Description by Dipri Barari, N. Amer. Chem. Co., Trona CA DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral. LAB ANALYSIS Yes, See Notes
Temperature TDS See Notes
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NAWS CL TP 004, Volume 1

USBR Drill Hole Completion and Data Log Monitoring Well NR-1			
FEATURE	Drill Hole Completed with Nested Piezometers		DRILLED DEPTH 2012 Ft.
PROJECT	Indian Wells Valley Groundwater Project (Water District Well)		COMPLETED DEPTH 2001 Ft.
LOCATION	T.25 S., R.38 E., Sec. 25j	STATE CA	BEGUN 1-07-91
TYPE OF WELL	Observation		FINISHED 2-06-91
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity		GROUND ELEVATION 2275.7
COORDINATES			2278.6
HOLE LOGGED BY	Cuttings Description by Dipri Barari, N. Amer. Chem. Co., Trona CA		DEPTH TO WATER (DATE) See Notes
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature		LAB ANALYSIS Yes, See Notes
OTHER LOGS	Drilling Time		TDS See Notes
			REVIEWED BY Dennis Watt, USBR

NOTES	--16 INCH NORMAL-- --64 INCH NORMAL-- (DOTTED) -10 0 +10 2 4 6	DEPTH (FEET) LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
SPONTANEOUS POTENTIAL	550 600 650 700 750 800 850 900 950	550 600 650 700 750 800 850 900 950	1400-1610 CLAY Black and gray clay. Occasional silt and sand noted in the sample descriptions is probably from thin layers of silt and fine sand.
			1510-1560 Gray black. 1510-1520 Gray mud with silt.
			1560-1610 Black. 1560-1600 Some sand.
			1610-1680 MUD Black and gray mud.
			1610-1620 Siltstone pieces. 1640-1680 Siltstone pieces.
			1680-1820 CLAY Gray clay with siltstone pieces.
			1690-1700 Green. 1720-1760 With sand and silt.
			1770-1780 Siltstone pieces. 1790-1810 With sand and mudstone.
			1820-2012 SAND Medium sand.
			1820-1840 Coarse.

USBR Drill Hole Completion and Data Log Monitoring Well NR-2			
FEATURE <u>Drill Hole Completed with Nested Piezometers</u>	DRILLED DEPTH <u>1994 Ft.</u>		
PROJECT <u>Indian Wells Valley Groundwater Project (Water District Well)</u>	COMPLETED DEPTH <u>1950 Ft.</u>		
LOCATION <u>T. 25 S., R. 38 E., Sec. 36g</u>	STATE <u>CA</u> BEGUN <u>2-04-91</u>		
TYPE OF WELL <u>Observation</u>	FINISHED <u>2-15-91</u>		
PURPOSE <u>Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity</u>	GROUND ELEVATION <u>2314.7</u>		
COORDINATES _____	TOP OF CASING ELEV. <u>2317.7</u>		
HOLE LOGGED BY <u>Cutting Description by Dipti Barari, N. Amer. Chem., Co., Trona CA</u>	DEPTH TO WATER (DATE) <u>See Notes</u>		
GEOPHYSICAL LOGS <u>Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature</u>	LAB ANALYSIS <u>Yes, See Notes</u>		
OTHER LOGS <u>Drilling Time</u>	TDS <u>See Notes</u>		
REVIEWED BY <u>Dennis Watt, USBR</u>			

NOTES	BARBOUR CORP WELL SURVEYING 805-482-4988 ELECTRIC LOG	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
DRILL SITE: The well is located in the southwest corner of the southwestern block of the Indian Wells Valley Water District's Neal Ranch property.	-16 INCH NORMAL --64 INCH NORMAL-- (DOTTED)	50		The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return.
DRILLED BY: Southern California Drilling Company of Lancaster CA.		100		GENERAL The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth. Depth intervals are feet below land surface.
DRILLING RIG: Custom built small oil-field rotary rig.	-20 -10 0 10	150		0-440 SAND Fine to coarse with scattered fine gravel.
DRILLING METHOD: Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth.	SPONTANEOUS POTENTIAL	200		90-100 Some fine gravel.
HOLE COMPLETION: Installed three 2" diameter steel pipes with a 20" two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 330'-350', 1540'-1560', 1910'-1930'. Twenty feet of 2" pipe below each screen. Benseal (bentonite) plugs set at the following depth intervals: 250'-270', 450'-470', 1480'-1500', 1620'-1640'.		250		100-110 Silty.
DEVELOPMENT: Each piezometer was air-lifted for about 12 hours and discharged an estimated 10 gallons per minute.		300		140-170 Silty.
DEPTH TO WATER: All depths reported below were measured on October 22, 1991 from the top of the outer casing.		350		220-250 Very coarse.
Screen Interval Depth (Ft) 330'-350' 133.1 1540'-1560' 140.3 1910'-1930' 140.0		400		300-310 Silty.
All depth to water measurements are available in an attachment to the Geohydrologic Appendix for this project.		450		350-370 Blue clay with sand and gravel.
SLUG TEST RESULTS: Estimated transmissivity (ft ² /min) by the Cooper (1967) method for the 20 feet of aquifer at each screen.		500		420-440 Black silty fine to coarse sand.
Piezometer T Shallow .48 Medium .14 Deep .12		550		440-1480 CLAY Blue, blue green, blue gray, green, and gray clay.
		600		440-460 With sand and some mudstone pieces.
		650		470-490 Silty.

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DRILL HOLE NR-2 [Page 1]

USBR Drill Hole Completion and Data Log Monitoring Well NR-2																																																																													
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NOTES WATER QUALITY: Water analysis by: Clinical Labs 1595 North "D" Street San Bernardino CA 92405 DESCRIPTION OF SAMPLING POINT: NEAL RANCH #2 330-350 DATE/TIME COLLECTED: 2/26/91 0900 <table border="1" style="width: 100%; font-size: 0.8em;"> <thead> <tr> <th>RESULTS</th> <th>MCL</th> </tr> </thead> <tbody> <tr><td>TOTAL HARDNESS</td><td>241.2 mg/L</td></tr> <tr><td>CALCIUM HARDNESS</td><td>134.8 mg/L</td></tr> <tr><td>CALCIUM</td><td>54.8 mg/L</td></tr> <tr><td>MAGNESIUM</td><td>25.4 mg/L</td></tr> <tr><td>SODIUM</td><td>201.4 mg/L</td></tr> <tr><td>POTASSIUM</td><td>6.2 mg/L</td></tr> <tr><td>TOTAL ALKALINITY</td><td>295.6 mg/L</td></tr> <tr><td>HYDROXIDE</td><td>< 1.0 mg/L</td></tr> <tr><td>CARBONATE</td><td>< 1.0 mg/L</td></tr> <tr><td>BICARBONATE</td><td>360.4 mg/L</td></tr> <tr><td>SULFATE</td><td>232.8 mg/L</td></tr> <tr><td>CHLORIDE</td><td>85.0 mg/L</td></tr> <tr><td>NITRATE</td><td>25.6 mg/L</td></tr> <tr><td>FLUORIDE</td><td>0.8 mg/L</td></tr> <tr><td>TOTAL ANIONS</td><td>13.61 meq/L</td></tr> <tr><td>TOTAL CATIONS</td><td>13.73 meq/L</td></tr> <tr><td>RPD ANIONS/CATIONS</td><td>0.60 PERCENT</td></tr> <tr><td>PH</td><td>8.3 STD UNITS</td></tr> <tr><td>E.C.</td><td>1370.0 uhm/cm</td></tr> <tr><td>TDS</td><td>809.3 mg/L</td></tr> <tr><td>HAAS</td><td>< 0.02 mg/L</td></tr> <tr><td>MANGANESE</td><td>50 ug/L 50</td></tr> <tr><td>COPPER</td><td>< 50 ug/L 1000</td></tr> <tr><td>IRON</td><td>< 100 ug/L 300</td></tr> <tr><td>ZINC</td><td>< 50 ug/L 5000</td></tr> <tr><td>BARIUM</td><td>< 100 ug/L 1000</td></tr> <tr><td>CHROMIUM</td><td>< 10 ug/L 50</td></tr> <tr><td>COBALT</td><td>< 1 ug/L 10</td></tr> <tr><td>LEAD</td><td>12 ug/L 50</td></tr> <tr><td>ALUMINUM</td><td>< 100 ug/L 1000</td></tr> <tr><td>MERCURY</td><td>< 1 ug/L 2</td></tr> <tr><td>ARSENIC</td><td>< 10 ug/L 50</td></tr> <tr><td>SELENIUM</td><td>10 ug/L 100</td></tr> <tr><td>SILVER</td><td>< 10 ug/L 50</td></tr> <tr><td>COLOR</td><td>< 3</td></tr> <tr><td>ODS</td><td>1</td></tr> <tr><td>TURBIDITY</td><td>0.5 NTU</td></tr> </tbody> </table>	RESULTS	MCL	TOTAL HARDNESS	241.2 mg/L	CALCIUM HARDNESS	134.8 mg/L	CALCIUM	54.8 mg/L	MAGNESIUM	25.4 mg/L	SODIUM	201.4 mg/L	POTASSIUM	6.2 mg/L	TOTAL ALKALINITY	295.6 mg/L	HYDROXIDE	< 1.0 mg/L	CARBONATE	< 1.0 mg/L	BICARBONATE	360.4 mg/L	SULFATE	232.8 mg/L	CHLORIDE	85.0 mg/L	NITRATE	25.6 mg/L	FLUORIDE	0.8 mg/L	TOTAL ANIONS	13.61 meq/L	TOTAL CATIONS	13.73 meq/L	RPD ANIONS/CATIONS	0.60 PERCENT	PH	8.3 STD UNITS	E.C.	1370.0 uhm/cm	TDS	809.3 mg/L	HAAS	< 0.02 mg/L	MANGANESE	50 ug/L 50	COPPER	< 50 ug/L 1000	IRON	< 100 ug/L 300	ZINC	< 50 ug/L 5000	BARIUM	< 100 ug/L 1000	CHROMIUM	< 10 ug/L 50	COBALT	< 1 ug/L 10	LEAD	12 ug/L 50	ALUMINUM	< 100 ug/L 1000	MERCURY	< 1 ug/L 2	ARSENIC	< 10 ug/L 50	SELENIUM	10 ug/L 100	SILVER	< 10 ug/L 50	COLOR	< 3	ODS	1	TURBIDITY	0.5 NTU	-16 INCH NORMAL --64 INCH NORMAL-- (DOTTED) -20 -10 0 10 SPONTANEOUS POTENTIAL DEPTH (FEET) LITHOLOGIC LOG CONDENSED CUTTINGS DESCRIPTION 440-1480 CLAY Blue, blue green, blue gray, green, and gray clay. 510-530 Silty. 640-650 Gray mud. 650-680 Gray clay with siltstone chips and small fossils. 690-710 Small fossils. 720-730 Silty with small fossils. 750-770 Some sand. 790-800 Some fossils. 800-840 Sandy with few gravels.
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TOTAL ANIONS	13.61 meq/L																																																																												
TOTAL CATIONS	13.73 meq/L																																																																												
RPD ANIONS/CATIONS	0.60 PERCENT																																																																												
PH	8.3 STD UNITS																																																																												
E.C.	1370.0 uhm/cm																																																																												
TDS	809.3 mg/L																																																																												
HAAS	< 0.02 mg/L																																																																												
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CHROMIUM	< 10 ug/L 50																																																																												
COBALT	< 1 ug/L 10																																																																												
LEAD	12 ug/L 50																																																																												
ALUMINUM	< 100 ug/L 1000																																																																												
MERCURY	< 1 ug/L 2																																																																												
ARSENIC	< 10 ug/L 50																																																																												
SELENIUM	10 ug/L 100																																																																												
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COLOR	< 3																																																																												
ODS	1																																																																												
TURBIDITY	0.5 NTU																																																																												
PAGE OF DRILL HOLE NR-2 [Page 2]																																																																													

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USBR Drill Hole Completion and Data Log Monitoring Well NR-2					
FEATURE <u>Drill Hole Completed with Nested Piezometers</u>		DRILLED DEPTH <u>1994 Ft.</u>			
PROJECT <u>Indian Wells Valley Groundwater Project (Water District Well)</u>		COMPLETED DEPTH <u>1950 Ft.</u>			
LOCATION <u>T. 25 S., R. 38 E., Sec. 36g</u>		STATE <u>CA</u> BEGUN <u>2-04-91</u>			
TYPE OF WELL <u>Observation</u>		FINISHED <u>2-15-91</u>			
PURPOSE <u>Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity</u>		GROUND ELEVATION <u>2314.7</u>			
COORDINATES _____		TOP OF CASING ELEV. <u>2317.7</u>			
HOLE LOGGED BY <u>Cutting Description by Dipri Barari, N. Amer. Chem., Co., Trona CA</u>		DEPTH TO WATER (DATE) <u>See Notes</u>			
GEOPHYSICAL LOGS <u>Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral.</u>		LAB ANALYSIS <u>Yes. See Notes</u>			
OTHER LOGS <u>Drilling Time</u>		TDS <u>See Notes</u>			
		REVIEWED BY <u>Dennis Watt, USBR</u>			

NOTES	-16 INCH NORMAL-- --64 INCH NORMAL-- (DOTTED)	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION																																																																																																																																																								
DESCRIPTION OF SAMPLING POINT: MEAL RANCH #2 1540-1560 DATE/TIME COLLECTED: 2/16/91 0800 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>RESULTS</th> <th>MCL</th> </tr> </thead> <tbody> <tr><td>TOTAL HARDNESS</td><td>497.2 mg/L</td></tr> <tr><td>CALCIUM HARDNESS</td><td>285.2 mg/L</td></tr> <tr><td>CALCIUM</td><td>124.2 mg/L</td></tr> <tr><td>MAGNESIUM</td><td>41.6 mg/L</td></tr> <tr><td>SODIUM</td><td>272.3 mg/L</td></tr> <tr><td>POTASSIUM</td><td>4.5 mg/L</td></tr> <tr><td>TOTAL ALKALINITY</td><td>310.0 mg/L</td></tr> <tr><td>HYDROXIDE</td><td>< 1.0 mg/L</td></tr> <tr><td>CARBONATE</td><td>< 1.0 mg/L</td></tr> <tr><td>BICARBONATE</td><td>378.2 mg/L</td></tr> <tr><td>SULFATE</td><td>467.7 mg/L</td></tr> <tr><td>CHLORIDE</td><td>158.9 mg/L</td></tr> <tr><td>NITRATE</td><td>107.1 mg/L</td></tr> <tr><td>FLUORIDE</td><td>1.1 mg/L</td></tr> <tr><td>TOTAL ANIONS</td><td>22.23 mg/L</td></tr> <tr><td>TOTAL CATIONS</td><td>21.09 mg/L</td></tr> <tr><td>APD ANIONS/CATIONS</td><td>3.55 PERCENT</td></tr> <tr><td>pH</td><td>8.0 STD UNITS</td></tr> <tr><td>E.C.</td><td>2240.0 umho/cm</td></tr> <tr><td>TDS</td><td>1766.8 mg/L</td></tr> <tr><td>MBAS</td><td>< 0.02 mg/L</td></tr> <tr><td>MANGANESE</td><td>< 30 ug/L 50</td></tr> <tr><td>COPPER</td><td>< 50 ug/L 1000</td></tr> <tr><td>IRON</td><td>< 100 ug/L 200</td></tr> <tr><td>ZINC</td><td>< 50 ug/L 5000</td></tr> <tr><td>BARIUM</td><td>< 100 ug/L 1000</td></tr> <tr><td>CHROMIUM</td><td>< 10 ug/L 50</td></tr> <tr><td>CADMIUM</td><td>< 1 ug/L 10</td></tr> <tr><td>LEAD</td><td>< 5 ug/L 50</td></tr> <tr><td>ALUMINUM</td><td>< 100 ug/L 1000</td></tr> <tr><td>MERCURY</td><td>< 1 ug/L 2</td></tr> <tr><td>ARSENIC</td><td>15 ug/L 50</td></tr> <tr><td>SELENIUM</td><td>60 ug/L 100</td></tr> <tr><td>SILVER</td><td>< 10 ug/L 50</td></tr> <tr><td>COLOR</td><td>< 3</td></tr> <tr><td>ODOR</td><td>1</td></tr> <tr><td>TURBIDITY</td><td>1.2 NTU</td></tr> </tbody> </table> DESCRIPTION OF SAMPLING POINT: MEAL RANCH #2 1910-1930 DATE/TIME COLLECTED: 2/16/91 1000 <table border="1" style="width: 100%; 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USBR Drill Hole Completion and Data Log Monitoring Well NR-2					
FEATURE	Drill Hole Completed with Nested Piezometers		DRILLED DEPTH	1994 Ft.	
PROJECT	Indian Wells Valley Groundwater Project (Water District Well)		COMPLETED DEPTH	1950 Ft.	
LOCATION	T. 25 S., R. 38 E., Sec. 36g	STATE	CA	BEGUN	2-04-91
TYPE OF WELL	Observation		FINISHED	2-15-91	
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity		GROUND ELEVATION	2314.7	
COORDINATES			TOP OF CASING ELEV.	2317.7	
HOLE LOGGED BY	Cutting Description by Dipti Barari, N. Amer. Chem., Co., Trona CA		DEPTH TO WATER (DATE)	See Notes	
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature		LAB ANALYSIS	Yes, See Notes	
OTHER LOGS	Drilling Time		TDS	See Notes	
			REVIEWED BY	Dennis Watt, USBR	

NOTES	--16 INCH NORMAL-- --64 INCH NORMAL-- (DOTTED) -20 -10 4 10	DEPTH (FEET) LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION
	SPONTANEOUS POTENTIAL	550 600 650 700 750 800 850 900 950	1480-1620 SAND Mostly fine to coarse sand with finer interbeds. The depth of the top and bottom of this interval is based on the electric log. Log of cuttings shows an increasing sand content beginning at 1500 feet. 1620-1635 CLAY Mostly gray, black, green, or gray black clay. 1635-1985 INTERBEDDED SAND AND CLAY Clays are green, gray and black. Sands are fine to coarse. About 50% of interval is clay.

USBR Drill Hole Completion and Data Log Monitoring Well MW-32			
FEATURE <u>Drill Hole Completed with Nested Piezometers</u>		DRILLED DEPTH <u>1968 Ft.</u>	
PROJECT <u>Indian Wells Valley Groundwater Project (Water District Well)</u>		COMPLETED DEPTH <u>1941 Ft.</u>	
LOCATION <u>T.26 S., R.39 E., Sec. 27d</u>		STATE <u>CA</u> BEGUN <u>9-23-91</u>	
TYPE OF WELL <u>Observation</u>		FINISHED <u>10-8-91</u>	
PURPOSE <u>Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity</u>		GROUND ELEVATION <u>2418.1</u>	
COORDINATES _____		TOP OF CASING ELEV. <u>2418.1</u>	
HOLE LOGGED BY <u>Cuttings Description by Dipri Barari, N. Amer. Chem. Co., Trona CA</u>		DEPTH TO WATER (DATE) <u>See Notes</u>	
GEOPHYSICAL LOGS <u>Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature</u>		LAB ANALYSIS <u>Yes, See Notes</u>	
OTHER LOGS _____		TDS <u>See Notes</u>	
REVIEWED BY <u>Dennis Warr, USBR</u>			

NOTES	BARBOUR CORP WELL SURVEYING 805-482-4988 ELECTRIC LOG	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION																			
DRILL SITE: The well is located just north of the east west dirt road just to the east of the center of the Indian Wells Valley Water District's Victor Street property. DRILLED BY: Rottman Drilling Company of Lancaster CA. DRILLING RIG: Custom built small oil-field rotary rig. DRILLING METHOD: Direct rotary with bentonite mud. 12 1/4 inch roller cone bit from surface to total depth. HOLE COMPLETION: Installed four 2" diameter steel pipes with a 20" two inch diameter screen on the bottom of each. Screens are at the following depth intervals: 360'-380', 880'-900', 1240'-1260', 1900'-1920'. Twenty feet of 2" pipe below each screen. Benseal (bentonite) plugs set at the following depth intervals: 430'-450', 700'-720', 980'-1000', 1290'-1310', 1680'-1700'. DEVELOPMENT: Each piezometer was air-lifted for about 12 hours and discharged an estimated 5-15 gallons per minute. Water samples for lab analysis were collected at the end of development. DEPTH TO WATER: All depths reported below were measured on December 12, 1991 from the top of the outer casing. <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Screen Interval</th> <th style="text-align: left;">Depth (Ft)</th> </tr> <tr> <td>360'-380'</td> <td>241.0</td> </tr> <tr> <td>880'-900'</td> <td>241.7</td> </tr> <tr> <td>1240'-1260'</td> <td>241.2</td> </tr> <tr> <td>1900'-1920'</td> <td>240.4</td> </tr> </table> All depth to water measurements are available in an attachment to the Geohydrologic Appendix for this project. SLUG TEST RESULTS: Estimated transmissivity (ft²/min) by the Cooper (1967) method for the 20 feet of aquifer at each screen. <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Piezometer</th> <th style="text-align: left;">T</th> </tr> <tr> <td>Shallow</td> <td>.009"</td> </tr> <tr> <td>Shallow Medium</td> <td>.31</td> </tr> <tr> <td>Deep Medium</td> <td>.23</td> </tr> <tr> <td>Deep</td> <td>.11</td> </tr> </table> *Note - Too low. Poor development?	Screen Interval	Depth (Ft)	360'-380'	241.0	880'-900'	241.7	1240'-1260'	241.2	1900'-1920'	240.4	Piezometer	T	Shallow	.009"	Shallow Medium	.31	Deep Medium	.23	Deep	.11		50 100 150 200 250 300 350 400 450	The interpretation below is reduced from a description of samples collected every 10 feet from the drilling mud return. GENERAL The collected samples and drilling character indicate a non-cemented alluvial fill from land surface to total depth. Depth intervals are feet below land surface. 0-190 SAND Light brown fine to medium sand. 90-100 About 10% coarse sand. 130-140 About 10% coarse sand. 190-220 CLAYEY SAND Light brown, clayey fine to coarse sand. 190-200 About 50% clay. 200-210 About 20% clay. 210-220 About 10% clay. 220-350 SAND Light brown fine to medium sand. 240-250 Fine sand. 350-360 SANDY CLAY Light brown sandy clay. 360-410 CLAYEY SAND Light brown clayey sand. 360-370 About 40% clay. 370-390 About 20% clay. 390-410 About 30% clay. 410-430 SANDY CLAY Light brown sandy clay. 410-420 About 40% sand. 420-430 About 50% sand.
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FEATURE <u>Drill Hole Completed with Nested Piezometers</u>		DRILLED DEPTH <u>1968 Ft.</u>			
PROJECT <u>Indian Wells Valley Groundwater Project (Water District Well)</u>		COMPLETED DEPTH <u>1941 Ft.</u>			
LOCATION <u>T.26 S., R.39 E., Sec. 27d</u>		STATE <u>CA</u>		BEGUN <u>9-23-91</u>	
TYPE OF WELL <u>Observation</u>		FINISHED <u>10-8-91</u>			
PURPOSE <u>Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity</u>		GROUND ELEVATION			
COORDINATES		TOP OF CASING ELEV. <u>2418.1</u>			
HOLE LOGGED BY <u>Cuttings Description by Dipti Barari, N. Amer. Chem. Co., Trona CA.</u>		DEPTH TO WATER (DATE)		<u>See Notes</u>	
GEOPHYSICAL LOGS <u>Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature</u>		LAB ANALYSIS		<u>Yes, See Note</u>	
OTHER LOGS		TDS		<u>See Notes</u>	
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NOTES	-16 INCH NORMAL- --64 INCH NORMAL-- (DOTTED)	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION																																																																																																																																																																														
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		REVIEWED BY <u>Dennis Watt, USBR</u>	

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NAWS CL TP 004, Volume 1

USBR Drill Hole Completion and Data Log Monitoring Well MW-32			
FEATURE	Drill Hole Completed with Nested Piezometers	DRILLED DEPTH	1968 Ft.
PROJECT	Indian Wells Valley Groundwater Project (Water District Well)	COMPLETED DEPTH	1941 Ft.
LOCATION	T.26 S., R.39 E., Sec. 27d	STATE	CA
TYPE OF WELL	Observation	BEGUN	9-23-91
PURPOSE	Lithology, Groundwater Quality, Piezometric Level, Hydraulic Conductivity	FINISHED	10-8-91
COORDINATES		GROUND ELEVATION	
HOLE LOGGED BY	Cuttings Description by Dipri Barari, N. Amer. Chem. Co., Trona CA	TOP OF CASING ELEV.	2418.1
GEOPHYSICAL LOGS	Spontaneous Potential, 16 and 64 inch Resistivity, 6 Foot Lateral, Temperature	DEPTH TO WATER (DATE)	See Notes
		LAB ANALYSIS	Yes, See Note
		TDS	See Notes
OTHER LOGS		REVIEWED BY	Dennis Watt, USBR

NOTES	-16 INCH NORMAL- --64 INCH NORMAL-- (DOTTED) -5 +5 15 25 35	DEPTH (FEET)	LITHOLOGIC LOG	CONDENSED CUTTINGS DESCRIPTION																																																																					
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USBR Drill Hole Completion and Data Log (Land Surface to 2,000 Feet) Geothermal Test Well SNORT #1					
FEATURE	Drill Hole Completed with Two "Shallow" Piezometers			DRILLED DEPTH	7,394 Ft.
PROJECT	Indian Wells Valley Groundwater Project (Navy Geothermal Test Well)			COMPLETED DEPTH	See Notes
LOCATION	T. 25 S., R. 39 E., Sec. 23			STATE	CA
TYPE OF WELL	Geothermal Test Well - Naval Air Warfare Station, Geothermal Office			BEGUN	9-8-91
PURPOSE	Temperature Gradient, Lithology, Groundwater Quality, Piezometric Level			FINISHED	9-30-91
COORDINATES				GROUND ELEVATION	
HOLE LOGGED BY	Norm Wycoff and Doug Hosto			TOP OF CASING ELEV.	
GEOPHYSICAL LOGS	Dual Induction (ILD, SFLA, CILD), Spontaneous Potential, Natural Gamma			DEPTH TO WATER (DATE)	See Notes
OTHER LOGS	Drilling Time			LAB ANALYSIS	Yes, See Notes
				TDS	See Notes
				REVIEWED BY	

NOTES	Schlumberger DUAL INDUCTION	DEPTH (FEET)	LITHOLOGIC LOG	LITHOLOGY SYMBOLS	
The Indian Wells Valley Groundwater Project was allowed to complete two intervals in the upper section of SNORT #1, a geothermal test well on the Naval Air Warfare Station. Only the upper 2,000 feet is described by this log. Total drilled depth was 7,394 feet. DRILL SITE: West of the Range Access Road in the center of section 23 on the Naval Air Warfare Station. About one mile north of the north end of the SNORT. DRILLED BY: Welch and Howell Drilling of El Centro CA. DRILLING RIG: Mac double (106' total height) direct rotary rig. DRILLING METHOD: Direct rotary with bentonite mud. 12 1/4 inch roller cone bit to 597 feet. 8 1/2 inch bit to 2,464 feet. HOLE COMPLETION: 9 5/8 inch steel casing set to 572 feet, geo. mix to surface; 7 inch casing set to 2442 feet, geo. mix to surface. Perforated 840'-880' and 1430'-1470' and set cement plug at 1000'-1100'. Access to 1430'-1470' perfs via 1 1/2 inch pipe through cement plug. Lower perforated intervals: 3,320'-3,340', 5,550'-5,570', 7,120'-7,140', and 7,400'. No flow from 1,430'-1,450' and 7,400'. DEVELOPMENT: Each perfed interval was nitrogen lifted. Water samples for lab analysis were collected at the end of development. SLUG TEST RESULTS: Slug test were not performed. WATER QUALITY: Laboratory water analysis by: BC Laboratories 4100 Atlas Ct. Bakersfield CA 93306 (See following pages)	ILD(OHMM) SFLA(OHMM) SFLA(OHMM)	10,000 2,000 10,000	50 100 150 200 250 300 350 400 450	Clay Shale Siltstone Sand Sandstone Conglomerate	
					Sand: clt to fros wht. occ orgn yel. v hd. m to crs gr. ang to sbnd. well strtd. tr calc cmt. tr mica.
					Clay: lt tan to buff. hyd. sft. stky. ethy lust. smth tex. sbnt calc cmt. tr mica.
					Clay: lt gy to gy. sft. hyd. smth tex. ethy lust. sbnt calc cmt. mnr mica.
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					Sand: clt to fros wht. occ gn. hd. occ firm in fros wht gr. m to crs gr. m well strtd. tr calc cmt. good vis por.
					Sand: clay to fros wht. occ gn. hd. vf to a gr. m poor strtd. tr calc cmt. sgd blk & gn lith frags. tr mica.
					Sand: clt to fros wht. hd. f to a gr. sbnd to sbnd. pred sil mtr. sl silty. tr calc cmt. m vis por. mica.
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USBR Drill Hole Completion and Data Log (Land Surface to 2,000 Feet) Geothermal Test Well SNORT #1									
FEATURE <u>Drill Hole Completed with Two "Shallow" Piezometers</u>						DRILLED DEPTH <u>7,394 Ft.</u>			
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LOCATION <u>T. 25 S., R. 39 E., Sec. 23</u>						STATE <u>CA</u>		BEGUN <u>9-8-91</u>	
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COORDINATES _____						TOP OF CASING ELEV. _____			
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GEOPHYSICAL LOGS <u>Dual Induction (ILD, SFLA, CILD), Spontaneous Potential, Natural Gamma</u>						LAB ANALYSIS <u>Yes, See Notes</u>			
OTHER LOGS <u>Temperature</u>						TDS <u>See Notes</u>			
OTHER LOGS <u>Drilling Time</u>						REVIEWED BY _____			

NOTES	ED(OHMM)	SFLA(OHMM)	SFLA(OHMM)	DEPTH (FEET)	LITHOLOGIC LOG																																																																																																			
	0.0	10.000																																																																																																						
	0.0	2.0000																																																																																																						
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				600																																																																																																				
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				750																																																																																																				
				800	Clay: med gry. occ grn gry. sft to sl fri. stky to gmy. ethy lstr. smth tex. v calc. tr mica.																																																																																																			
				850	Sandstone: clr to lt gry. frm to hd. sl fri. vf to f grn. eng to sbng. mod to w srted. gd calc cat. tr pyr. tr mica. tr lithic frags.																																																																																																			
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USBR Drill Hole Completion and Data Log
(Land Surface to 2,000 Feet)
Geothermal Test Well SNORT #1

FEATURE	Drill Hole Completed with Two "Shallow" Piezometers		DRILLED DEPTH	7,394 Ft.
PROJECT	Indian Wells Valley Groundwater Project (Navy Geothermal Test Well)		COMPLETED DEPTH	See Notes
LOCATION	T. 25 S., R.39 E., Sec. 23	STATE	CA	BEGUN 9-8-91
TYPE OF WELL	Geothermal Test Well - Naval Air Warfare Station, Geothermal Office		FINISHED	9-30-91
PURPOSE	Temperature Gradient, Lithology, Groundwater Quality, Piezometric Level		GROUND ELEVATION	
COORDINATES			TOP OF CASING ELEV.	
HOLE LOGGED BY	Norm Wycoff and Doug Hosto		DEPTH TO WATER (DATE)	See Notes
GEOPHYSICAL LOGS	Dual Induction (ILD, SFLA, CILD), Spontaneous Potential, Natural Gamma	LAB ANALYSIS	Yes, See Notes	
	Temperature		TDS	See Notes
OTHER LOGS	Drilling Time		REVIEWED BY	

NOTES			DEPTH (FEET)		LITHOLOGIC LOG	
			0.0	10.000		
			0.0	2.0000		
			0.0	10.000		
Depth: 5,550'-5,570'						
Constituents	Results	Units				
Calcium	4.6	mg/L				
Magnesium	3.2	mg/L				
Sodium	4920.	mg/L				
Potassium	22.	mg/L				
Carbonate	77.0	mg/L				
Bicarbonate	1270.	mg/L				
Chloride	5100.	mg/L				
Sulfate	2080.	mg/L				
Nitrate as NO3	None Detected	mg/L				
Fluoride	12.6	mg/L				
Bromide	5.6	mg/L				
pH	8.2	pH Units				
Electrical Conductivity @ 25 C	24000.	umhos/cm				
Total Dissolved Solids @ 180 C	12500.	mg/L				
Ammonia as NH3	11.4	mg/L				
Nitrate Nitrogen	None Detected	mg/L				
Ortho-phosphate	0.44	mg/L				
Constituents	Results	Units				
Aluminum	741.	µg/L				
Antimony	None Detected	µg/L				
Arsenic	57.	µg/L				
Boron	60.6	µg/L				
Copper	None Detected	µg/L				
Lithium	1550.	µg/L				
Manganese	36.	µg/L				
Mercury	None Detected	µg/L				
* Selenium	None Detected	µg/L				
Si as SiO2	45.	µg/L				
Strontium	3100.	µg/L				
Thallium	None Detected	µg/L				
Zinc	19.	µg/L				
Total Iron	806.	µg/L				
Depth: 7,120'-7,140'						
Constituents	Results	Units				
Calcium	4.6	mg/L				
Magnesium	3.2	mg/L				
Sodium	3480.	mg/L				
Potassium	9.3	mg/L				
Carbonate	456.	mg/L				
Bicarbonate	2620.	mg/L				
Chloride	2460.	mg/L				
Sulfate	910.	mg/L				
Nitrate as NO3	None Detected	mg/L				
Fluoride	24.	mg/L				
Bromide	2.9	mg/L				
pH	8.9	pH Units				
Electrical Conductivity @ 25 C	13500.	umhos/cm				
Total Dissolved Solids @ 180 C	8900.	mg/L				
Ammonia as NH3	16.6	mg/L				
Nitrate Nitrogen	None Detected	mg/L				
Ortho-phosphate	0.24	mg/L				
Constituents	Results	Units				
Aluminum	1770.	µg/L				
Antimony	None Detected	µg/L				
Arsenic	80.	µg/L				
Boron	52.9	µg/L				
Copper	None Detected	µg/L				
Lithium	360.	µg/L				
Manganese	98.	µg/L				
Mercury	None Detected	µg/L				
* Selenium	None Detected	µg/L				
Si as SiO2	43.	µg/L				
Strontium	350.	µg/L				
Thallium	None Detected	µg/L				
Zinc	46.	µg/L				
Total Iron	8960.	µg/L				
			850		Clay: med gry. aft. v stky. ethy lstr. smth tex. v calc. abnt blk cong frags. tr chlorite, tr pyr.	
			1100			
			150		Clay: med gry to gn gry. aft to sli frm. v stky. ethy lstr. smth tex. v calc. tr crushed qtz pebbles, tr lithic frags.	
			200		Clay: dk gry to blk. aft. stky. sooty lstr. smth tex. v calc. strong hydrocarbon odor.	
			250		Sand: clr to fros wht. f to med grn. abnd to rnd. w srted. pred uncons. occ wk silty calc cmt. fri. tr fe stn.	
			300		Clay: v dk gry to blk. aft to sli frm. stky. sooty lstr. sm tex. mod to v calc. tr vf gr qtz sd. hydrocarbon odor.	
			350		Clay: blk. occ med dk gry. aft to sli frm. stky. sooty lstr. mod to v calc. hydrocarbon odor. tr crushed qtz pebbles.	
			400		Sand: clr to fros wht. vf to f grn. occ med to csa grn. grd to conglomerate. tr gd calc cmt. abnt qtz pebbles. tr lithic pebbles. tr lign.	
			450		Clay: dk gry. aft to sli frm. stky. ethy lstr. smth tex. mod to v calc. tr helite. tr crushed qtz pebbles. tr vf gr qtz sd.	

USBR Drill Hole Completion and Data Log (Land Surface to 2,000 Feet) Geothermal Test Well SNORT #1			
FEATURE	Drill Hole Completed with Two "Shallow" Piezometers	DRILLED DEPTH	7,394 Ft.
PROJECT	Indian Wells Valley Groundwater Project (Navy Geothermal Test Well)	COMPLETED DEPTH	See Notes
LOCATION	T. 25 S., R. 39 E., Sec. 23	STATE	CA
		BEGUN	9-8-91
TYPE OF WELL	Geothermal Test Well - Naval Air Warfare Station, Geothermal Office	FINISHED	9-30-91
PURPOSE	Temperature Gradient, Lithology, Groundwater Quality, Piezometric Level	GROUND ELEVATION	
COORDINATES		TOP OF CASING ELEV.	
HOLE LOGGED BY	Norm Wycoff and Doug Hosto	DEPTH TO WATER (DATE)	See Notes
GEOPHYSICAL LOGS	Dual Induction (ILD, SFLA, CILD), Spontaneous Potential, Natural Gamma	LAB ANALYSIS	Yes, See Notes
	Temperature	TDS	See Notes
OTHER LOGS	Drilling Time	REVIEWED BY	

NOTES	DEPTH (FEET)	LITHOLOGIC LOG	
	0.0	10.000	
	0.0	20.000	
	0.0	10.000	
	550		Clay: dk gry to lt gry, all sft to v frm, atky to gmy, ethy lstr, smth tex, mod to v calc, tr halite, tr vf qtz sd, tr crushed qtz pebbles, tr lithic frags.
	600		Clay: blk to blue blk, sft to all frm, atky, sooty lstr, smth tex, v calc, tr vf grn qtz sd.
	650		Sand: clr to sl fros, crs to m gr, abng to abrd gr, intbd w/ gy sol clay, tr pyr.
	700		
	750		
	800		Clay: lt tan to dk gy, fri to firm, occ soft, calc, 7 mica in prt, tr pyr in dk silty frags.
	850		Carbide Log # 1836ft: 15. 87 Min, 107 SPM, 38 Vis. SX over Calc Log.
	900		Sandstone: wh to clr, occ gn, fri to firm, clr to fros qtz gr, vf to m gr, abrd, m well artd, abnt calc cat, mica in vf sand stx.
	950		

Appendix C
WATER QUALITY ANALYSES

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-1

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-2, 08-24-92 @ 8:30
COLLECTED BY HASTING

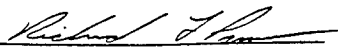
SNORT 7,120'-7,140' WATER ANALYSIS (METALS)

<u>Constituents</u>	<u>Results</u>	<u>Units</u>	<u>D.L.R.</u>	<u>Method</u>
Aluminum	1730.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	80.	µg/L	2.	SW-7060
Boron	52.9	mg/L	0.10	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lithium	560.	µg/L	10.	SW-7430
Manganese	98.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
* Selenium	None Detected	µg/L	10.	SW-7740
as SiO2	43.	mg/L	0.2	SW-6010
Strontium	350.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	46.	µg/L	10.	SW-6010
Total Iron	8960.	µg/L	50.	SW-6010

* Detection limit increased due to matrix interferences.
D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods",
EPA-SW-846, September, 1986.


Department Supervisor

SNORT 7,120-7,140

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/16/92
Date Received: 09/02/92
Laboratory No.: 7880-1

Sample Description: BOR-10 640. SAMPLE WAS TAKEN ON 09-01-92 @ 3:00AM BY HASTING.

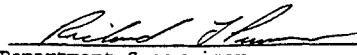
WATER ANALYSIS
(METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	2790.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	16.	µg/L	2.	SW-7060
Barium	None Detected	µg/L	100.	SW-6010
Boron	4.9	mg/L	0.10	SW-6010
Cadmium	None Detected	µg/L	1.	SW-7131
Chromium	None Detected	µg/L	10.	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lead	None Detected	µg/L	5.	SW-7421
Lithium	250.	µg/L	10.	SW-7430
Manganese	285.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
Selenium	2.7	µg/L	2.	SW-7740
Si as SiO2	48.	mg/L	0.2	SW-6010
Silver	None Detected	µg/L	10.	SW-6010
Strontium	399.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	None Detected	µg/L	10.	SW-6010
Total Iron	3530.	µg/L	50.	SW-6010

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods",
EPA-SW-846, September, 1986.


Department Supervisor

cc: GEOTHERMAL PROGRAM

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/15/92
Date Received: 09/02/92
Laboratory No.: 7880-2

Sample Description: BOR-10 1180. SAMPLE WAS TAKEN ON 09-01-92 @ 12:00PM BY HASTING.

WATER ANALYSIS (GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	8.3	mg/L	0.1	SW-7140
Magnesium	2.7	mg/L	0.01	SW-7450
Sodium	200.	mg/L	0.1	SW-7770
Potassium	11.5	mg/L	0.1	SW-7610
Total Cations	9.63	meq/L	0.01	Calculated
Hydroxide	< 0.8	mg/L	0.8	SM-403
Carbonate	11.1	mg/L	2.6	SM-403
Bicarbonate	60.0	mg/L	2.6	SM-403
Chloride	139.	mg/L	1.8	EPA-300.0
Sulfate	193.	mg/L	5.	EPA-300.0
Nitrate/Nitrite as NO3	1.8	mg/L	0.4	EPA-353.2
Fluoride	1.9	mg/L	0.05	EPA-340.2
Bromide	0.36	mg/L	0.05	EPA-300.0
Total Anions	9.42	meq/L	0.01	Calculated
pH	8.7	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	1040.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	580.	mg/L	10.	EPA-160.1
Color	20.	Color Units	1.0	EPA-110.2
Odor	4.	Odor Units	NA	EPA-140.1
Turbidity	15.	NT Units	0.05	EPA-180.1
MBAS	0.72	mg/L	0.02	EPA-425.1
Hardness as CaCO3	31.8	mg/L	0.3	Calculated
Alkalinity as CaCO3	67.7	mg/L	3.0	Calc
Ammonia as NH3	0.38	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	< 0.1	mg/L	0.1	EPA-353.2
Ortho-phosphate	< 0.10	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

- EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
- SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
- SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

M. Atencio
Department Supervisor

cc: GEOTHERMAL PROGRAM

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/15/92
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Sample Description: BOR-10 1180. SAMPLE WAS TAKEN ON 09-01-92 @ 12:00PM BY HASTING.

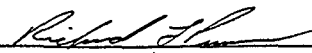
WATER ANALYSIS
(METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	742.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	2.7	µg/L	2.	SW-7060
Barium	None Detected	µg/L	100.	SW-6010
Boron	1.3	mg/L	0.10	SW-6010
Cadmium	None Detected	µg/L	1.	SW-7131
Chromium	None Detected	µg/L	10.	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lead	None Detected	µg/L	5.	SW-7421
Thallium	None Detected	µg/L	10.	SW-7430
Manganese	69.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
Selenium	2.4	µg/L	2.	SW-7740
Si as SiO2	12.	mg/L	0.2	SW-6010
Silver	None Detected	µg/L	10.	SW-6010
Strontium	84.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	None Detected	µg/L	10.	SW-6010
Total Iron	1830.	µg/L	50.	SW-6010

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods",
EPA-SW-846, September, 1986.


Department Supervisor

cc: GEOTHERMAL PROGRAM

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/15/92
Date Received: 09/02/92
Laboratory No.: 7880-3

Sample Description: BOR-10 1560. SAMPLE WAS TAKEN ON 09-01-92 @ 16:00PM BY HASTING.

WATER ANALYSIS
(GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	47.	mg/L	0.1	SW-7140
Magnesium	105.	mg/L	0.01	SW-7450
Sodium	254.	mg/L	0.1	SW-7770
Potassium	32.	mg/L	0.1	SW-7610
Total Cations	22.8	meq/L	0.01	Calculated
Hydroxide	< 0.8	mg/L	0.8	SM-403
Carbonate	< 2.6	mg/L	2.6	SM-403
Bicarbonate	1130.	mg/L	2.6	SM-403
Chloride	49.5	mg/L	1.8	EPA-300.0
Sulfate	156.	mg/L	5.	EPA-300.0
Nitrate/Nitrite as NO3	0.9	mg/L	0.4	EPA-353.2
Fluoride	0.56	mg/L	0.05	EPA-340.2
Bromide	0.12	mg/L	0.05	EPA-300.0
Total Anions	23.2	meq/L	0.01	Calculated
pH	7.9	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	1910.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	1220.	mg/L	10.	EPA-160.1
Color	30.	Color Units	1.0	EPA-110.2
Odor	4.	Odor Units	NA	EPA-140.1
Turbidity	27.	NT Units	0.05	EPA-180.1
MBAS	0.66	mg/L	0.02	EPA-425.1
Hardness as CaCO3	550.	mg/L	0.3	Calculated
Alkalinity as CaCO3	926.	mg/L	3.0	Calc
Ammonia as NH3	0.17	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	< 0.1	mg/L	0.1	EPA-353.2
Ortho-phosphate	0.48	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

- EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
- SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
- SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

M. Atencio
Department Supervisor

cc: GEOTHERMAL PROGRAM

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
 Weapons Division
 Code 2862
 China Lake, CA 93555-6001
 Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/15/92
 Date Received: 09/02/92
 Laboratory No.: 7880-3

Sample Description: BOR-10 1560. SAMPLE WAS TAKEN ON 09-01-92 @ 16:00PM BY HASTING.

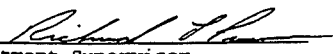
WATER ANALYSIS
 (METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	None Detected	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	7.8	µg/L	2.	SW-7060
Barium	None Detected	µg/L	100.	SW-6010
Boron	1.1	mg/L	0.10	SW-6010
Cadmium	None Detected	µg/L	1.	SW-7131
Chromium	None Detected	µg/L	10.	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lead	None Detected	µg/L	5.	SW-7421
Thium	250.	µg/L	10.	SW-7430
Manganese	95.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
Selenium	None Detected	µg/L	2.	SW-7740
Si as SiO2	81.	mg/L	0.2	SW-6010
Silver	None Detected	µg/L	10.	SW-6010
Strontium	678.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	None Detected	µg/L	10.	SW-6010
Total Iron	6910.	µg/L	50.	SW-6010

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
 SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods",
 EPA-SW-846, September, 1986.


 Department Supervisor

cc: GEOTHERMAL PROGRAM

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
 Weapons Division
 Code 2862
 China Lake, CA 93555-6001
 Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/15/92
 Date Received: 09/02/92
 Laboratory No.: 7880-4

Sample Description: BOR-10 1930. SAMPLE WAS TAKEN ON 09-02-92 @ 3:00AM BY HASTING.

WATER ANALYSIS
 (GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	30.	mg/L	0.1	SW-7140
Magnesium	121.	mg/L	0.01	SW-7450
Sodium	320.	mg/L	0.1	SW-7770
Potassium	44.	mg/L	0.1	SW-7610
Total Cations	26.5	meq/L	0.01	Calculated
Hydroxide	< 0.8	mg/L	0.8	SM-403
Carbonate	< 2.6	mg/L	2.6	SM-403
Bicarbonate	1280.	mg/L	2.6	SM-403
Chloride	58.2	mg/L	1.8	EPA-300.0
Sulfate	171.	mg/L	5.	EPA-300.0
Nitrate/Nitrite as NO3	0.9	mg/L	0.4	EPA-353.2
Fluoride	0.8	mg/L	0.05	EPA-340.2
Bromide	0.18	mg/L	0.05	EPA-300.0
Total Anions	26.2	meq/L	0.01	Calculated
pH	8.1	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	2400.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	1330.	mg/L	10.	EPA-160.1
Color	30.	Color Units	1.0	EPA-110.2
Odor	4.	Odor Units	NA	EPA-140.1
Turbidity	27.	NT Units	0.05	EPA-180.1
MBAS	0.96	mg/L	0.02	EPA-425.1
Hardness as CaCO3	576.	mg/L	0.3	Calculated
Alkalinity as CaCO3	1050.	mg/L	3.0	Calc
Ammonia as NH3	0.05	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	< 0.1	mg/L	0.1	EPA-353.2
Ortho-phosphate	0.39	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

- EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
 SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
 SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods",
 EPA-SW-846, September, 1986.

M. Atencio
 Department Supervisor

cc: GEOTHERMAL PROGRAM

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
Weapons Division
Code 2862
China Lake, CA 93555-6001
Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/15/92
Date Received: 09/02/92
Laboratory No.: 7880-4

Sample Description: BOR-10 1930. SAMPLE WAS TAKEN ON 09-02-92 @ 3:00AM BY HASTING.

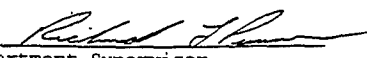
WATER ANALYSIS
(METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	None Detected	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	9.8	µg/L	2.	SW-7060
Barium	None Detected	µg/L	100.	SW-6010
Boron	1.6	mg/L	0.10	SW-6010
Cadmium	None Detected	µg/L	1.	SW-7131
Chromium	None Detected	µg/L	10.	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lead	None Detected	µg/L	5.	SW-7421
Lithium	180.	µg/L	10.	SW-7430
Manganese	286.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
Selenium	None Detected	µg/L	2.	SW-7740
Si as SiO2	59.	mg/L	0.2	SW-6010
Silver	None Detected	µg/L	10.	SW-6010
Strontium	554.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	None Detected	µg/L	10.	SW-6010
Total Iron	5820.	µg/L	50.	SW-6010

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods",
EPA-SW-846, September, 1986.


Department Supervisor

cc: GEOTHERMAL PROGRAM

4100 Adas Ct. • Bakersfield, CA 93308 • (805) 327-4911 • FAX (805) 327-1918

BR-10 Deep

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 02/26/91 Sample ID No. 910945
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *C. J. Jelliff*
Name of Sampler: MOULTON Employed By: PURVEYOR
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/02/02/1200 Received @ Lab: 91/02/02/1200 Completed: 91/02/26

System System
Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE Number: 36-042
Name or Number of Sample Source: NEAL RANCH #1 250-270

* Water Type: (G/S) |S| Station Number: 036/042-001 *
* Date/Time of Sample: |91|02|02|1200| User ID: TAN *
* YY MM DD HHMM *
* *
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|02|26| *
* YY MM DD *
* Submitted by: Phone #: *

Place an 'X' in box to delete all data for this station/date/time. ☐

PORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED UG/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
mg/L	Total Hardness (as CaCO ₃)	00900	1030.0		
mg/L	Calcium (Ca)	00916	221.1		
mg/L	Magnesium (Mg)	00927	116.2		30.0
mg/L	Sodium (NA)	00929	456.8		
mg/L	Potassium (K)	00937	5.6		
Total Cations Meq/L Value: 40.6					
mg/L	Total Alkalinity (AS CaCO ₃)	00410	370.0		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO ₃)	00445	< 1.0		
mg/L	Bicarbonate (HCO ₃)	00440	451.4		
mg/L*	Sulfate (SO ₄)	00945	1094.7		
mg/L*	Chloride (Cl)	00940	290.7		
mg/L	Nitrate (as NO ₃)	71850	260.3	45	
mg/L	Fluoride (F) Temp. Depend.	00951	2.4	****	0.1
Total Anions Meq/L Value: 42.7					
Std. Units	PH (Laboratory)	00403	7.9		
umho/cm**	Specific Conductance (E.C.)	00095	3880.0		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	2405.6		
Units	Apparent Color (Unfiltered)	00081	< 3.0		
TON	Odor Threshold at 60 C	00086	1.0		1.0
NTU	Lab Turbidity	82079	1.9		
mg/L	MBAS	38260	0.18	0.5	0.02
* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4					

NR-1 Shallow

NAWS CL TP 004, Volume 1

PAGE 2 OF 2

910945

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
ug/L	Arsenic (As)	01002	< 10	50	10
ug/L	Barium (Ba)	01007	< 100	1000	100
ug/L	Cadmium (Cd)	01027	< 1	10	1
ug/L	Chromium (Total Cr)	01034	< 10	50	10
ug/L	Copper (Cu)	01042	< 50	1000	50
ug/L	Iron (Fe)	01045	100	300	100
ug/L	Lead (Pb)	01051	< 5	50	5
ug/L	Manganese (Mn)	01055	80	50	30
ug/L	Mercury (Hg)	71900	< 1	2	1
ug/L	Selenium (Se)	01147	170	10	5
ug/L	Silver (Ag)	01077	< 10	50	10
ug/L	Zinc (Zn)	01092	< 50	5000	50
ug/L	Aluminum	01105	180	1000	100

ORGANIC CHEMICALS

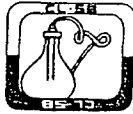
ug/L	Endrin (Hexadrin)	39390	0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340	4	0.4
ug/L	Methoxychlor	39480	100	10.0
ug/L	Toxaphene	39400	5	0.5
ug/L	2,4-D	39730	100	10
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045	10	0

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078	0.1
C	Source Temperature C	00010	
	Langelier Index Source Temp.	71814	
	Langelier Index at 60 C	71813	
Std. Units	Field PH	00400	
	Agressiveness Index	82383	
mg/L	Silica	00955	
mg/L	Phosphate	00650	
mg/L	Iodide	71865	
	Sodium Absorption Ratio	00931	
	Asbestos	81855	
mg/L	Ammonia (NH3-N)	00612	
mg/L	Nitrite Nitrogen (NO2-N)	00615	
mg/L	Nitrate Nitrogen (NO3-N)	00618	1.0
mg/L	Nitrite (N)	00620	
mg/L	Beryllium	01012	
mg/L	Boron	01020	
mg/L	Thallium	01059	
mg/L	Nickel	01067	
mg/L	Antimony	01097	0.05
mg/L	Lithium	01132	
mg/L	Cyanide	01291	

NR-1 Shallow

Clinical Laboratory of San Bernardino, Inc.



1595 N. "D" St., San Bernardino, CA 92405
 Phone (714) 885-3216
 P. O. Box 329
 San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: FEB 29 1991		Lab Sample ID No. 91-0945	
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO		Signature of Lab Director: <i>C. Jolly</i>	
Name of Sampler: Moulton		Employed By: North American Chemical	
Date/Time Sample Collected: 91/02/02/ 12:00	Date/Time Sample Received @ Lab: 91/02/02	Were Holding Times Observed: Yes	
System Name: North American Chemical		System Number:	
Description of Sampling Point: I.W.V. Test Well			
Name/No. of Sample		Station Number:	
Source: Neal Ranch #1 250-270			
Date & Time of Sample: 91/02/02/12:00	Water Type: ☐ G/S	User ID: ☐	Submitted to SWQIS By:

MCL REPORTING UNITS	CONSTITUENT	T	STORET CODE	ANALYSES RESULTS
Analyzing Agency			28	376.1
Date Analyses Completed			73672	910220 Y Y M M D D
5 pC/l	Total Alpha		1501	119.9
pC/l	Total Alpha Counting Error		1502	9.8
50 pC/l	Total Beta		3501	
pC/l	Total Beta Counting Error		3502	
pC/l	Natural Uranium		28012	
3 pC/l	Total Radium 226		9501	
pC/l	Total Radium 226 Counting Error		9502	
pC/l	Total Radium 228		11501	
pC/l	Total Radium 228 Counting Error		11502	
5 pC/l	Ra 226 + Ra 228		11503	
pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000pC/l	Total Tritium		7000	
pC/l	Total Tritium Counting Error		7001	
8 pC/l	Total Strontium-90		13501	
pC/l	Total Strontium-90 Counting Error		13502	

NR-1 Shallow

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 02/26/91 Sample ID No. 910946
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *C. J. Kelly*
Name of Sampler: MOULTON Employed By: PURVEYOR
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/02/02/1300 Received @ Lab: 91/02/02/1300 Completed: 91/02/26

System System
Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE Number: 36-042
Name or Number of Sample Source: NEAL RANCH #1 1130-1150

* Water Type: (G/S) |S| Station Number: 036/042-002 *
* Date/Time of Sample: |91|02|02|1300| User ID: TAN *
* YY MM DD HHMM *
* *
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|02|26| *
* YY MM DD *
* Submitted by: Phone #: *

Place an 'X' in box to delete all data for this station/date/time. ☐

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
mg/L	Total Hardness (as CaCO ₃)	00900	310.0		
mg/L	Calcium (Ca)	00916	32.0		
mg/L	Magnesium (Mg)	00927	55.9		30.0
mg/L	Sodium (NA)	00929	1240.0		
mg/L	Potassium (K)	00937	14.6		
Total Cations Meq/L Value: 60.5					
mg/L	Total Alkalinity (AS CaCO ₃)	00410	2184.0		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO ₃)	00445	< 1.0		
mg/L	Bicarbonate (HCO ₃)	00440	2664.5		
mg/L*	Sulfate (SO ₄)	00945	125.4		
mg/L*	Chloride (Cl)	00940	245.0		
mg/L	Nitrate (as NO ₃)	71850	35.4	45	
mg/L	Fluoride (F) Temp. Depend.	00951	2.4	****	0.1
Total Anions Meq/L Value: 53.9					
Std. Units	PH (Laboratory)	00403	9.9		
umho/cm**	Specific Conductance (E.C.)	00095	6000		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	3660.0		
Units	Apparent Color (Unfiltered)	00081	70		
TON	Odor Threshold at 60 C	00086	4.0		1.0
NTU	Lab Turbidity	82079	166.0		
mg/L	MBAS	38260	0.45	0.5	0.02
* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4					

NR-1 Medium

NAWS CL TP 004, Volume 1

PAGE 2 OF 2

910946

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
ug/L	Arsenic (As)	01002	28	50	10
ug/L	Barium (Ba)	01007	< 100	1000	100
ug/L	Cadmium (Cd)	01027	< 1	10	1
ug/L	Chromium (Total Cr)	01034	< 10	50	10
ug/L	Copper (Cu)	01042	< 50	1000	50
ug/L	Iron (Fe)	01045	750	300	100
ug/L	Lead (Pb)	01051	< 5	50	5
ug/L	Manganese (Mn)	01055	40	50	30
ug/L	Mercury (Hg)	71900	< 1	2	1
ug/L	Selenium (Se)	01147	40	10	5
ug/L	Silver (Ag)	01077	< 10	50	10
ug/L	Zinc (Zn)	01092	< 50	5000	50
ug/L	Aluminum	01105	240	1000	100

ORGANIC CHEMICALS

ug/L	Endrin (Hexadrin)	39390	0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340	4	0.4
ug/L	Methoxychlor	39480	100	10.0
ug/L	Toxaphene	39400	5	0.5
ug/L	2,4-D	39730	100	10
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045	10	

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078	0.1
C	Source Temperature C	00010	
	Langelier Index Source Temp.	71814	
	Langelier Index at 60 C	71813	
Std. Units	Field PH	00400	
	Agressiveness Index	82383	
mg/L	Silica	00955	
mg/L	Phosphate	00650	
mg/L	Iodide	71865	
	Sodium Absorption Ratio	00931	
	Asbestos	81855	
mg/L	Ammonia (NH3-N)	00612	
mg/L	Nitrite Nitrogen (NO2-N)	00615	
mg/L	Nitrate Nitrogen (NO3-N)	00618	1.0
mg/L	Nitrite (N)	00620	
mg/L	Beryllium	01012	
mg/L	Boron	01020	
mg/L	Thallium	01059	
mg/L	Nickel	01067	
mg/L	Antimony	01097	0.05
mg/L	Lithium	01132	
mg/L	Cyanide	01291	

NR-1 Medium

Clinical Laboratory of San Bernardino, Inc.



1595 N. "D" St., San Bernardino, CA 92405
 Phone (714) 885-3216
 P. O. Box 329
 San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: FEB 29 1991		Lab Sample ID No. 91-0946	
Laboratory CLINICAL LAB OF SAN BERNARDINO		Signature of <i>C. Jolly</i>	
Name:		Lab Director:	
Name of Sampler: Moulton		Employed By: North American Chemical	
Date/Time Sample Collected: 91/02/02 13:00		Date/Time Sample Received @ Lab: 91/02/02	
		Were Holding Times Observed: Yes	
System Name: North American Chemical		System Number:	
Description of Sampling Point: I.W.V. Test Well			
Name/No. of Sample		Station	
Source: Neal Ranch #1 1130 - 1150		Number:	
Date & Time: 9 11 02 10 2 1 1 5 0		Water Type: ☐ G/S	
Sample: Y Y M M D D T T T T		User ID: ☐ Submitted to SWQIS By:	

MCL REPORTING UNITS	CONSTITUENT	T	STORET CODE	ANALYSES RESULTS
Analyzing Agency			28	3 7 6 1
Date Analyses Completed			73672	9 1 0 2 2 0
				Y Y M M D D
5 pC/l	Total Alpha		1501	1 4 2 4
pC/l	Total Alpha Counting Error		1502	2 8 7
50 pC/l	Total Beta		3501	
pC/l	Total Beta Counting Error		3502	
pC/l	Natural Uranium		28012	
3 pC/l	Total Radium 226		9501	
pC/l	Total Radium 226 Counting Error		9502	
pC/l	Total Radium 228		11501	
pC/l	Total Radium 228 Counting Error		11502	
5 pC/l	Ra 226 + Ra 228		11503	
pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000pC/l	Total Tritium		7000	
pC/l	Total Tritium Counting Error		7001	
8 pC/l	Total Strontium-90		13501	
pC/l	Total Strontium-90 Counting Error		13502	

ND-1 Medium

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 02/26/91 Sample ID No. 910947
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. Jolly
Name of Sampler: MOULTON Employed By: PURVEYOR
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/02/02/1100 Received @ Lab: 91/02/02/1100 Completed: 91/02/26

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE System Number: 36-042
Name or Number of Sample Source: NEAL RANCH #1 1960-1980

* Water Type: (G/S) |S| Station Number: 036/042-003 *
* Date/Time of Sample: |91|02|02|1100| User ID: TAN *
* YY MM DD HHMM *
* *
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|02|26| *
* YY MM DD *
* Submitted by: Phone #: *

Place an 'X' in box to delete all data for this station/date/time. ☐

PORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
mg/L	Total Hardness (as CaCO ₃)	00900	78.0		
mg/L	Calcium (Ca)	00916	12.8		
mg/L	Magnesium (Mg)	00927	11.2		30.0
mg/L	Sodium (NA)	00929	1340.0		
mg/L	Potassium (K)	00937	6.4		
Total Cations Meq/L Value: 60.0					
mg/L	Total Alkalinity (AS CaCO ₃)	00410	2460.0		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO ₃)	00445	< 1.0		
mg/L	Bicarbonate (HCO ₃)	00440	3001.2		
mg/L*	Sulfate (SO ₄)	00945	304.8		
mg/L*	Chloride (Cl)	00940	246.7		
mg/L	Nitrate (as NO ₃)	71850	35.0	45	
mg/L	Fluoride (F) Temp. Depend.	00951	3.3	****	0.1
Total Anions Meq/L Value: 63.2					
Std. Units	PH (Laboratory)	00403	8.6		
umho/cm**	Specific Conductance (E.C.)	00095	5330.0		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	3251.3		
Units	Apparent Color (Unfiltered)	00081	50		
TON	Odor Threshold at 60 C	00086	2.0		1.0
NTU	Lab Turbidity	82079	32.0		
mg/L	MBAS	38260	0.22	0.5	0.02
* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4					

NR-1 Deep

NAWS CL TP 004, Volume 1

PAGE 2 OF 2

910947

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
ug/L	Arsenic (As)	01002	130	50	10
ug/L	Barium (Ba)	01007	< 100	1000	100
ug/L	Cadmium (Cd)	01027	< 1	10	1
ug/L	Chromium (Total Cr)	01034	< 10	50	10
ug/L	Copper (Cu)	01042	< 50	1000	50
ug/L	Iron (Fe)	01045	1180	300	100
ug/L	Lead (Pb)	01051	< 5	50	5
ug/L	Manganese (Mn)	01055	30	50	30
ug/L	Mercury (Hg)	71900	< 1	2	1
ug/L	Selenium (Se)	01147	15	10	5
ug/L	Silver (Ag)	01077	< 10	50	10
ug/L	Zinc (Zn)	01092	< 50	5000	50
ug/L	Aluminum	01105	1060	1000	100

ORGANIC CHEMICALS

ug/L	Endrin (Hexadrin)	39390	0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340	4	0.4
ug/L	Methoxychlor	39480	100	10.0
ug/L	Toxaphene	39400	5	0.5
ug/L	2,4-D	39730	100	10
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045	10	0

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078	0.1
C	Source Temperature C	00010	
	Langelier Index Source Temp.	71814	
	Langelier Index at 60 C	71813	
Std. Units	Field PH	00400	
	Agressiveness Index	82383	
mg/L	Silica	00955	
mg/L	Phosphate	00650	
mg/L	Iodide	71865	
	Sodium Absorption Ratio	00931	
	Asbestos	81855	
mg/L	Ammonia (NH3-N)	00612	
mg/L	Nitrite Nitrogen (NO2-N)	00615	
mg/L	Nitrate Nitrogen (NO3-N)	00618	1.0
mg/L	Nitrite (N)	00620	
mg/L	Beryllium	01012	
mg/L	Boron	01020	
mg/L	Thallium	01059	
mg/L	Nickel	01067	
mg/L	Antimony	01097	0.05
mg/L	Lithium	01132	
mg/L	Cyanide	01291	

NR-1 Deep

Clinical Laboratory of San Bernardino, Inc.



1595 N. "D" St., San Bernardino, CA 92405

Phone (714) 885-3216

P. O. Box 329

San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: FEB 2 0 1991		Lab Sample ID No. 91-0947	
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO		Signature of Lab Director: <i>C. Jolly</i>	
Name of Sampler: Moulton		Employed By: North American Chemical	
Date/Time Sample Collected: 91/02/02 11:00	Date/Time Sample Received @ Lab: 91/02/02	Were Holding Times Observed: Yes	
System Name: North American Chemical		System Number:	
Description of Sampling Point: I.W.V. Test Well			
Name/No. of Sample		Station Number:	
Source: Near Ranch #1 1960 - 1980			
Date & Time: 91/02/02 11:00	Water Type: ☐ G/S	User ID: ☐	Submitted to SWQIS By:
Sample: Y Y M M D D T T T T			

MCL REPORTING UNITS	CONSTITUENT	T	STORET CODE	ANALYSES RESULTS
Analyzing Agency			28	3,7,6,1
Date Analyses Completed			73672	9,1,0,2,2,0
				Y Y M M D D

5	pC/l	Total Alpha	1501	3,2,.9
	pC/l	Total Alpha Counting Error	1502	,,5,.2

50	pC/l	Total Beta	3501	
	pC/l	Total Beta Counting Error	3502	

	pC/l	Natural Uranium	28012	
--	------	-----------------	-------	--

3	pC/l	Total Radium 226	9501	
	pC/l	Total Radium 226 Counting Error	9502	

	pC/l	Total Radium 228	11501	
	pC/l	Total Radium 228 Counting Error	11502	

5	pC/l	Ra 226 + Ra 228	11503	
	pC/l	Ra 226 + Ra 228 Counting Error	11504	

20,000pC/l		Total Tritium	7000	
	pC/l	Total Tritium Counting Error	7001	

8	pC/l	Total Strontium-90	13501	
	pC/l	Total Strontium-90 Counting Error	13502	

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: INDIAN WELLS VALLEY WATER

SAMPLE I.D.#: 911534

STREET ADDRESS:

DATE OF REPORT: 3/6/91

CITY, STATE, ZIP:

DESCRIPTION OF SAMPLING POINT: NEAL RANCH #2 330-350 *upper*

DATE/TIME COLLECTED: 2/26/91 0900

NAME OF SAMPLER: MOULTON

RESULTS		MCL		
TOTAL HARDNESS	241.2 mg/L			
CALCIUM HARDNESS	136.8 mg/L			
CALCIUM	54.8 mg/L			
MAGNESIUM	25.4 mg/L			
SODIUM	201.4 mg/L			
POTASSIUM	6.2 mg/L			
TOTAL ALKALINITY	295.6 mg/L			
HYDROXIDE	< 1.0 mg/L			
CARBONATE	< 1.0 mg/L			
BICARBONATE	360.6 mg/L			
SULFATE	232.8 mg/L			
CHLORIDE	85.0 mg/L			
NITRATE	25.6 mg/L	45		
FLUORIDE	0.8 mg/L			
TOTAL ANIONS	13.61 mEq/L			
TOTAL CATIONS	13.73 mEq/L			
RPD ANIONS/CATIONS	0.60 PERCENT			
pH	8.3 STD UNITS			
E.C.	1370.0 umho/cm			
TDS	808.3 mg/L			
MBAS	< 0.02 mg/L			

RESULTS		MCL
MANGANESE	50 ug/L	50
COPPER	< 50 ug/L	1000
IRON	< 100 ug/L	300
ZINC	< 50 ug/L	5000
BARIUM	< 100 ug/L	1000
CHROMIUM	< 10 ug/L	50
CADMIUM	< 1 ug/L	10
LEAD	12 ug/L	50
ALUMINUM	< 100 ug/L	1000
MERCURY	< 1 ug/L	2
ARSENIC	< 10 ug/L	50
SELENIUM	10 ug/L	100
SILVER	< 10 ug/L	50
COLOR	< 3	
ODOR	1	
TURBIDITY	0.5 NTU	

TEST(S) RECEIVED: 2/28/91

STARTED: 2/28/91

COMPLETED: 3/6/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS,
(17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST: _____

DIRECTOR: *C. J. Jelliff*

ND-2 Shall

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA 92405

RADIOACTIVITY ANALYSIS

Date of Report: 03/08/91 Sample ID No. 91-1534
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *C. J. Kelly*
Name of Sampler: MOULTON Employed By: INDIAN WELLS VALLEY CWD
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/02/26/0900 Received @ Lab: 91/02/26/0900 Completed: 91/03/08

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: WELL 25 (NEAL 02) 330 - 350 (TEST WELL)

* Water Type: (G/S) IS Station Number: 259/39E-31C01 M *
* Date/Time of Sample: 19110212610900 User ID: CYA *
* YY MM DD HHMM *
* Analyzing Agency Code: 3761 Date Analysis Completed: 1911031081 *
* YY MM DD *
* Submitted by: Phone #: *

Place an 'X' in box to delete all data for this station/date/time. ☐

MCL REPORT	CONSTITUENT	STORET	ANALYSES	DLR
UNITS		CODE	RESULTS	
15 pC/l	Total Alpha	01501	13.6	
pC/l	Total Alpha Counting Error	01502	3.2	
50 pC/l	Total Beta	03501		4.0
pC/l	Total Beta Counting Error	03502		
20 pC/l	Natural Uranium	28012		2.0
pC/l	Total Radium 226	09501		.5
pC/l	Total Radium 226 Counting Error	09502		
pC/l	Total Radium 228	11501		.5
pC/l	Total Radium 228 Counting Error	11502		
5 pC/l	Ra 226 + Ra 228	11503		
pC/l	Ra 226 + Ra 228 Counting Error	11504		
100 pC/l	Total Tritium	07000		1.0
pC/l	Total Tritium Counting Error	07001		
8 pC/l	Total Strontium - 90	13501		2.0
pC/l	Total Strontium - 90 Counting Error	13502		
pC/l	Total Radon 222 Counting Error	92302		
pC/l	Total Radon 222	92303		100.0

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: INDIAN WELLS VALLEY WATER

SAMPLE I.D.#: 911535

STREET ADDRESS:

DATE OF REPORT: 3/6/91

CITY, STATE, ZIP:

DESCRIPTION OF SAMPLING POINT: NEAL RANCH #2 1540-1560 *m's*

DATE/TIME COLLECTED: 2/26/91 0800

NAME OF SAMPLER: MOULTON

RESULTS		MCL		
TOTAL HARDNESS	457.2 mg/L			
CALCIUM HARDNESS	285.2 mg/L			
CALCIUM	114.2 mg/L			
MAGNESIUM	41.8 mg/L			
SODIUM	272.3 mg/L			
POTASSIUM	4.5 mg/L			
TOTAL ALKALINITY	310.0 mg/L			
HYDROXIDE	< 1.0 mg/L			
CARBONATE	< 1.0 mg/L			
BICARBONATE	378.2 mg/L			
SULFATE	467.7 mg/L			
CHLORIDE	159.9 mg/L			
NITRATE	107.1 mg/L	45		
FLUORIDE	1.1 mg/L			
TOTAL ANIONS	22.23 mEq/L			
TOTAL CATIONS	21.09 mEq/L			
RPD ANIONS/CATIONS	3.55 PERCENT			
pH	8.0 STD UNITS			
E.C.	2240.0 umho/cm			
TDS	1366.8 mg/L			
MBAS	< 0.02 mg/L			
			RESULTS	MCL
			MANGANESE	< 30 ug/L 50
			COPPER	< 50 ug/l 1000
			IRON	< 100 ug/L 300
			ZINC	< 50 ug/L 5000
			BARIUM	< 100 ug/L 1000
			CHROMIUM	< 10 ug/L 50
			CADMIUM	< 1 ug/L 10
			LEAD	< 5 ug/l 50
			ALUMINUM	< 100 ug/L 1000
			MERCURY	- < 1 ug/l 2
			ARSENIC	12 ug/L 50
			SELENIUM	60 ug/L 100
			SILVER	< 10 ug/L 50
			COLOR	< 3
			ODOR	1
			TURBIDITY	1.2 NTU

DATE(S) RECEIVED: 2/28/91

STARTED: 2/28/91

COMPLETED: 3/6/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS,
(17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST:

DIRECTOR:

C. G. Gellix

NP-2 Medium

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA 92405

RADIOACTIVITY ANALYSIS

Date of Report: 03/08/91
Laboratory: CLINICAL LABORATORIES OF SAN BERNARDINO
Name of Sampler: MOULTON
Date/Time Sample Collected: 91/02/26/0800
Signature Lab: *C. Jolly*
Director: *C. Jolly*
Employed By: INDIAN WELLS VALLEY CWD
Date/Time Sample Received @ Lab: 91/02/26/0800
Date Analyses Completed: 91/03/08

System Name: INDIAN WELLS VALLEY CWD - RIDGECREST
Name or Number of Sample Source: WELL 25 (NEAL 02)
Station Number: 258/39E-31001 M
User ID: CYA
Analyzing Agency Code: 3761
Date Analysis Completed: 1911031081
Submitted by: _____ Phone #: _____

Place an 'X' in box to delete all data for this station/date/time. ☐

MCL REPORT	CONSTITUENT	STORET	ANALYSES	DLR
UNITS		CODE	RESULTS	
15 pC/l	Total Alpha	01501	53.6	
pC/l	Total Alpha Counting Error	01502	5.0	
50 pC/l	Total Beta	03501		4.0
pC/l	Total Beta Counting Error	03502	-	
20 pC/l	Natural Uranium	28012		2.0
pC/l	Total Radium 226	09501		.5
pC/l	Total Radium 226 Counting Error	09502		
pC/l	Total Radium 228	11501		.5
pC/l	Total Radium 228 Counting Error	11502		
5 pC/l	Ra 226 + Ra 228	11503		
pC/l	Ra 226 + Ra 228 Counting Error	11504		
2 00 pC/l	Total Tritium	07000		1.0
pC/l	Total Tritium Counting Error	07001		
8 pC/l	Total Strontium - 90	13501		2.0
pC/l	Total Strontium - 90 Counting Error	13502		
pC/l	Total Radon 222 Counting Error	82302		
pC/l	Total Radon 222	82303		100.0

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: INDIAN WELLS VALLEY WATER

SAMPLE I.D.#: 911536

STREET ADDRESS:

DATE OF REPORT: 3/6/91

CITY, STATE, ZIP:

DESCRIPTION OF SAMPLING POINT: NEAL RANCH #2 1910-1930 *Lower*

DATE/TIME COLLECTED: 2/26/91 1000

NAME OF SAMPLER: MOULTON

RESULTS		MCL		
TOTAL HARDNESS	143.6 mg/L			
CALCIUM HARDNESS	42.8 mg/L			
CALCIUM	17.1 mg/L			
MAGNESIUM	24.5 mg/L			
SODIUM	1296.0 mg/L			
POTASSIUM	11.3 mg/L			
TOTAL ALKALINITY	2112.0 mg/L			
HYDROXIDE	< 1.0 mg/L			
CARBONATE	< 1.0 mg/L			
BICARBONATE	2576.6 mg/L			
SULFATE	236.4 mg/L			
CHLORIDE	230.6 mg/L			
NITRATE	38.2 mg/L	45		
FLUORIDE	3.0 mg/L			
TOTAL ANIONS	54.43 mEq/L			
TOTAL CATIONS	59.50 mEq/L			
RPD ANIONS/CATIONS	5.84 PERCENT			
pH	8.4 STD UNITS			
E.C.	5330.0 umho/cm			
TDS	3304.6 mg/L			
MBAS	< 0.02 mg/L			
			RESULTS	MCL
			MANGANESE	80 ug/L 50
			COPPER	< 50 ug/l 1000
			IRON	250 ug/L 300
			ZINC	< 50 ug/L 5000
			BARIUM	< 100 ug/L 1000
			CHROMIUM	< 10 ug/L 50
			CADMIUM	< 1 ug/L 10
			LEAD	< 5 ug/l 50
			ALUMINUM	< 100 ug/L 1000
			MERCURY	< 1 ug/l 2
			ARSENIC	460 ug/L 50
			SELENIUM	20 ug/L 100
			SILVER	< 10 ug/L 50
			COLOR	15
			ODOR	3
			TURBIDITY	4.5 NTU

DATE(S) RECEIVED: 2/28/91

STARTED: 2/28/91

COMPLETED: 3/6/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS,
(17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST: _____

DIRECTOR: _____

C. J. Jelliff

NR-2 Deep

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA 92405

RADIOACTIVITY ANALYSIS

Date of Report: 03/08/91 Sample ID No. 91-1536
Laboratory Signature Lab *C. J. Kelly*
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler: MOULTON Employed By: INDIAN WELLS VALLEY CWD
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/02/26/1000 Received @ Lab: 91/02/26/1000 Completed: 91/03/08

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: WELL 25 (NEAL 02) 1910 - 1930 (TEST WELL)

* Water Type: (B/S) (B) Station Number: 258/39E-31C01 M *
* Date/Time of Sample: 19110212611000! User ID: CYA *
* YY MM DD HHMM *
* Analyzing Agency Code: 3761 Date Analysis Completed: 191103108! *
* Submitted by: Phone #: YY MM DD *
* *****

Place an 'X' in box to delete all data for this station/date/time. ☐

MCL REPORT UNITS	CONSTITUENT	STORET CODE	ANALYSES RESULTS	DLR
15 pC/l	Total Alpha	01501	24.3	
pC/l	Total Alpha Counting Error	01502	4.5	
50 pC/l	Total Beta	03501		4.0
pC/l	Total Beta Counting Error	03502		
20 pC/l	Natural Uranium	28012		2.0
pC/l	Total Radium 226	09501		.5
pC/l	Total Radium 226 Counting Error	09502		
pC/l	Total Radium 228	11501		.5
pC/l	Total Radium 228 Counting Error	11502		
5 pC/l	Ra 226 + Ra 228	11503		
pC/l	Ra 226 + Ra 228 Counting Error	11504		
20000 pC/l	Total Tritium	07000		1.0
pC/l	Total Tritium Counting Error	07001		
8 pC/l	Total Strontium - 90	13501		2.0
pC/l	Total Strontium - 90 Counting Error	13502		
pC/l	Total Radon 222 Counting Error	82302		
pC/l	Total Radon 222	82303		100.0

NAWS CL TP 004, Volume 1

CLINICAL\LABS SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS
Date of Report: 10/25/91 Sample ID No. 91-9450
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *Carol J. Kelly*
Name of Sampler: MIKE C. Employed By: ROTTMAN DRILLING CO.
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/10/17/2350 Received @ Lab: 91/10/21/1700 Completed: 91/10/25

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: W32 P-1 (380') (This sample was filtered)

* User ID: CYA Station Number: 000/000-00X00 2 *
* Date/Time of Sample: |91|10|17|2350| Laboratory Code: 3761 *
* YY MM DD TTTT *
* Date Analysis Completed: |91|10|25| *
* YY MM DD *
* Submitted by: Phone #: *

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3)	00900	86.0	
	mg/L	Calcium (Ca)	00916	24.0	
	mg/L	Magnesium (Mg)	00927	6.3	
	mg/L	Sodium (Na)	00929	60.0	
	mg/L	Potassium (K)	00937	4.6	
Total Cations Meq/L Value: 4.4					
	mg/L	Total Alkalinity (AS CaCO3)	00410	104.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO3)	00445	< 1.0	
	mg/L	Bicarbonate (HCO3)	00440	126.9	
*	mg/L*	Sulfate (SO4)	00945	57.0	
*	mg/L*	Chloride (Cl)	00940	40.2	
45	mg/L	Nitrate (as NO3)	71850	7.2	
****	mg/L	Fluoride (F) Temp. Depend.	00951	1.1	0.1
Total Anions Meq/L Value: 4.6					
	Std. Units	PH (Laboratory)	00403	8.6	
**	umho/cm**	Specific Conductance (E.C.)	00095	450.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	252.4	
	Units	Apparent Color (Unfiltered)	00081	< 3.0	
	TON	Odor Threshold at 60 C	00086	1.0	
	NTU	Lab Turbidity	82079	0.9	
0.5	mg/L	MBAS	38260	< 0.02	
* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4					

MW-32 Shallow

NAWS CL TP 004, Volume 1

PAGE 2 OF 2

INORGANIC CHEMICALS

91-9450

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	R
1000	ug/L	Aluminum (Al)	01105	170.00	100.0
50	ug/L	Arsenic (As)	01002	26.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	<100.00	100.0
50	ug/L	Lead (Pb)	01051	< 5.00	5.0
50	ug/L	Manganese (Mn)	01055	50.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0

RADIOACTIVITY ANALYSIS

15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.0
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078		0.0
C	Source Temperature C	00010		
	Langelier Index Source Temp.	71814		
	Langelier Index at 60 C	71813		
Std. Units	Field PH	00400		
	Agressiveness Index	82383		
mg/L	Silica	00955		
mg/L	Phosphate	00650		
mg/L	Iodide	71865		
	Sodium Absorption Ratio	00931		
	Asbestos	81855		
mg/L	Boron	01020		

MW-32 Shallow

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: KRIEGER AND STEWART (IWVWD)

SAMPLE I.D.#: 91-9450

STREET ADDRESS:

DATE OF REPORT:

CITY, STATE, ZIP:

ANALYSING AGENCY: 3761

DESCRIPTION OF SAMPLING POINT: W 32 P-1 (380') (SUPERNATE AFTER SETTLEING)

DATE/TIME COLLECTED: 10/17/91 23:50

NAME OF SAMPLER: UNKNOWN

CONSTITUENT	RESULTS	UNITS	MCL
~~~~~	~~~~~	~~~~~	~~~~~
SILVER	< 10	ug/L	50
ARSENIC	17	ug/L	50
ALUMINUM	705	ug/L	1000
SELENIUM	< 5	ug/L	10
CHROMIUM	< 10	ug/L	50
CADMIUM	< 1	ug/L	2
LEAD	17	ug/L	50
BARIUM	< 100	ug/L	1000
MERCURY	< 1	ug/L	2
IRON	1970	ug/L	300
MANGANESE	280	ug/L	50
ZINC	80	ug/L	5000

DATE(S) RECEIVED: 10/21/91

STARTED: 10/21/91

COMPLETED: 10/28/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS,  
(17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST:

DIRECTOR:

*Melvin L. ...*

# Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329  
1595 North "D" Street  
San Bernardino, California 92405  
(714) 885-3216

PURVEYOR: KRIEGER AND STEWART (IWVWD)

SAMPLE I.D.#: 91-9450

STREET ADDRESS:

DATE OF REPORT:

CITY, STATE, ZIP:

ANALYSING AGENCY: 3761

DESCRIPTION OF SAMPLING POINT: W 32 P-1 (380') (SAMPLE MIXED AND DIGESTED)

DATE/TIME COLLECTED: 10/17/91 23:50

NAME OF SAMPLER: UNKNOWN

CONSTITUENT	RESULTS	UNITS	MCL
~~~~~	~~~~~	~~~~~	~~~~~
SILVER	< 10	ug/L	50
ARSENIC	65	ug/L	50
ALUMINUM	19530	ug/L	1000
SELENIUM	6	ug/L	10
CHROMIUM	75	ug/L	50
CADMIUM	1.2	ug/L	2
LEAD	28	ug/L	50
BARIUM	180	ug/L	1000
MERCURY	< 1	ug/L	2
IRON	30400	ug/L	300
MANGANESE	520	ug/L	50
ZINC	220	ug/L	5000

DATE(S) RECEIVED: 10/21/91

STARTED: 10/21/91

COMPLETED: 10/28/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS,
(17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST:

DIRECTOR:

Michael Quinn

NAWS CL TP 004, Volume 1

CLINICAL\LABS SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS
Date of Report: 10/25/91 Sample ID No. 91-9451
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *Carol J. Kelly*
Name of Sampler: LEROY JONES "DRILLER" Employed By: ROTTMAN DRILLING CO.
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/10/18/2400 Received @ Lab: 91/10/21/1700 Completed: 91/10/25

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: W32 P-2 (900')

* User ID: CYA Station Number: 000/000-00X00 3 *
* Date/Time of Sample: |91|10|18|2400| Laboratory Code: 3761 *
* YY MM DD TTTT *
* Date Analysis Completed: |91|10|25| *
* YY MM DD *
* Submitted by: Phone #: *

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO ₃)	00900	35.2	
	mg/L	Calcium (Ca)	00916	10.4	
	mg/L	Magnesium (Mg)	00927	2.2	
	mg/L	Sodium (Na)	00929	49.2	
	mg/L	Potassium (K)	00937	3.7	
Total Cations Meq/L Value: 2.9					
	mg/L	Total Alkalinity (AS CaCO ₃)	00410	84.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO ₃)	00445	< 1.0	
	mg/L	Bicarbonate (HCO ₃)	00440	102.5	
*	mg/L*	Sulfate (SO ₄)	00945	24.3	
*	mg/L*	Chloride (Cl)	00940	23.3	
45	mg/L	Nitrate (as NO ₃)	71850	16.9	
****	mg/L	Fluoride (F) Temp. Depend.	00951	0.8	0.1
Total Anions Meq/L Value: 3.2					
	Std. Units	PH (Laboratory)	00403	8.3	
**	umho/cm**	Specific Conductance (E.C.)	00095	330.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	172.8	
	Units	Apparent Color (Unfiltered)	00081	< 70.0	
	TON	Odor Threshold at 60 C	00086	3.0	
	NTU	Lab Turbidity	82079	20.0	
0.5	mg/L	MBAS	38260	< 0.02	
* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4					

MW-32 Shal Mec

NAWS CL TP 004, Volume 1

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INORGANIC CHEMICALS

91-9451

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	
1000	ug/L	Aluminum (Al)	01105	120.00	100.0
50	ug/L	Arsenic (As)	01002	36.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	1880.0	100.0
50	ug/L	Lead (Pb)	01051	< 5.00	5.0
50	ug/L	Manganese (Mn)	01055	< 30.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0

RADIOACTIVITY ANALYSIS

15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		0.5
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078		0.1
C	Source Temperature C	00010		
	Langelier Index Source Temp.	71814		
	Langelier Index at 60 C	71813		
Std. Units	Field PH	00400		
	Agressiveness Index	82383		
mg/L	Silica	00955		
mg/L	Phosphate	00650		
mg/L	Iodide	71865		
	Sodium Absorption Ratio	00931		
	Asbestos	81855		
mg/L	Boron	01020		

MW-32 Shal Med

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: KREIGER & STEWART (IWVWD)

SAMPLE I.D.#: 91-9451

STREET ADDRESS:

DATE OF REPORT: 11/6/91

CITY, STATE, ZIP:

DESCRIPTION OF SAMPLING POINT: W 32 P-2 (900') ** FILTERED **

DATE/TIME COLLECTED: 10/18/91 14:00

NAME OF SAMPLER: UNKNOWN

GENERAL MINERAL	RESULTS	UNITS	MCL	G.M. CONT	RESULTS	UNITS	MCL
TOTAL HARDNESS	33.2	mg/L		MANGANESE	< 30	ug/L	50
CALCIUM HARDNESS	26.4	mg/L		COPPER	< 50	ug/l	1000
ALCIUM	10.6	mg/L		IRON	1210	ug/L	300
MAGNESIUM	1.7	mg/L		ZINC	< 50	ug/L	5000
SODIUM	48.2	mg/L					
POTASSIUM	3.3	mg/L		INORGANICS	RESULTS	UNITS	MCL
TOTAL ALKALINITY	82.0	mg/L		BARIUM	< 100	ug/L	1000
HYDROXIDE	< 1.0	mg/L		CHROMIUM	< 10	ug/L	50
CARBONATE	< 1.0	mg/L		CADMIUM	< 1	ug/L	10
				LEAD	< 5	ug/l	50
BICARBONATE	100.0	mg/L		ALUMINUM	< 100	ug/L	1000
SULFATE	24.0	mg/L		MERCURY	< 1	ug/l	2
CHLORIDE	22.4	mg/L		ARSENIC	25	ug/L	50
NITRATE	16.7	mg/L	45	SELENIUM	≤ 5	ug/L	100
FLUORIDE	0.8	mg/L		SILVER	< 10	ug/L	50
TOTAL ANIONS	3.1	mEq/L					
TOTAL CATIONS	2.8	mEq/L					
RPD ANIONS/CATIONS	2.0	PERCENT					
pH	8.1	STD UNITS					
E.C.	330.0	umho/cm					
TDS	168.6	mg/L					
MBAS	< 0.02	mg/L					

DATE(S) RECEIVED: 10/21/91

STARTED: 11/1/91

COMPLETED: 11/5/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS,
(17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST: _____

DIRECTOR: Carol J. Jellison

NAWS CL TP 004, Volume 1

CLINICAL\LABS SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS
Date of Report: 10/25/91 Sample ID No. 91-9499
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *Carol J. Kelly*
Name of Sampler: MICHAEL Employed By: ROTTMAN DRILLING CO.
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/10/21/0300 Received @ Lab: 91/10/23/1700 Completed: 91/10/25

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: W32 P-3 (1200 FT.)

* User ID: CYA Station Number: 000/000-00X00 5 *
* Date/Time of Sample: |91|10|21|0300| Laboratory Code: 3761 *
* YY MM DD TTTT *
* Date Analysis Completed: |91|10|25| *
* YY MM DD *
* Submitted by: Phone #: *

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO ₃)	00900	28.0	
	mg/L	Calcium (Ca)	00916	5.6	
	mg/L	Magnesium (Mg)	00927	3.4	
	mg/L	Sodium (Na)	00929	59.2	
	mg/L	Potassium (K)	00937	2.0	
Total Cations Meq/L Value: 3.2					
	mg/L	Total Alkalinity (AS CaCO ₃)	00410	90.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO ₃)	00445	< 1.0	
	mg/L	Bicarbonate (HCO ₃)	00440	109.8	
*	mg/L*	Sulfate (SO ₄)	00945	22.6	
*	mg/L*	Chloride (Cl)	00940	26.1	
45	mg/L	Nitrate (as NO ₃)	71850	14.8	
****	mg/L	Fluoride (F) Temp. Depend.	00951	0.6	0.1
Total Anions Meq/L Value: 3.3					
	Std. Units	PH (Laboratory)	00403	8.5	
**	umho/cm**	Specific Conductance (E.C.)	00095	340.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	179.3	
	Units	Apparent Color (Unfiltered)	00081	< 70.0	
	TON	Odor Threshold at 60 C	00086	4.0	
	NTU	Lab Turbidity	82079	25.0	
0.5	mg/L	MBAS	38260	< 0.02	
* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4					

MW-32 Deep Med

NAWS CL TP 004, Volume 1

PAGE 2 OF 2

INORGANIC CHEMICALS

91-9499

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	R
1000	ug/L	Aluminum (Al)	01105	130.00	100.0
50	ug/L	Arsenic (As)	01002	17.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	4150.0	100.0
50	ug/L	Lead (Pb)	01051	< 5.00	5.0
50	ug/L	Manganese (Mn)	01055	100.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0

RADIOACTIVITY ANALYSIS

15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.0
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		0.0
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078		0.0
C	Source Temperature C	00010		
	Langelier Index Source Temp.	71814		
	Langelier Index at 60 C	71813		
Std. Units	Field PH	00400		
	Agressiveness Index	82383		
mg/L	Silica	00955		
mg/L	Phosphate	00650		
mg/L	Iodide	71865		
	Sodium Absorption Ratio	00931		
	Asbestos	81855		
mg/L	Boron	01020		

MW-32 Deep Med

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: KREIGER & STEWART (IWVWD)

SAMPLE I.D.#: 91-9499

STREET ADDRESS:

DATE OF REPORT: 11/6/91

CITY, STATE, ZIP:

DESCRIPTION OF SAMPLING POINT: W 32 P-3 (1200') ** FILTERED **

DATE/TIME COLLECTED: 10/21/91 15:00

NAME OF SAMPLER: UNKNOWN

GENERAL MINERAL	RESULTS	UNITS	MCL	G.M. CONT	RESULTS	UNITS	MCL
TOTAL HARDNESS	26.0	mg/L		MANGANESE	65	ug/L	50
CALCIUM HARDNESS	16.0	mg/L		COPPER	< 50	ug/L	1000
CALCIUM	6.4	mg/L		IRON	3350	ug/L	300
MAGNESIUM	2.4	mg/L		ZINC	< 50	ug/L	5000
SODIUM	58.2	mg/L		INORGANICS			
POTASSIUM	2.0	mg/L					
TOTAL ALKALINITY	90.0	mg/L		BARIIUM	< 100	ug/L	1000
HYDROXIDE	< 1.0	mg/L		CHROMIUM	< 10	ug/L	50
CARBONATE	< 1.0	mg/L		CADMIUM	< 1	ug/L	10
BICARBONATE	109.8	mg/L		LEAD	< 5	ug/L	50
SULFATE	22.1	mg/L		ALUMINUM	< 100	ug/L	1000
CHLORIDE	24.9	mg/L		MERCURY	< 1	ug/L	2
NITRATE	14.6	mg/L	45	ARSENIC	< 10	ug/L	50
FLUORIDE	0.7	mg/L		SELENIUM	< 5	ug/L	100
				SILVER	< 10	ug/L	50
TOTAL ANIONS	3.1	mEq/L					
TOTAL CATIONS	3.2	mEq/L					
RPD ANIONS/CATIONS	1.0	PERCENT					
pH	8.3	STD UNITS					
E.C.	330.0	umho/cm					
TDS	176.3	mg/L					
MBAS	< 0.02	mg/L					

DATE(S) RECEIVED: 10/23/91

STARTED: 11/1/91

COMPLETED: 11/5/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS,
(17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST: _____

DIRECTOR: Carol J. Kelly

NAWS CL TP 004, Volume 1

CLINICAL\LABS SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS
Date of Report: 10/25/91 Sample ID No. 91-9498
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *Carol Peeling*
Name of Sampler: BILL B. Employed By: ROTTMAN DRILLING CO.
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/10/21/2200 Received @ Lab: 91/10/23/1700 Completed: 91/10/25

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: W32 P4 (1900 FT.)

* User ID: CYA Station Number: 000/000-00X00 4 *
* Date/Time of Sample: |91|10|21|2200| Laboratory Code: 3761 *
* YY MM DD TTTT *
* Date Analysis Completed: |91|10|25| *
* YY MM DD *
* Submitted by: Phone #: *

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO ₃)	00900	26.0	
	mg/L	Calcium (Ca)	00916	7.4	
	mg/L	Magnesium (Mg)	00927	1.8	
	mg/L	Sodium (Na)	00929	190.5	
	mg/L	Potassium (K)	00937	4.1	
Total Cations Meq/L Value: 8.9					
	mg/L	Total Alkalinity (AS CaCO ₃)	00410	198.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO ₃)	00445	< 1.0	
	mg/L	Bicarbonate (HCO ₃)	00440	241.6	
*	mg/L*	Sulfate (SO ₄)	00945	138.2	
*	mg/L*	Chloride (Cl)	00940	78.8	
45	mg/L	Nitrate (as NO ₃)	71850	1.0	
****	mg/L	Fluoride (F) Temp. Depend.	00951	5.6	0.1
Total Anions Meq/L Value: 9.4					
	Std. Units	PH (Laboratory)	00403	8.6	
**	umho/cm**	Specific Conductance (E.C.)	00095	960.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	526.4	
	Units	Apparent Color (Unfiltered)	00081	< 70.0	
	TON	Odor Threshold at 60 C	00086	1.0	
	NTU	Lab Turbidity	82079	74.0	
0.5	mg/L	MBAS	38260	< 0.02	
* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4					

MW-32 Deep

NAWS CL TP 004, Volume 1

PAGE 2 OF 2

INORGANIC CHEMICALS

91-9498

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	P.P.
1000	ug/L	Aluminum (Al)	01105	635.00	100.0
50	ug/L	Arsenic (As)	01002	61.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	1550.0	100.0
50	ug/L	Lead (Pb)	01051	< 5.00	5.0
50	ug/L	Manganese (Mn)	01055	100.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0

RADIOACTIVITY ANALYSIS

15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		5
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078		0.1
C	Source Temperature C	00010		
	Langelier Index Source Temp.	71814		
	Langelier Index at 60 C	71813		
Std. Units	Field PH	00400		
	Agressiveness Index	82383		
mg/L	Silica	00955		
mg/L	Phosphate	00650		
mg/L	Iodide	71865		
	Sodium Absorption Ratio	00931		
	Asbestos	81855		
mg/L	Boron	01020		

MW-32 Deep

Clinical Laboratory of San Bernardino, Inc.

P. O. Box 329
1595 North "D" Street
San Bernardino, California 92405
(714) 885-3216

PURVEYOR: KRIEGER AND STEWART (IWVWD)

SAMPLE I.D.#: SEE BELOW

STREET ADDRESS:

DATE OF REPORT: 10/31/91

CITY, STATE, ZIP:

DESCRIPTION OF SAMPLING POINT: SEE BELOW

DATE COLLECTED: 10/6/91

NAME OF SAMPLER: BILLY BONCHAIS

SAMPLE I.D. ~~~~~	SUPERNATE ~~~~~	MIXED ~~~~~	UNITS ~~~~~	MCL ~~~
91-9065	Fe = 460	Fe = 7740	mg/L	300
2 P-1	Mn = <30	Mn = 3100	mg/L	50
(381')	Al = 1000	Al = 3699	mg/L	1000
91-9066	Fe = 1179	Fe = 1755	mg/L	300
W32 P-2	Mn = 35	Mn = 35	mg/L	50
(901')	Al = <100		mg/L	1000
91-9067	Fe = 818	Fe = 2852	mg/L	300
W32 P-3	Mn = 69	Mn = 51	mg/L	50
(1261')	Al = <100		mg/L	1000
91-9068	Fe = 1137	Fe = 3790	mg/L	300
P-4	Mn = 127	Mn = 226	mg/L	50

SPE(S) RECEIVED: 10/6/91

STARTED: 10/18/91

COMPLETED: 10/30/91

ALL ANALYSES ARE PERFORMED IN ACCORDANCE WITH APHA'S STANDARD METHODS,
(17TH EDITION) OR EPA'S METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTE

ANALYST: _____

DIRECTOR: Mehdi Lami

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-4

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-5, 08-25-92 @ 14:00
COLLECTED BY HASTING

SNORT 850'-870'
WATER ANALYSIS
(GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	1.9	mg/L	0.1	SW-7140
Magnesium	1.0	mg/L	0.01	SW-7450
Sodium	3950.	mg/L	0.1	SW-7770
Potassium	25.	mg/L	0.1	SW-7610
Carbonate	1570.	mg/L	2.6	SM-403
Bicarbonate	1950.	mg/L	2.6	SM-403
Chloride	3040.	mg/L	1.8	EPA-300.0
Sulfate	46.	mg/L	5.	EPA-300.0
Nitrate as NO3	None Detected	mg/L	0.4	EPA-353.2
Fluoride	27.	mg/L	0.05	EPA-340.2
Bromide	6.6	mg/L	0.05	EPA-300.0
pH	9.7	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	15100.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	9890.	mg/L	10.	EPA-160.1
Ammonia as NH3	28.	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	None Detected	mg/L	0.10	EPA-353.2
Ortho-phosphate	8.4	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

- EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
- SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
- SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

M. Atencio
Department Supervisor

SNORT 850-870



Naval Air Warfare Center
 Weapons Division
 Code 2606
 China Lake, CA 93555-6001
 Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
 Date Received: 08/26/92
 Laboratory No.: 7640-4

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-5, 08-25-92 @ 14:00
 COLLECTED BY HASTING

SNORT 850'-870'
 WATER ANALYSIS
 (METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	578.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	5.2	µg/L	2.	SW-7060
Boron	93.5	mg/L	0.10	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lithium	50.	µg/L	10.	SW-7430
Manganese	35.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
* Selenium	None Detected	µg/L	10.	SW-7740
Si as SiO ₂	63.	mg/L	0.2	SW-6010
Strontium	72.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	54.	µg/L	10.	SW-6010
Total Iron	1940.	µg/L	50.	SW-6010

* Detection limit increased due to matrix interferences.

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
 SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods",
 EPA-SW-846, September, 1986.


 Department Supervisor

SNORT 850-870

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-3

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-4, 08-25-92 @ 8:00
COLLECTED BY HASTING

SNORT 3,300'-3,320'
WATER ANALYSIS
(GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	35.	mg/L	0.1	SW-7140
Magnesium	6.9	mg/L	0.01	SW-7450
Sodium	3900.	mg/L	0.1	SW-7770
Potassium	14.5	mg/L	0.1	SW-7610
Carbonate	109.	mg/L	2.6	SM-403
Bicarbonate	2530.	mg/L	2.6	SM-403
Chloride	3420.	mg/L	1.8	EPA-300.0
Sulfate	1170.	mg/L	5.	EPA-300.0
Nitrate as NO3	None Detected	mg/L	0.4	EPA-353.2
Fluoride	17.4	mg/L	0.05	EPA-340.2
Bromide	3.8	mg/L	0.05	EPA-300.0
pH	8.2	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	15900.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	9350.	mg/L	10.	EPA-160.1
Ammonia as NH3	11.6	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	None Detected	mg/L	0.10	EPA-353.2
Ortho-phosphate	0.84	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

- EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods",
EPA-SW-846, September, 1986.

M. Atencio
Department Supervisor

SNORT 3,300-3,320

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-3

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-4, 08-25-92 @ 8:00
COLLECTED BY HASTING

SNORT 3,300'-3,320'
WATER ANALYSIS
(METALS)

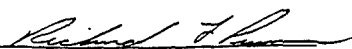
Constituents	Results	Units	D.L.R.	Method
Aluminum	1190.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	62.	µg/L	2.	SW-7060
Boron	52.5	mg/L	0.10	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lithium	1140.	µg/L	10.	SW-7430
Manganese	57.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
*Selenium	None Detected	µg/L	10.	SW-7740
Si as SiO ₂	50.	mg/L	0.2	SW-6010
Strontium	1590.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	35.	µg/L	10.	SW-6010
Total Iron	3480.	µg/L	50.	SW-6010

* Detection limit increased due to matrix interferences.

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods",
EPA-SW-846, September, 1986.


Department Supervisor

SNORT 3,300-3,320

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
 Weapons Division
 Code 2606
 China Lake, CA 93555-6001
 Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
 Date Received: 08/26/92
 Laboratory No.: 7640-2

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-3, 08-24-92 @ 15:00
 COLLECTED BY HASTING

SNORT 5,550'-5,570'
 WATER ANALYSIS
 (GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	4.6	mg/L	0.1	SW-7140
Magnesium	3.2	mg/L	0.01	SW-7450
Sodium	4920.	mg/L	0.1	SW-7770
Potassium	22.	mg/L	0.1	SW-7610
Carbonate	77.0	mg/L	2.6	SM-403
Bicarbonate	1270.	mg/L	2.6	SM-403
Chloride	5100.	mg/L	1.8	EPA-300.0
Sulfate	2080.	mg/L	5.	EPA-300.0
Nitrate as NO ₃	None Detected	mg/L	0.4	EPA-353.2
Fluoride	12.6	mg/L	0.05	EPA-340.2
Bromide	5.6	mg/L	0.05	EPA-300.0
pH	8.2	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	24000.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	12500.	mg/L	10.	EPA-160.1
Ammonia as NH ₃	11.4	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	None Detected	mg/L	0.10	EPA-353.2
Ortho-phosphate	0.44	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

- EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
 SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
 SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods",
 EPA-SW-846, September, 1986.

W. Itencio
 Department Supervisor

SNORT 5,550-5,570

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-2

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-3, 08-24-92 @ 15:00
COLLECTED BY HASTING

SNORT 5,550'-5,570' WATER ANALYSIS (METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	741.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	57.	µg/L	2.	SW-7060
Boron	60.6	mg/L	0.10	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lithium	1550.	µg/L	10.	SW-7430
Manganese	36.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
* Selenium	None Detected	µg/L	10.	SW-7740
Si as SiO ₂	45.	mg/L	0.2	SW-6010
Strontium	3100.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	19.	µg/L	10.	SW-6010
Total Iron	806.	µg/L	50.	SW-6010

* Detection limit increased due to matrix interferences.

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

- EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
- SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.


Department Supervisor

SNORT 5,550-5,570

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-1

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-2, 08-24-92 @ 8:30
COLLECTED BY HASTING (P-2, 7,120-7140')

SNORT 7,120'-7,140' WATER ANALYSIS (GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	4.6	mg/L	0.1	SW-7140
Magnesium	3.2	mg/L	0.01	SW-7450
Sodium	3480.	mg/L	0.1	SW-7770
Potassium	9.3	mg/L	0.1	SW-7610
Carbonate	456.	mg/L	2.6	SM-403
Bicarbonate	2620.	mg/L	2.6	SM-403
Chloride	2460.	mg/L	1.8	EPA-300.0
Sulfate	910.	mg/L	5.	EPA-300.0
Nitrate as NO3	None Detected	mg/L	0.4	EPA-353.2
Fluoride	24.	mg/L	0.05	EPA-340.2
Iodide	2.9	mg/L	0.05	EPA-300.0
pH	8.9	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 C	13500.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 C	8900.	mg/L	10.	EPA-160.1
Ammonia as NH3	14.6	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	None Detected	mg/L	0.10	EPA-353.2
Ortho-phosphate	0.24	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

- EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
- SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
- SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods", EPA-SW-846, September, 1986.

M. J. Hasting
Department Supervisor

SNORT 7,120-7,140

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
Weapons Division
Code 2606
China Lake, CA 93555-6001
Attn.: DR. MONASTERO 619-939-2700

Date Reported: 09/09/92
Date Received: 08/26/92
Laboratory No.: 7640-1

Sample Description: GEOTHERMAL PROGRAM - PROJECT #1 SNORT: SDW-1, P-2, 08-24-92 @ 8:30
COLLECTED BY HASTING

SNORT 7,120'-7,140' WATER ANALYSIS (METALS)

Constituents	Results	Units	D.L.R.	Method
Aluminum	1730.	µg/L	50.	SW-6010
Antimony	None Detected	µg/L	100.	SW-6010
Arsenic	80.	µg/L	2.	SW-7060
Boron	52.9	mg/L	0.10	SW-6010
Copper	None Detected	µg/L	10.	SW-6010
Lithium	560.	µg/L	10.	SW-7430
Manganese	98.	µg/L	10.	SW-6010
Mercury	None Detected	µg/L	0.2	EPA-245.1
* Selenium	None Detected	µg/L	10.	SW-7740
as SiO ₂	43.	mg/L	0.2	SW-6010
Strontium	350.	µg/L	10.	SW-6010
Thallium	None Detected	µg/L	5.	SW-7841
Zinc	46.	µg/L	10.	SW-6010
Total Iron	8960.	µg/L	50.	SW-6010

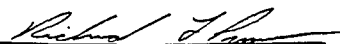
* Detection limit increased due to matrix interferences.

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.

SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods",
EPA-SW-846, September, 1986.


Department Supervisor

SNORT 7,120-7,140

NAWS CL TP 004, Volume 1

PAGE 2 OF 2

INORGANIC CHEMICALS

92-0736

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DTP
1000	ug/L	Aluminum (Al)	01105	1605.0	100.0
50	ug/L	Arsenic (As)	01002	195.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	12300.	100.0
50	ug/L	Lead (Pb)	01051	7.00	5.0
50	ug/L	Manganese (Mn)	01055	510.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	90.00	50.0

RADIOACTIVITY ANALYSIS

15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		5
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078		0.1
C	Source Temperature C	00010		
	Langelier Index Source Temp.	71814		
	Langelier Index at 60 C	71813		
Std. Units	Field PH	00400		
	Agressiveness Index	82383		
mg/L	Silica	00955		
mg/L	Phosphate	00650		
mg/L	Iodide	71865		
	Sodium Absorption Ratio	00931		
	Asbestos	81855		
mg/L	Boron	01020		

BR-6 Shallow

NAWS CL TP 004, Volume 1

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS
Date of Report: 02/06/92 Sample ID No. 92-0734
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *Carol J. Kelly*
Name of Sampler: UNKNOWN Employed By: UNKNOWN
Date/Time Sample Date/Time Sample Date Analyses
Collected: 92/01/10/0000 Received @ Lab: 92/01/29/1700 Completed: 92/02/05

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: BOR WELL 6 1190- 1210

* User ID: CYA Station Number: *
* Date/Time of Sample: |92|01|10|0000| Laboratory Code: 3761 *
* YY MM DD TTTT *
* Date Analysis Completed: |92|02|05| *
* YY MM DD *
* Submitted by: Phone #: *

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO ₃)	00900	80.0	
	mg/L	Calcium (Ca)	00916	4.8	
	mg/L	Magnesium (Mg)	00927	16.5	
	mg/L	Sodium (Na)	00929	188.6	
	mg/L	Potassium (K)	00937	8.6	

| Total Cations Meq/L Value: 10.0 |

	mg/L	Total Alkalinity (AS CaCO ₃)	00410	380.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO ₃)	00445	< 1.0	
	mg/L	Bicarbonate (HCO ₃)	00440	463.6	
*	mg/L*	Sulfate (SO ₄)	00945	34.6	
*	mg/L*	Chloride (Cl)	00940	33.3	
45	mg/L	Nitrate (as NO ₃)	71850	1.7	
****	mg/L	Fluoride (F) Temp. Depend.	00951	3.3	0.1

| Total Anions Meq/L Value: 9.5 |

	Std. Units	PH (Laboratory)	00403	9.1	
**	umho/cm**	Specific Conductance (E.C.)	00095	950.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	481.4	
	Units	Apparent Color (Unfiltered)	00081	5.0	
	TON	Odor Threshold at 60 C	00086	2.0	
	NTU	Lab Turbidity	82079	85.0	
0.5	mg/L	MBAS	38260	< 0.02	

* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4

BR-6 Medium

NAWS CL TP 004, Volume 1

PAGE 2 OF 2

INORGANIC CHEMICALS

92-0734

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DT
1000	ug/L	Aluminum (Al)	01105	865.00	100.0
50	ug/L	Arsenic (As)	01002	135.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	4535.0	100.0
50	ug/L	Lead (Pb)	01051	6.00	5.0
50	ug/L	Manganese (Mn)	01055	140.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0

RADIOACTIVITY ANALYSIS

15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		5
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078		0.1
C	Source Temperature C	00010		
	Langelier Index Source Temp.	71814		
	Langelier Index at 60 C	71813		
Std. Units	Field PH	00400		
	Agressiveness Index	82383		
mg/L	Silica	00955		
mg/L	Phosphate	00650		
mg/L	Iodide	71865		
	Sodium Absorption Ratio	00931		
	Asbestos	81855		
mg/L	Boron	01020		

BR-6 Medium

NAWS CL TP 004, Volume 1

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

RADIOACTIVITY ANALYSIS

Date of Report: 02/06/92 Sample ID No. 92-0734
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *Carol Kelly*
Name of Sampler: UNKNOWN Employed By: UNKNOWN
Date/Time Sample Date/Time Sample Date Analyses
Collected: 92/01/29/0000 Received @ Lab: 92/01/29/1700 Completed: 92/02/05

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: BOR WELL 6 1190- 1210

* User ID: CYA Station Number: *
* Date/Time of Sample: |92|01|29|0000| Laboratory Code: 3761 *
* YY MM DD TTTT *
* Date Analysis Completed: |92|02|05| *
* YY MM DD *
* Submitted by: Phone #: *

MCL REPORT UNITS	CONSTITUENT	STORET CODE	ANALYSES RESULTS	DLR
15 pCi/l Total Alpha		01501	4.3	
pCi/l Total Alpha Counting Error		01502	1.7	
50 pCi/l Total Beta		03501		4.0
pCi/l Total Beta Counting Error		03502		
20 pCi/l Natural Uranium		28012		2.0
pCi/l Total Radium 226		09501		.5
pCi/l Total Radium 226 Counting Error		09502		
pCi/l Total Radium 228		11501		.5
pCi/l Total Radium 228 Counting Error		11502		
5 pCi/l Ra 226 + Ra 228		11503		
pCi/l Ra 226 + Ra 228 Counting Error		11504		
20000 pCi/l Total Tritium		07000		1.0
pCi/l Total Tritium Counting Error		07001		
8 pCi/l Total Strontium - 90		13501		2.0
pCi/l Total Strontium - 90 Counting Error		13502		
pCi/l Total Radon 222		82303		100.0
pCi/l Total Radon 222 Counting Error		82302		

BR-6 Medium

NAWS CL TP 004, Volume 1

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS
Date of Report: 02/06/92 Sample ID No. 92-0735
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *Carole J. Lewis*
Name of Sampler: UNKNOWN Employed By: UNKNOWN
Date/Time Sample Date/Time Sample Date Analyses
Collected: 92/01/10/0000 Received @ Lab: 92/01/29/1700 Completed: 92/02/05

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: BOR WELL 6 1640 - 1660

* User ID: CYA Station Number: *
* Date/Time of Sample: |92|01|10|0000| Laboratory Code: 3761 *
* YY MM DD TTTT *
* Date Analysis Completed: |92|02|05| *
* YY MM DD *
* Submitted by: Phone #: *

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO ₃)	00900	76.0	
	mg/L	Calcium (Ca)	00916	5.8	
	mg/L	Magnesium (Mg)	00927	15.0	
	mg/L	Sodium (Na)	00929	223.4	
	mg/L	Potassium (K)	00937	7.4	
Total Cations Meq/L Value: 11.4					
	mg/L	Total Alkalinity (AS CaCO ₃)	00410	440.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO ₃)	00445	< 1.0	
	mg/L	Bicarbonate (HCO ₃)	00440	536.8	
*	mg/L*	Sulfate (SO ₄)	00945	37.5	
*	mg/L*	Chloride (Cl)	00940	29.4	
45	mg/L	Nitrate (as NO ₃)	71850	< 1.0	
****	mg/L	Fluoride (F) Temp. Depend.	00951	1.7	0.1
Total Anions Meq/L Value: 10.5					
	Std. Units	PH (Laboratory)	00403	8.9	
**	umho/cm**	Specific Conductance (E.C.)	00095	980.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	540.1	
	Units	Apparent Color (Unfiltered)	00081	40.0	
	TON	Odor Threshold at 60 C	00086	2.0	
	NTU	Lab Turbidity	82079	140.0	
0.5	mg/L	MBAS	38260	< 0.02	
* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4					

BR-6 Deep

NAWS CL TP 004, Volume 1

AGE 2 OF 2

INORGANIC CHEMICALS

92-0735

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR [†]
1000	ug/L	Aluminum (Al)	01105	1325.0	100.0
50	ug/L	Arsenic (As)	01002	75.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	3925.0	100.0
50	ug/L	Lead (Pb)	01051	< 5.00	5.0
50	ug/L	Manganese (Mn)	01055	160.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0

RADIOACTIVITY ANALYSIS

15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		0
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078		0.1
C	Source Temperature C	00010		
	Langelier Index Source Temp.	71814		
	Langelier Index at 60 C	71813		
Std. Units	Field PH	00400		
	Agressiveness Index	82383		
mg/L	Silica	00955		
mg/L	Phosphate	00650		
mg/L	Iodide	71865		
	Sodium Absorption Ratio	00931		
	Asbestos	81855		
mg/L	Boron	01020		

BR-6 Deep

NAWS CL TP 004, Volume 1



Naval Air Warfare Center
 Weapons Division
 Code 2862
 China Lake, CA 93555-6001
 Attn.: Disbursing Officer 619-939-2116

Date Reported: 09/16/92
 Date Received: 09/02/92
 Laboratory No.: 7880-1

Sample Description: BOR-10 640. SAMPLE WAS TAKEN ON 09-01-92 @ 3:00AM BY HASTING.

WATER ANALYSIS
 (GENERAL CHEMISTRY)

Constituents	Results	Units	D.L.R.	Method
Calcium	21.	mg/L	0.1	SW-7140
Magnesium	19.0	mg/L	0.01	SW-7450
Sodium	295.	mg/L	0.1	SW-7770
Potassium	24.	mg/L	0.1	SW-7610
Total Cations	16.1	meq/L	0.01	Calculated
Hydroxide	< 0.8	mg/L	0.8	SM-403
Carbonate	40.2	mg/L	2.6	SM-403
Bicarbonate	300.	mg/L	2.6	SM-403
Chloride	176.	mg/L	1.8	EPA-300.0
Sulfate	225.	mg/L	5.	EPA-300.0
Nitrate/Nitrite as NO3	2.7	mg/L	0.4	EPA-353.2
Fluoride	1.3	mg/L	0.05	EPA-340.2
Bromide	0.45	mg/L	0.05	EPA-300.0
Total Anions	16.0	meq/L	0.01	Calculated
pH	8.7	pH Units	0.1	SW-9040
Electrical Conductivity @ 25 °C	1570.	umhos/cm	1.	SW-9050
Total Dissolved Solids @ 180 °C	1000.	mg/L	10.	EPA-160.1
Color	10.	Color Units	1.0	EPA-110.2
Odor	2.	Odor Units	NA	EPA-140.1
Turbidity	31.	NT Units	0.05	EPA-180.1
MBAS	0.40	mg/L	0.02	EPA-425.1
Hardness as CaCO3	131.	mg/L	0.3	Calculated
Alkalinity as CaCO3	313.	mg/L	3.0	Calc
Ammonia as NH3	< 0.02	mg/L	0.02	EPA-350.1
Nitrite Nitrogen	< 0.1	mg/L	0.1	EPA-353.2
Ortho-phosphate	0.36	mg/L	0.10	EPA-365.1

D.L.R. = Detection Limit for Reporting purposes.

REFERENCES:

- EPA = "Methods for Chemical Analysis of Water and Wastes", EPA-600, 14-79-020.
 SM = "Standard Methods for Examination of Water and Wastewater", 16th Edition 1986.
 SW = "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods",
 EPA-SW-846, September, 1986.

M. Otencin
 Department Supervisor

cc: GEOTHERMAL PROGRAM

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 03/18/91
Laboratory Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. J. Jelliff
Name of Sampler: GAIL MOULTON Employed By: NAC 615'-635'
Date/Time Sample Collected: 91/03/02/0900 Date/Time Sample Received @ Lab: 91/03/02/0900 Date Analyses Completed: 91/03/18

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE System Number: 36-042
Name or Number of Sample Source: BOR #1

* Water Type: (G/S) |S| Station Number: 036/042-BOR#1 *
* Date/Time of Sample: |91|03|02|0900| User ID: TAN *
* YY MM DD HHMM *
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|03|18| *
* YY MM DD *
* Submitted by: Phone #: *

Place an 'X' in box to delete all data for this station/date/time. ☐

REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	MCL	DLR
	ALL CONSTITUENTS REPORTED uG/L				
mg/L	Total Hardness (as CaCO ₃)	00900	22.4		
mg/L	Calcium (Ca)	00916	6.4		
mg/L	Magnesium (Mg)	00927	1.6		30.0
mg/L	Sodium (NA)	00929	79.2		
mg/L	Potassium (K)	00937	3.5		
Total Cations Meq/L Value: 4.0					
mg/L	Total Alkalinity (AS CaCO ₃)	00410	124.8		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO ₃)	00445	< 1.0		
mg/L	Bicarbonate (HCO ₃)	00440	152.3		
mg/L*	Sulfate (SO ₄)	00945	27.9		
mg/L*	Chloride (Cl)	00940	17.1		
mg/L	Nitrate (as NO ₃)	71850	9.8	45	
mg/L	Fluoride (F) Temp. Depend.	00951	1.4	****	0.1
Total Anions Meq/L Value: 3.8					
Std. Units	PH (Laboratory)	00403	8.7		
umho/cm**	Specific Conductance (E.C.)	00095	380.0		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	212.8		
Units	Apparent Color (Unfiltered)	00081	> .70		
TON	Odor Threshold at 60 C	00086	2.0		1.0
NTU	Lab Turbidity	82079	170.0		
mg/L	MBAS	38260	< 0.02	0.5	0.02
* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4					

BR-1 Shallow

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* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
ug/L	Arsenic (As)	01002	< 10	50	10
ug/L	Barium (Ba)	01007	< 100	1000	100
ug/L	Cadmium (Cd)	01027	< 1	10	1
ug/L	Chromium (Total Cr)	01034	< 10	50	10
ug/L	Copper (Cu)	01042	< 50	1000	50
ug/L	Iron (Fe)	01045	< 100	300	100
ug/L	Lead (Pb)	01051	< 5	50	5
ug/L	Manganese (Mn)	01055	< 30	50	30
ug/L	Mercury (Hg)	71900	< 1	2	1
ug/L	Selenium (Se)	01147	< 5	10	5
ug/L	Silver (Ag)	01077	< 10	50	10
ug/L	Zinc (Zn)	01092	< 50	5000	50
ug/L	Aluminum	01105	< 100	1000	100

ORGANIC CHEMICALS

ug/L	Endrin (Hexadrin)	39390		0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340		4	0.4
ug/L	Methoxychlor	39480		100	10.0
ug/L	Toxaphene	39400		5	0.5
ug/L	2,4-D	39730		100	1
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045		10	

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078			0.1
C	Source Temperature C	00010			
	Langelier Index Source Temp.	71814			
	Langelier Index at 60 C	71813			
Std. Units	Field PH	00400			
	Agressiveness Index	82383			
mg/L	Silica	00955			
mg/L	Phosphate	00650			
mg/L	Iodide	71865			
	Sodium Absorption Ratio	00931			
	Asbestos	81855			
mg/L	Ammonia (NH3-N)	00612			
mg/L	Nitrite Nitrogen (NO2-N)	00615			
mg/L	Nitrate Nitrogen (NO3-N)	00618			1.0
mg/L	Nitrite (N)	00620			
mg/L	Beryllium	01012			
mg/L	Boron	01020			
mg/L	Thallium	01059			
mg/L	Nickel	01067			
mg/L	Antimony	01097			0.05
mg/L	Lithium	01132			
mg/L	Cyanide	01291			

BR-1 Shallow

Clinical Laboratory of San Bernardino, Inc.



1595 N. "D" St., San Bernardino, CA 92405

Phone (714) 885-3216

P. O. Box 329

San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report:		Lab Sample ID No. 91-1862	
Laboratory CLINICAL LAB OF SAN BERNARDINO		Signature of <i>C. Jolly</i>	
Name:		Lab Director:	
Name of Sampler: Gail Moulton		Sampler	
Date/Time Sample Collected: 91/03/02 09:00		Employed By: North American Chemical Co.	
Date/Time Sample Received @ Lab: 91/03/14		Were Holding Times Observed: Yes	
System Name: North American Chemical Co.		System Number:	
Description of Sampling Point:			
Name/No. of Sample 615 - 635		Station Number:	
Source: I.W.V. Test Well #2 Bor #1			
Date & Time	9 1 0 3 0 2 0 9 0 0	Water Type: ☐ ☐	User ID: ☐ ☐
Sample:	Y Y M M D D T T T T	G/S	Submitted to SWQIS By:

MCL REPORTING UNITS	CONSTITUENT	T	STORET CODE	ANALYSES RESULTS
Analyzing Agency			28	3,7,6,1
Date Analyses Completed			73672	9,1,0,3,1,8
				Y Y M M D D
5 pC/l	Total Alpha		1501	3.6
PC/l	Total Alpha Counting Error		1502	1.6
50 pC/l	Total Beta		3501	
PC/l	Total Beta Counting Error		3502	
PC/l	Natural Uranium		28012	
3 pC/l	Total Radium 226		9501	
PC/l	Total Radium 226 Counting Error		9502	
PC/l	Total Radium 228		11501	
PC/l	Total Radium 228 Counting Error		11502	
5 pC/l	Ra 226 + Ra 228		11503	
PC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000pC/l	Total Tritium		7000	
PC/l	Total Tritium Counting Error		7001	
8 pC/l	Total Strontium-90		13501	
PC/l	Total Strontium-90 Counting Error		13502	

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 03/18/91
Laboratory Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *C. Jolly*
Name of Sampler: GAIL MOULTON Employed By: NAC 1040'-1060'
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/03/02/0900 Received @ Lab: 91/03/02/0900 Completed: 91/03/18

System Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE System Number: 36-042
Name or Number of Sample Source: BOR #1

* Water Type: (G/S) |S| Station Number: 036/042-BOR#1 *
* Date/Time of Sample: |91|03|02|0900| User ID: TAN *
* YY MM DD HHMM *
* *
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|03|18| *
* YY MM DD *
* Submitted by: Phone #: *

Place an 'X' in box to delete all data for this station/date/time. ☐

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
mg/L	Total Hardness (as CaCO ₃)	00900	12.8		
mg/L	Calcium (Ca)	00916	3.2		
mg/L	Magnesium (Mg)	00927	1.2		30.0
mg/L	Sodium (NA)	00929	95.0		
mg/L	Potassium (K)	00937	1.5		

Total Cations	Meq/L	Value:	4.4
---------------	-------	--------	-----

mg/L	Total Alkalinity (AS CaCO ₃)	00410	183.2		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO ₃)	00445	< 1.0		
mg/L	Bicarbonate (HCO ₃)	00440	223.5		
mg/L*	Sulfate (SO ₄)	00945	16.0		
mg/L*	Chloride (Cl)	00940	9.4		
mg/L	Nitrate (as NO ₃)	71850	8.7	45	
mg/L	Fluoride (F) Temp. Depend.	00951	0.7	****	0.1

Total Anions	Meq/L	Value:	4.4
--------------	-------	--------	-----

Std. Units	PH (Laboratory)	00403	9.1		
umho/cm**	Specific Conductance (E.C.)	00095	420.0		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	243.6		
Units	Apparent Color (Unfiltered)	00081	20.0		
TON	Odor Threshold at 60 C	00086	2.0		1.0
NTU	Lab Turbidity	82079	61.0		
mg/L	MBAS	38260	< 0.02	0.5	0.02

* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4

BR-1 Shal Med

NAWS CL TP 004, Volume 1

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* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
ug/L	Arsenic (As)	01002	< 10	50	10
ug/L	Barium (Ba)	01007	< 100	1000	100
ug/L	Cadmium (Cd)	01027	< 1	10	1
ug/L	Chromium (Total Cr)	01034	< 10	50	10
ug/L	Copper (Cu)	01042	< 50	1000	50
ug/L	Iron (Fe)	01045	< 100	300	100
ug/L	Lead (Pb)	01051	< 5	50	5
ug/L	Manganese (Mn)	01055	< 30	50	30
ug/L	Mercury (Hg)	71900	< 1	2	1
ug/L	Selenium (Se)	01147	< 5	10	5
ug/L	Silver (Ag)	01077	< 10	50	10
ug/L	Zinc (Zn)	01092	< 50	5000	50
ug/L	Aluminum	01105	< 100	1000	100

ORGANIC CHEMICALS

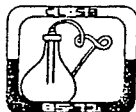
ug/L	Endrin (Hexadrin)	39390		0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340		4	0.4
ug/L	Methoxychlor	39480		100	10.0
ug/L	Toxaphene	39400		5	0.5
ug/L	2,4-D	39730		100	10.0
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045		10	

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078			0.1
C	Source Temperature C	00010			
	Langelier Index Source Temp.	71814			
	Langelier Index at 60 C	71813			
Std. Units	Field PH	00400			
	Agressiveness Index	82383			
mg/L	Silica	00955			
mg/L	Phosphate	00650			
mg/L	Iodide	71865			
	Sodium Absorption Ratio	00931			
	Asbestos	81855			
mg/L	Ammonia (NH3-N)	00612			
mg/L	Nitrite Nitrogen (NO2-N)	00615			
mg/L	Nitrate Nitrogen (NO3-N)	00618			1.0
mg/L	Nitrite (N)	00620			
mg/L	Beryllium	01012			
mg/L	Boron	01020			
mg/L	Thallium	01059			
mg/L	Nickel	01067			
mg/L	Antimony	01097			0.05
mg/L	Lithium	01132			
mg/L	Cyanide	01291			

BR-1 Shal Med

Clinical Laboratory of San Bernardino, Inc.



1595 N. "D" St., San Bernardino, CA 92405

Phone (714) 885-3216

P. O. Box 329

San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report:		Lab Sample ID No. 91-1863	
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO		Signature of Lab Director: <i>C. J. Jelliff</i>	
Name of Sampler: Gail Moulton		Sampler Employed By: North American Chemical Co.	
Date/Time Sample Collected: 91/03/02 09:00	Date/Time Sample Received @ Lab: 91/03/14	Were Holding Times Observed: Yes	
System Name: North American Chemical Co.		System Number:	
Description of Sampling Point:			
Name/No. of Sample: IWW Test Well #1		Station Number:	
Source: BOR #1 1040' - 1060'			
Date & Time: 9 1 0 2 0 9 0 0	Water Type: ☐ G/S	User ID: ☐	Submitted to SWQIS By:
Sample: Y Y M M D D T T T T			

MCL REPORTING UNITS	CONSTITUENT	T	STORET CODE	ANALYSES RESULTS
Analyzing Agency			28	3, 7, 6, 1
Date Analyses Completed			73672	9, 1, 0, 3, 1, 8
				Y Y M M D D

5	pC/l	Total Alpha	1501	2, 0
	pC/l	Total Alpha Counting Error	1502	1, 3
50	pC/l	Total Beta	3501	
	pC/l	Total Beta Counting Error	3502	
	pC/l	Natural Uranium	28012	
3	pC/l	Total Radium 226	9501	
	pC/l	Total Radium 226 Counting Error	9502	
	pC/l	Total Radium 228	11501	
	pC/l	Total Radium 228 Counting Error	11502	
5	pC/l	Ra 226 + Ra 228	11503	
	pC/l	Ra 226 + Ra 228 Counting Error	11504	
20,000	pC/l	Total Tritium	7000	
	pC/l	Total Tritium Counting Error	7001	
8	pC/l	Total Strontium-90	13501	
	pC/l	Total Strontium-90 Counting Error	13502	

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 03/18/91 Sample ID No. 911864
Laboratory Signature Lab *C. Jolly*
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director:
Name of Sampler: GAIL MOULTON Employed By: NAC 1500'-1520'
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/03/02/0900 Received @ Lab: 91/03/02/0900 Completed: 91/03/18

System System
Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE Number: 36-042
Name or Number of Sample Source: BOR #1

* Water Type: (G/S) |S| Station Number: 036/042-BOR#1 *
* Date/Time of Sample: |91|03|02|0900| User ID: TAN *
* YY MM DD HHMM *
* *
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|03|18| *
* YY MM DD *
* Submitted by: Phone #: *

Place an 'X' in box to delete all data for this station/date/time. ☐

REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	MCL	DLR
ALL CONSTITUENTS REPORTED ug/L					
mg/L	Total Hardness (as CaCO ₃)	00900	72.0		
mg/L	Calcium (Ca)	00916	20.0		
mg/L	Magnesium (Mg)	00927	5.3		30.0
mg/L	Sodium (NA)	00929	110.2		
mg/L	Potassium (K)	00937	7.9		
Total Cations Meq/L Value: 6.4					
mg/L	Total Alkalinity (AS CaCO ₃)	00410	248.8		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO ₃)	00445	< 1.0		
mg/L	Bicarbonate (HCO ₃)	00440	303.5		
mg/L*	Sulfate (SO ₄)	00945	25.3		
mg/L*	Chloride (Cl)	00940	14.3		
mg/L	Nitrate (as NO ₃)	71850	9.1	45	
mg/L	Fluoride (F) Temp. Depend.	00951	2.3	****	0.1
Total Anions Meq/L Value: 6.2					
Std. Units	PH (Laboratory)	00403	8.8		
umho/cm**	Specific Conductance (E.C.)	00095	610.0		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	353.8		
Units	Apparent Color (Unfiltered)	00081	> 70.0		
TON	Odor Threshold at 60 C	00086	2.0		1.0
NTU	Lab Turbidity	82079	> 200.0		
mg/L	MBAS	38260	< 0.02	0.5	0.02
* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4					

BR-1 Deep Med

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911864

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
ug/L	Arsenic (As)	01002	< 10	50	10
ug/L	Barium (Ba)	01007	< 100	1000	100
ug/L	Cadmium (Cd)	01027	< 1	10	1
ug/L	Chromium (Total Cr)	01034	< 10	50	10
ug/L	Copper (Cu)	01042	< 50	1000	50
ug/L	Iron (Fe)	01045	< 100	300	100
ug/L	Lead (Pb)	01051	< 5	50	5
ug/L	Manganese (Mn)	01055	< 30	50	30
ug/L	Mercury (Hg)	71900	< 1	2	1
ug/L	Selenium (Se)	01147	< 5	10	5
ug/L	Silver (Ag)	01077	< 10	50	10
ug/L	Zinc (Zn)	01092	150	5000	50
ug/L	Aluminum	01105	< 100	1000	100

ORGANIC CHEMICALS

ug/L	Endrin (Hexadrin)	39390		0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340		4	0.4
ug/L	Methoxychlor	39480		100	10.0
ug/L	Toxaphene	39400		5	0.5
ug/L	2,4-D	39730		100	0
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045		10	

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078			0.1
C	Source Temperature C	00010			
	Langelier Index Source Temp.	71814			
	Langelier Index at 60 C	71813			
Std. Units	Field PH	00400			
	Agressiveness Index	82383			
mg/L	Silica	00955			
mg/L	Phosphate	00650			
mg/L	Iodide	71865			
	Sodium Absorption Ratio	00931			
	Asbestos	81855			
mg/L	Ammonia (NH3-N)	00612			
mg/L	Nitrite Nitrogen (NO2-N)	00615			
mg/L	Nitrate Nitrogen (NO3-N)	00618			1.0
mg/L	Nitrite (N)	00620			
mg/L	Beryllium	01012			
mg/L	Boron	01020			
mg/L	Thallium	01059			
mg/L	Nickel	01067			
mg/L	Antimony	01097			0.05
mg/L	Lithium	01132			
mg/L	Cyanide	01291			

BR-1 Deep Med

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 03/18/91 Sample ID No. 911865
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. J. Kelly
Name of Sampler: GAIL MOULTON Employed By: NAC 1750'-1770'
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/03/02/0900 Received @ Lab: 91/03/02/0900 Completed: 91/03/18

System System
Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE Number: 36-042
Name or Number of Sample Source: BOR #1

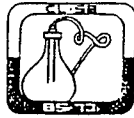
* Water Type: (G/S) |S| Station Number: 036/042-BOR#1 *
* Date/Time of Sample: |91|03|02|0900| User ID: TAN *
* YY MM DD HHMM *
* *
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|03|18| *
* YY MM DD *
* Submitted by: Phone #: *

Place an 'X' in box to delete all data for this station/date/time. ☐

REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	MCL	DLR
	ALL CONSTITUENTS REPORTED ug/L				
mg/L	Total Hardness (as CaCO ₃)	00900	32.0		
mg/L	Calcium (Ca)	00916	9.6		
mg/L	Magnesium (Mg)	00927	1.9		30.0
mg/L	Sodium (NA)	00929	107.9		
mg/L	Potassium (K)	00937	4.8		
Total Cations Meq/L Value: 5.4					
mg/L	Total Alkalinity (AS CaCO ₃)	00410	218.0		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO ₃)	00445	< 1.0		
mg/L	Bicarbonate (HCO ₃)	00440	266.0		
mg/L*	Sulfate (SO ₄)	00945	16.6		
mg/L*	Chloride (Cl)	00940	10.2		
mg/L	Nitrate (as NO ₃)	71850	7.1	45	
mg/L	Fluoride (F) Temp. Depend.	00951	3.3	****	0.1
Total Anions Meq/L Value: 5.3					
Std. Units	PH (Laboratory)	00403	8.7		
umho/cm**	Specific Conductance (E.C.)	00095	500.0		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	285.0		
Units	Apparent Color (Unfiltered)	00081	> 70.0		
TON	Odor Threshold at 60 C	00086	1.0		1.0
NTU	Lab Turbidity	82079	> 200.0		
mg/L	MBAS	38260	< 0.02	0.5	0.02
* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4					

BR-1 Deep

Clinical Laboratory of San Bernardino, Inc.



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 San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: 3/21/91		Lab Sample ID No. 91-1864	
Laboratory CLINICAL LAB OF SAN BERNARDINO		Signature of Lab Director: C. J. Kelly	
Name of Sampler: Moulton		Employed By: North American Chemical Co.	
Date/Time Sample Collected: 91/03/02 09:00	Date/Time Sample Received @ Lab: 91/03/14	Were Holding Times Observed: Yes	
System Name: North American Chemical Co.		System Number:	
Description of Sampling Point:			
Name/No. of Sample IWV Test Well #1		Station Number:	
Source: BOR #1 1500' - 1520'		User ID: Submitted to SWQIS By:	
Date & Time: 91 03 02 09 00 00	Water Type: ☐ G/S	Submitted to SWQIS By:	
Sample: Y Y M M D D T T T T			

MCL REPORTING UNITS	CONSTITUENT	T	STORET CODE	ANALYSES RESULTS
Analyzing Agency			28	3.76.1
Date Analyses Completed			73672	9.10.32.1
				Y Y M M D D
5 pC/l	Total Alpha		1501	1.9.3
PC/l	Total Alpha Counting Error		1502	1.2.0
50 pC/l	Total Beta		3501	
PC/l	Total Beta Counting Error		3502	
pC/l	Natural Uranium		28012	
3 pC/l	Total Radium 226		9501	
PC/l	Total Radium 226 Counting Error		9502	
pC/l	Total Radium 228		11501	
PC/l	Total Radium 228 Counting Error		11502	
5 pC/l	Ra 226 + Ra 228		11503	
PC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000pC/l	Total Tritium		7000	
PC/l	Total Tritium Counting Error		7001	
8 pC/l	Total Strontium-90		13501	
PC/l	Total Strontium-90 Counting Error		13502	

RR-1 Deep Med

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911865

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
ug/L	Arsenic (As)	01002	< 10	50	10
ug/L	Barium (Ba)	01007	< 100	1000	100
ug/L	Cadmium (Cd)	01027	< 1	10	1
ug/L	Chromium (Total Cr)	01034	< 10	50	10
ug/L	Copper (Cu)	01042	< 50	1000	50
ug/L	Iron (Fe)	01045	< 100	300	100
ug/L	Lead (Pb)	01051	< 5	50	5
ug/L	Manganese (Mn)	01055	< 30	50	30
ug/L	Mercury (Hg)	71900	< 1	2	1
ug/L	Selenium (Se)	01147	< 5	10	5
ug/L	Silver (Ag)	01077	< 10	50	10
ug/L	Zinc (Zn)	01092	50	5000	50
ug/L	Aluminum	01105	< 100	1000	100

ORGANIC CHEMICALS

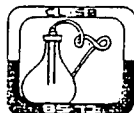
ug/L	Endrin (Hexadrin)	39390	0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340	4	0.4
ug/L	Methoxychlor	39480	100	10.0
ug/L	Toxaphene	39400	5	0.5
ug/L	2,4-D	39730	100	10.0
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045	10	

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078	0.1
C	Source Temperature C	00010	
	Langelier Index Source Temp.	71814	
	Langelier Index at 60 C	71813	
Std. Units	Field PH	00400	
	Agressiveness Index	82383	
mg/L	Silica	00955	
mg/L	Phosphate	00650	
mg/L	Iodide	71865	
	Sodium Absorption Ratio	00931	
	Asbestos	81855	
mg/L	Ammonia (NH3-N)	00612	
mg/L	Nitrite Nitrogen (NO2-N)	00615	
mg/L	Nitrate Nitrogen (NO3-N)	00618	1.0
mg/L	Nitrite (N)	00620	
mg/L	Beryllium	01012	
mg/L	Boron	01020	
mg/L	Thallium	01059	
mg/L	Nickel	01067	
mg/L	Antimony	01097	0.05
mg/L	Lithium	01132	
mg/L	Cyanide	01291	

BR-1 Deep

Clinical Laboratory of San Bernardino, Inc.



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 San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: 3/2/91		Lab Sample ID No. 91-1865	
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO		Signature of Lab Director: C. Jelliff	
Name of Sampler: Moulton		Sampler Employed By: North American Chemical	
Date/Time Sample Collected: 91/03/02 09:00	Date/Time Sample Received @ Lab: 91/03/14	Were Holding Times Observed: Yes	
System Name: North American Chemical Co.		System Number:	
Description of Sampling Point:			
Name/No. of Sample: IWV Test Well #1		Station Number:	
Source: BOR #1 1750' - 1770'			
Date & Time of Sample: 91/03/02 09:00	Water Type: G/S	User ID:	Submitted to SWQIS By:
Sample: Y Y M M D D T T T T			

MCL REPORTING UNITS	CONSTITUENT	T	STORET CODE	ANALYSES RESULTS
Analyzing Agency			28	3,7,6,1
Date Analyses Completed			73672	9,1,0,3,2,1
				Y Y M M D D

5	pC/l	Total Alpha	1501	5,8
	pC/l	Total Alpha Counting Error	1502	1,2
50	pC/l	Total Beta	3501	
	pC/l	Total Beta Counting Error	3502	
	pC/l	Natural Uranium	28012	
3	pC/l	Total Radium 226	9501	
	pC/l	Total Radium 226 Counting Error	9502	
	pC/l	Total Radium 228	11501	
	pC/l	Total Radium 228 Counting Error	11502	
5	pC/l	Ra 226 + Ra 228	11503	
	pC/l	Ra 226 + Ra 228 Counting Error	11504	
20,000	pC/l	Total Tritium	7000	
	pC/l	Total Tritium Counting Error	7001	
8	pC/l	Total Strontium-90	13501	
	pC/l	Total Strontium-90 Counting Error	13502	

BR-1 Deep

Clinical Laboratory of San Bernardino, Inc. 1048

Post Office Box 329
1595 North "D" Street
San Bernardino, California 92402
Phone (714) 885-3216

TITLE 22 CHEMICAL ANALYSES

G, I, L 110F

Date Of Report 11/09/1990		Lab Sample I.D. Number. 90/C/5175	
Laboratory Name Clinical Laboratory of San Bernardino, Inc.		Signature Lab Director <i>C. J. Kelly</i>	
Name of Sampler MOULTON		Sampler Employed By Kerr McGee Chemical Corporation	
Date/Time Sample Collected 10/30/1990 15:00	Date / Time Sample Received at Lab. 10/31/1990	Were Holding Times Observed? Yes	
System Name Kerr McGee Chemical Corporation		System Number	
Description of Sampling Point			

Name/Number of Sample Source BOR WELL #2 LOWER ZONR		Station Number	
Date and Time of Sample 9 0 1 0 3 0 1 5 0 0 Y Y M M D D T T T T	Water Type G/S	User I.D.	Submitted to SWOIS By

MCL Reporting Units	Constituent	T T	Storet Code	Analyses Results
	Analyzing Agency (Laboratory)		28	3 7 6 1
mg/L	Total Hardness (as CaCO ₃)		900	4 2 0
mg/L	Calcium (Ca)		916	1 3 1
mg/L	Magnesium (mg)		927	2 2
mg/L	Sodium (Na)		929	1 0 5 4
mg/L	Potassium (K)		937	4 5
Total Cations	meg/L Value: 5.5			

(Cations, Anions) 2.5 % Meg Difference.

mg/L	Total Alkalinity (as CaCO ₃)	410	8 6 0
mg/L	Hydroxide (OH)	71830	< 1 0
mg/L	Carbonate (CO ₃)	445	< 1 0
mg/L	Bicarbonate (HCO ₃)	440	1 0 4 9
* mg/L +	Sulfate (SO ₄)	945	8 1 3
* mg/L +	Chloride (Cl)	940	5 2 0
45 mg/L	Nitrate (NO ₃)	71850	4 8
1.4 - 2.4 mg/L	Fluoride (F) Temp. Depend.	951	8 4
Total Anions	meg/L Value: 5.4		

Std UNITS	pH (Laboratory)	403	8 . 6 0
** umho/cm +	Specific Conductance (E.C.)	95	5 8 0
*** mg/L +	Total Filterable Residue at 180° C (TDS)	70300	3 5 3 8
UNITS	Apparent Color (Unfiltered)	81	
TON	Odor Threshold at 60° C	86	
NTU	Lab Turbidity	82079	
0.5 mg/L +	MBAS	38260	< 0 . 0 2

DHS 8351(11/86)

* 250-500-600

** 900-1600-2200

*** 500-1000-1500

BR-2 Deep

NAWS CL TP 004, Volume 1

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SYSTEM NAME AND NUMBER Kerr McGee Chemical Corporation
No Entry

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

90/C/5175

MCL Reporting Units	Constituent	T T	Store Code	Analyses Results
50 ug/L	Arsenic(As)		1002	1 4
1000 ug/L	Barium(Ba)		1007	< 1 0 0
10 ug/L	Cadmium(Cd)		1027	< 1
50 ug/L	Chromium(Total Cr)		1034	< 1 0
1000 ug/L+	Copper(Cu)		1042	< 5 0
300 ug/L+	Iron(Fe)		1045	1 5 0 0
50 ug/L	Lead(Pb)		1051	1 5
50 ug/L+	Manganese(Mn)		1055	2 5 0
2 ug/L	Mercury(Hg)		71900	< 1
10 ug/L	Selenium(Se)		1147	< 5
50 ug/L	Silver(Ag)		1077	< 1 0
5000 ug/L	Zinc(Zn)		1092	9 0

ORGANIC CHEMICALS

0.2 ug/L	Endrin		39390	
4 ug/L	Lindane		39340	
100 ug/L	Methoxychlor		39480	
5 ug/L	Toxaphene		39400	
100 ug/L	2,4-D		39730	
10 ug/L	2,4,5-TP Silvex		39045	
Date ORGANIC Analysis Completed			73672	Y Y M M D D

ADDITIONAL ANALYSES

NTU	Field Turbidity		82078	
C	Source Temperature		10	4 3 . 3
	Langlier Index Source Temp.		71814	0 . 5 4
	Langlier Index at 60°C		71813	0 . 7 9
Std. Units	Field pH		00400	8 . 6 0
	Aggressive Index		82383	1 2 . 1
mg/L	Silica		00955	
mg/L	Phosphate		00650	
	DISSOLVED ALUMINUM			0 . 2 6

RADIOLOGICAL

5 pC/L	Gross Alpha		1501	
pC/L	Counting Error 95%		1502	
50 pC/L	Gross Beta		3501	
pC/L	Counting Error 95%		3502	

+ Indicates Secondary Drinking Water Standards

BR-2 Deep

Clinical Laboratory of San Bernardino, Inc. 1048

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1595 North "D" Street
San Bernardino, California 92402
Phone (714) 885-3216

TITLE 22 CHEMICAL ANALYSES

G, I, L, 97

Date Of Report	11/09/1990	Lab Sample I.D. Number.	90/C/5174
Laboratory Name	Clinical Laboratory of San Bernardino, Inc.	Signature Lab Director	<i>C. Jolly</i>
Name of Sampler	MOULTON	Sampler Employed By	Kerr McGee Chemical Corporation
Date/Time Sample Collected	10/30/1990 16:00	Date / Time Sample Received at Lab.	10/31/1990
		Were Holding Times Observed?	Yes
System Name			System Number
Kerr McGee Chemical Corporation			
Description of Sampling Point			
Name/Number of Sample Source		Station Number	
BOR WELL 2 MID ZONE			
Date and Time of Sample	Water Type	User I.D.	Submitted to SWGIS By
9 0 1 0 3 0 1 6 0 0	G/S		
Y Y M M D D T T T T			

MCL Reporting Units	Constituent	T T	Storet Code	Analyses Results
	Analyzing Agency (Laboratory)		28	3 7 6 1
mg/L	Total Hardness (as CaCO ₃)		900	2 2 . 0
mg/L	Calcium (Ca)		916	4 . . 0
mg/L	Magnesium (mg)		927	2 . . 9
mg/L	Sodium (Na)		929	7 5 . 1
mg/L	Potassium (K)		937	3 . . 2
Total Cations	mg/L Value: 3.8			

(Cations, Anions) 4.4 % Meq Difference.

mg/L	Total Alkalinity (as CaCO ₃)	410	1 1 8 . 0
mg/L	Hydroxide (OH)	71830	< 1 . 0
mg/L	Carbonate (CO ₃)	445	< 1 . 0
mg/L	Bicarbonate (HCO ₃)	440	1 4 4 . 0
* mg/L +	Sulfate (SO ₄)	945	2 7 . 6
* mg/L +	Chloride (Cl)	940	2 0 . 8
45 mg/L	Nitrate (NO ₃)	71850	1 . . 6
1.4 - 2.4 mg/L	Fluoride (F) Temp. Depend.	951	1 . . 4
Total Anions	mg/L Value: 3.6		

Std UNITS	pH (Laboratory)	403	9 . 9 0
** umho/cm +	Specific Conductance (E.C.)	95	4 0 0
*** mg/L +	Total Filterable Residue at 180° C (TDS)	70300	2 4 0 . 0
UNITS	Apparent Color (Unfiltered)	81	
TON	Odor Threshold at 60° C	86	
NTU	Lab Turbidity	82079	
0.5 mg/L +	MBAS	38260	< 0 . 0 2

* 250-500-600

** 900-1600-2200

*** 500-1000-1500

DHS 8351(11/86)

BR-2 Medium

SYSTEM NAME AND NUMBER Kerr McGee Chemical Corporation

No Entry

90/C/5174

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

MCL Reporting Units	Constituent	T T	Storet Code	Analyses Results
50 ug/L	Arsenic(As)		1002	1 7
1000 ug/L	Barium(Ba)		1007	< 1 0 0
10 ug/L	Cadmium(Cd)		1027	2
50 ug/L	Chromium(Total Cr)		1034	< 1 0
1000 ug/L+	Copper(Cu)		1042	< 5 0
300 ug/L+	Iron(Fe)		1045	1 6 1 0
50 ug/L	Lead(Pb)		1051	1 1
50 ug/L+	Manganese(Mn)		1055	7 0
2 ug/L	Mercury(Hg)		71900	< 1
10 ug/L	Selenium(Se)		1147	< 5
50 ug/L	Silver(Ag)		1077	< 1 0
5000 ug/L	Zinc(Zn)		1092	1 0 0

ORGANIC CHEMICALS

0.2 ug/L	Endrin		39390	
4 ug/L	Lindane		39340	
100 ug/L	Methoxychlor		39480	
5 ug/L	Toxaphene		39400	
100 ug/L	2,4-D		39730	
10 ug/L	2,4,5-TP Silvex		39045	
Date ORGANIC Analysis Completed			73672	

Y Y M M D D

ADDITIONAL ANALYSES

NTU	Field Turbidity		82078	
C	Source Temperature		10	3 6 . 1
	Langlier Index Source Temp.		71814	1 . 3 7
	Langelier Index at 60°C		71813	1 . 7 4
Std. Units	Field pH		00400	9 . 9 0
	Aggressive Index		82383	1 3 . 0
mg/L	Silica		00955	
mg/L	Phosphate		00650	
	DISSOLVED ALUMINUM			0 . 7 9

RADIOLOGICAL

5 pC/L	Gross Alpha		1501	
pC/L	Counting Error 95%		1502	
50 pC/L	Gross Beta		3501	
pC/L	Counting Error 95%		3502	

+ indicates Secondary Drinking Water Standards

BR-2 Medium

Clinical Laboratory of San Bernardino, Inc.



1595 N. "D" St., San Bernardino, CA 92405
 Phone (714) 885-3216
 P. O. Box 329
 San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: NOV 08 1990		Lab Sample ID No. 90/C/5174	
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO		Signature of Lab Director: <i>C. J. Jelliff</i>	
Name of Sampler: Moulton		Employed By: Kerr Mc Gee Chemical Corp.	
Date/Time Sample Collected: 10/30/90 15:00	Date/Time Sample Received @ Lab: 10/31/90	Were Holding Times Observed: Yes	
System Name: Kerr McGee Chemical Corporation		System Number:	
Description of Sampling Point:			
Name/No. of Sample		Station Number:	
Source: BOR Well 2. MID ZONE			
Date & Time Sample: 9 0 1 1 0 3 0 1 5 0 0	Water Type: ☐ G/S	User ID: ☐	Submitted to SWQIS By:
Sample: Y Y M M D D T T T T			

MCL REPORTING UNITS	CONSTITUENT	T	STORET CODE	ANALYSES RESULTS
Analyzing Agency			28	3, 7, 6, 1
Date Analyses Completed			73672	9 0 1 1 0 3 0 1 5 0 0 Y Y M M D D
5 pC/l	Total Alpha		1501	0.2
pC/l	Total Alpha Counting Error		1502	0.7
50 pC/l	Total Beta		3501	
pC/l	Total Beta Counting Error		3502	
pC/l	Natural Uranium		28012	
3 pC/l	Total Radium 226		9501	
pC/l	Total Radium 226 Counting Error		9502	
pC/l	Total Radium 228		11501	
pC/l	Total Radium 228 Counting Error		11502	
5 pC/l	Ra 226 + Ra 228		11503	
pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000pC/l	Total Tritium		7000	
pC/l	Total Tritium Counting Error		7001	
8 pC/l	Total Strontium-90		13501	
pC/l	Total Strontium-90 Counting Error		13502	

BR-2 Medium

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 04/03/91 Sample ID No. 912079
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *C. J. Kelly*
Name of Sampler: MOULTON Employed By: NAC ~~1850-1870-1880~~
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/03/18/1400 Received @ Lab: 91/03/18/1400 Completed: 91/04/03

System System
Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE Number: 36-042
Name or Number of Sample Source: BOR #1 *Well 3*

* Water Type: (G/S) |S| Station Number: 036/042-BOR#1 *
* Date/Time of Sample: |91|03|18|1400| User ID: TAN *
* YY MM DD HHMM *
* *
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|04|03| *
* YY MM DD *
* Submitted by: Phone #: *

Place an 'X' in box to delete all data for this station/date/time. ☐

REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	MCL	DLR
	ALL CONSTITUENTS REPORTED ug/L				
mg/L	Total Hardness (as CaCO ₃)	00900	96.0		
mg/L	Calcium (Ca)	00916	17.6		
mg/L	Magnesium (Mg)	00927	12.6		30.0
mg/L	Sodium (NA)	00929	91.4		
mg/L	Potassium (K)	00937	5.9		
Total Cations Meq/L Value: 6.0					
mg/L	Total Alkalinity (AS CaCO ₃)	00410	132.8		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO ₃)	00445	< 1.0		
mg/L	Bicarbonate (HCO ₃)	00440	162.0		
mg/L*	Sulfate (SO ₄)	00945	78.5		
mg/L*	Chloride (Cl)	00940	47.3		
mg/L	Nitrate (as NO ₃)	71850	11.1	45	
mg/L	Fluoride (F) Temp. Depend.	00951	0.5	****	0.1
Total Anions Meq/L Value: 5.8					
Std. Units	PH (Laboratory)	00403	8.4		
umho/cm**	Specific Conductance (E.C.)	00095	600.0		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	360.0		
Units	Apparent Color (Unfiltered)	00081	70.0		
TON	Odor Threshold at 60 C	00086	1.0		1.0
NTU	Lab Turbidity	82079	71.0		
mg/L	MBAS	38260	< 0.02	0.5	0.02
* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4					

BR-3 Shallow

NAWS CL TP 004, Volume 1

PAGE 2 OF 2

912079

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
ug/L	Arsenic (As)	01002	< 10	50	10
ug/L	Barium (Ba)	01007	< 100	1000	100
ug/L	Cadmium (Cd)	01027	< 1	10	1
ug/L	Chromium (Total Cr)	01034	< 10	50	10
ug/L	Copper (Cu)	01042	< 50	1000	50
ug/L	Iron (Fe)	01045	4550	300	100
ug/L	Lead (Pb)	01051	130	50	5
ug/L	Manganese (Mn)	01055	< 30	50	30
ug/L	Mercury (Hg)	71900	< 1	2	1
ug/L	Selenium (Se)	01147	< 5	10	5
ug/L	Silver (Ag)	01077	< 10	50	10
ug/L	Zinc (Zn)	01092	< 50	5000	50
ug/L	Aluminum	01105	870	1000	100

ORGANIC CHEMICALS

ug/L	Endrin (Hexadrin)	39390		0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340		4	0.4
ug/L	Methoxychlor	39480		100	10.0
ug/L	Toxaphene	39400		5	0.5
ug/L	2,4-D	39730		100	10
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045		10	

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078			0.1
C	Source Temperature C	00010			
	Langelier Index Source Temp.	71814			
	Langelier Index at 60 C	71813			
Std. Units	Field PH	00400			
	Agressiveness Index	82383			
mg/L	Silica	00955			
mg/L	Phosphate	00650			
mg/L	Iodide	71865			
	Sodium Absorption Ratio	00931			
	Asbestos	81855			
mg/L	Ammonia (NH3-N)	00612			
mg/L	Nitrite Nitrogen (NO2-N)	00615			
mg/L	Nitrate Nitrogen (NO3-N)	00618			1.0
mg/L	Nitrite (N)	00620			
mg/L	Beryllium	01012			
mg/L	Boron	01020			
mg/L	Thallium	01059			
mg/L	Nickel	01067			
mg/L	Antimony	01097			0.05
mg/L	Lithium	01132			
mg/L	Cyanide	01291			

BR-3 Shallow

Clinical Laboratory of San Bernardino, Inc.



1595 N. "D" St., San Bernardino, CA 92405
 Phone (714) 885-3216
 P. O. Box 329
 San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: 4/3/91		Lab Sample ID No. 91-2079	
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO		Signature of Lab Director: <i>Mehdi S. Gami</i>	
Name of Sampler: Moulton		Sampler Employed By: North American Chemical	
Date/Time Sample Collected: 91/03/18 11:00	Date/Time Sample Received @ Lab: 91/03/18	Were Holding Times Observed: Yes	
System Name: North American Chemical		System Number:	
Description of Sampling Point:			
Name/No. of Sample: IWV Study		Station Number:	
Source: BOR WELL 3 1950-1970			
Date & Time	Water Type:	User ID:	Submitted to SWQIS By:
Sample: Y Y M M D D T T T T	G/S		

MCL REPORTING UNITS	CONSTITUENT	T	STORET CODE	ANALYSES RESULTS
Analyzing Agency			28	3,7,6,1
Date Analyses Completed			73672	9,1,0,4,0,2
				Y Y M M D D
5	pC/l Total Alpha		1501	1,.,8
	pC/l Total Alpha Counting Error		1502	1,.,5
50	pC/l Total Beta		3501	
	pC/l Total Beta Counting Error		3502	
	pC/l Natural Uranium		28012	
3	pC/l Total Radium 226		9501	
	pC/l Total Radium 226 Counting Error		9502	
	pC/l Total Radium 228		11501	
	pC/l Total Radium 228 Counting Error		11502	
5	pC/l Ra 226 + Ra 228		11503	
	pC/l Ra 226 + Ra 228 Counting Error		11504	
20,000pC/l	Total Tritium		7000	
	pC/l Total Tritium Counting Error		7001	
8	pC/l Total Strontium-90		13501	
	pC/l Total Strontium-90 Counting Error		13502	

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 04/03/91 Sample ID No. 912080
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: C. Jolly
Name of Sampler: MOULTON Employed By: NAC ~~650-678 FEET~~
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/03/18/1000 Received @ Lab: 91/03/18/1000 Completed: 91/04/03

System System
Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE Number: 36-042
Name or Number of Sample Source: BOR #1 Well 3

* Water Type: (G/S) |S| Station Number: 036/042-BOR#1 *
* Date/Time of Sample: |91|03|18|1000| User ID: TAN *
* YY MM DD HHMM *
* *
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|04|03| *
* YY MM DD *
* Submitted by: Phone #: *

Place an 'X' in box to delete all data for this station/date/time. ☐

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
mg/L	Total Hardness (as CaCO ₃)	00900	128.0		
mg/L	Calcium (Ca)	00916	38.4		
mg/L	Magnesium (Mg)	00927	7.8		30.0
mg/L	Sodium (NA)	00929	255.9		
mg/L	Potassium (K)	00937	7.9		

Total Cations	Meq/L	Value:	13.9
---------------	-------	--------	------

mg/L	Total Alkalinity (AS CaCO ₃)	00410	113.2		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO ₃)	00445	< 1.0		
mg/L	Bicarbonate (HCO ₃)	00440	138.1		
mg/L*	Sulfate (SO ₄)	00945	65.6		
mg/L*	Chloride (Cl)	00940	372.0		
mg/L	Nitrate (as NO ₃)	71850	< 1.0	45	
mg/L	Fluoride (F) Temp. Depend.	00951	1.1	****	0.1

Total Anions	Meq/L	Value:	14.2
--------------	-------	--------	------

Std. Units	PH (Laboratory)	00403	7.4		
umho/cm**	Specific Conductance (E.C.)	00095	1540.0		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	954.8		
Units	Apparent Color (Unfiltered)	00081	70.0		
TON	Odor Threshold at 60 C	00086	2.0		1.0
NTU	Lab Turbidity	82079	5.9		
mg/L	MBAS	38260	< 0.02	0.5	0.02

* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4

BR-3 Medium

NAWS CL TP 004, Volume 1

PAGE 2 OF 2

912080

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED ug/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
ug/L	Arsenic (As)	01002	< 10	50	10
ug/L	Barium (Ba)	01007	120	1000	100
ug/L	Cadmium (Cd)	01027	< 1	10	1
ug/L	Chromium (Total Cr)	01034	< 10	50	10
ug/L	Copper (Cu)	01042	< 50	1000	50
ug/L	Iron (Fe)	01045	2290	300	100
ug/L	Lead (Pb)	01051	< 5	50	5
ug/L	Manganese (Mn)	01055	100	50	30
ug/L	Mercury (Hg)	71900	< 1	2	1
ug/L	Selenium (Se)	01147	< 5	10	5
ug/L	Silver (Ag)	01077	< 10	50	10
ug/L	Zinc (Zn)	01092	< 50	5000	50
ug/L	Aluminum	01105	1550	1000	100

ORGANIC CHEMICALS

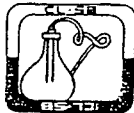
ug/L	Endrin (Hexadrin)	39390	0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340	4	0.4
ug/L	Methoxychlor	39480	100	10.0
ug/L	Toxaphene	39400	5	0.5
ug/L	2,4-D	39730	100	10
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045	10	

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078	0.1
C	Source Temperature C	00010	
	Langelier Index Source Temp.	71814	
	Langelier Index at 60 C	71813	
Std. Units	Field PH	00400	
	Agressiveness Index	82383	
mg/L	Silica	00955	
mg/L	Phosphate	00650	
mg/L	Iodide	71865	
	Sodium Absorption Ratio	00931	
	Asbestos	81855	
mg/L	Ammonia (NH3-N)	00612	
mg/L	Nitrite Nitrogen (NO2-N)	00615	
mg/L	Nitrate Nitrogen (NO3-N)	00618	1.0
mg/L	Nitrite (N)	00620	
mg/L	Beryllium	01012	
mg/L	Boron	01020	
mg/L	Thallium	01059	
mg/L	Nickel	01067	
mg/L	Antimony	01097	0.05
mg/L	Lithium	01132	
mg/L	Cyanide	01291	

BR-3 Medium

Clinical Laboratory of San Bernardino, Inc.



1595 N. "D" St., San Bernardino, CA 92405
 Phone (714) 885-3216
 P. O. Box 329
 San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: 4/3/91		Lab Sample ID No. 91-2080	
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO		Signature of Lab Director: Mehdi Liani	
Name of Sampler: Moulton		Sampler Employed By: North American Chemical	
Date/Time Sample Collected: 91/03/18 10:00	Date/Time Sample Received @ Lab: 91/03/18	Were Holding Times Observed: Yes	
System Name: North American Chemical		System Number:	
Description of Sampling Point:			
Name/No. of Sample IWV Study		Station Number:	
Source: BOR WELL 3 -650-670-			
Date & Time of Sample: Y Y M M D D T T T T	Water Type: G/S	User ID:	Submitted to SWQIS By:

MCL REPORTING UNITS	CONSTITUENT	T	STORET CODE	ANALYSES RESULTS
Analyzing Agency			28	3,7,6,1
Date Analyses Completed			73672	9,1,0,4,0,2
				Y Y M M D D
5 pC/l	Total Alpha		1501	0,7
PC/l	Total Alpha Counting Error		1502	1,6
50 pC/l	Total Beta		3501	
PC/l	Total Beta Counting Error		3502	
PC/l	Natural Uranium		28012	
3 pC/l	Total Radium 226		9501	
PC/l	Total Radium 226 Counting Error		9502	
PC/l	Total Radium 228		11501	
PC/l	Total Radium 228 Counting Error		11502	
5 pC/l	Ra 226 + Ra 228		11503	
PC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000pC/l	Total Tritium		7000	
PC/l	Total Tritium Counting Error		7001	
8 pC/l	Total Strontium-90		13501	
PC/l	Total Strontium-90 Counting Error		13502	

RR-3 Medium

NAWS CL TP 004, Volume 1

CLINICAL LABS/SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

TITLE 22 CHEMICAL ANALYSIS

Date of Report: 04/04/91 Sample ID No. 912078
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *C. J. Kelly*
Name of Sampler: MOULTON Employed By: NAC ~~1320-1340~~
Date/Time Sample Date/Time Sample Date Analyses
Collected: 91/03/18/1400 Received @ Lab: 91/03/18/1400 Completed: 91/04/04

System System
Name: NORTH AMERICAN CHEMICAL - AKA KERR MCGEE Number: 36-042
Name or Number of Sample Source: BOR #1 *well 3*

* Water Type: (G/S) |S| Station Number: 036/042-BOR#1 *
* Date/Time of Sample: |91|03|18|1400| User ID: TAN *
* YY MM DD HHMM *
* *
* Analyzing Agency Code: 3761 Date Analysis Completed: |91|04|04| *
* YY MM DD *
* Submitted by: Phone #: *

Place an 'X' in box to delete all data for this station/date/time. ☐

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
mg/L	Total Hardness (as CaCO ₃)	00900	1400.0		
mg/L	Calcium (Ca)	00916	496.6		
mg/L	Magnesium (Mg)	00927	38.9		30.0
mg/L	Sodium (NA)	00929	1536.4		
mg/L	Potassium (K)	00937	14.6		
Total Cations Meq/L Value: 95.2					
mg/L	Total Alkalinity (AS CaCO ₃)	00410	32.0		
mg/L	Hydroxide (OH)	71830	< 1.0		
mg/L	Carbonate (CO ₃)	00445	< 1.0		
mg/L	Bicarbonate (HCO ₃)	00440	39.0		
mg/L*	Sulfate (SO ₄)	00945	257.5		
mg/L*	Chloride (Cl)	00940	3200.0		
mg/L	Nitrate (as NO ₃)	71850	38.1	45	
mg/L	Fluoride (F) Temp. Depend.	00951	5.4	****	0.0
Total Anions Meq/L Value: 97.0					
Std. Units	PH (Laboratory)	00403	7.2		
umho/cm**	Specific Conductance (E.C.)	00095	10700.		
mg/L***	Total Filterable Residue at 180C (TDS)	70300	6634.0		
Units	Apparent Color (Unfiltered)	00081	40.0		
TON	Odor Threshold at 60 C	00086	3.0		1.0
NTU	Lab Turbidity	82079	71.0		
mg/L	MBAS	38260	< 0.02	0.5	0.02
* 250-500-600 ** 900-1600-2200 *** 500-100-1500 **** 1.4-2.4					

BR-3 Deep

NAWS CL TP 004, Volume 1

PAGE 2 OF 2

912078

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

REPORTING UNITS	CONSTITUENT ALL CONSTITUENTS REPORTED uG/L	ENTRY #	ANALYSES RESULTS	MCL	DLR
ug/L	Arsenic (As)	01002	< 10	50	10
ug/L	Barium (Ba)	01007	100	1000	100
ug/L	Cadmium (Cd)	01027	< 1	10	1
ug/L	Chromium (Total Cr)	01034	< 10	50	10
ug/L	Copper (Cu)	01042	< 50	1000	50
ug/L	Iron (Fe)	01045	780	300	100
ug/L	Lead (Pb)	01051	< 5	50	5
ug/L	Manganese (Mn)	01055	280	50	30
ug/L	Mercury (Hg)	71900	< 1	2	1
ug/L	Selenium (Se)	01147	< 5	10	5
ug/L	Silver (Ag)	01077	< 10	50	10
ug/L	Zinc (Zn)	01092	< 50	5000	50
ug/L	Aluminum	01105	240	1000	100

ORGANIC CHEMICALS

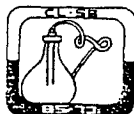
ug/L	Endrin (Hexadrin)	39390		0.2	0.02
ug/L	Gamma-BHC (Lindane)	39340		4	0.4
ug/L	Methoxychlor	39480		100	10.0
ug/L	Toxaphene	39400		5	0.5
ug/L	2,4-D	39730		100	10
ug/L	2,4,5-TP (Silvex) (WEED-B-GON)	39045		10	

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078			0.1
C	Source Temperature C	00010			
	Langelier Index Source Temp.	71814			
	Langelier Index at 60 C	71813			
std. Units	Field PH	00400			
	Agressiveness Index	82383			
mg/L	Silica	00955			
mg/L	Phosphate	00650			
mg/L	Iodide	71865			
	Sodium Absorption Ratio	00931			
	Asbestos	81855			
mg/L	Ammonia (NH3-N)	00612			
mg/L	Nitrite Nitrogen (NO2-N)	00615			
mg/L	Nitrate Nitrogen (NO3-N)	00618			1.0
mg/L	Nitrite (N)	00620			
mg/L	Beryllium	01012			
mg/L	Boron	01020			
mg/L	Thallium	01059			
mg/L	Nickel	01067			
mg/L	Antimony	01097			0.05
mg/L	Lithium	01132			
mg/L	Cyanide	01291			

BR-3 Deep

Clinical Laboratory of San Bernardino, Inc.



1595 N. "D" St., San Bernardino, CA 92405
Phone (714) 885-3216
P. O. Box 329
San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: 4/3/91		Lab Sample ID No. 91-2078	
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO		Signature of Lab Director: <i>Mehdi Gami</i>	
Name of Sampler: Moulton		Employed By: North American Chemical	
Date/Time Sample Collected: 91/03/18 14:00	Date/Time Sample Received @ Lab: 91/03/18	Were Holding Times Observed: Yes	
System Name: North American Chemical		System Number:	
Description of Sampling Point:			
Name/No. of Sample: IWW Study		Station Number:	
Source: BOR WELL 3 1320 - 1340			
Date & Time	Water Type:	User ID:	Submitted to SWQIS By:
Sample: Y Y M M D D T T T T	G/S		

MCL REPORTING UNITS	CONSTITUENT	T	STORET CODE	ANALYSES RESULTS
Analyzing Agency			28	3 7 6 1
Date Analyses Completed			73672	9 1 0 4 0 2
				Y Y M M D D
5 pC/l	Total Alpha		1501	1 1 1 4
pC/l	Total Alpha Counting Error		1502	7 1 2
50 pC/l	Total Beta		3501	
pC/l	Total Beta Counting Error		3502	
pC/l	Natural Uranium		28012	
3 pC/l	Total Radium 226		9501	
pC/l	Total Radium 226 Counting Error		9502	
pC/l	Total Radium 228		11501	
pC/l	Total Radium 228 Counting Error		11502	
5 pC/l	Ra 226 + Ra 228		11503	
pC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000pC/l	Total Tritium		7000	
pC/l	Total Tritium Counting Error		7001	
8 pC/l	Total Strontium-90		13501	
pC/l	Total Strontium-90 Counting Error		13502	

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Clinical Laboratory of San Bernardino, Inc. 1048

Post Office Box 329
1595 North "D" Street
San Bernardino, California 92402
Phone (714) 885-3216

TITLE 22 CHEMICAL ANALYSES

G, I, L 90F

Date Of Report 11/09/1990	Lab Sample I.D. Number. 90/C/5176
Laboratory Name Clinical Laboratory of San Bernardino, Inc.	Signature Lab Director <i>C. J. Kelly</i>
Name of Sampler MOULTON	Sampler Employed By Kerr McGee Chemical Corporation
Date/Time Sample Collected 10/30/1990 12:30	Date / Time Sample Received at Lab. 10/31/1990
Were Holding Times Observed? Yes	
System Name Kerr McGee Chemical Corporation	System Number
Description of Sampling Point	

Name/Number of Sample Source BOR WELL 4 SEC 25 T26S R39E	Station Number
Date and Time of Sample 9 0 1 0 3 0 1 2 3 0 Y M M D D T T T T	Submitted to SWGIS By
Water Type G/S	User I.D.

MCL Reporting Units	Constituent	T T	Storet Code	Analyses Results
	Analyzing Agency (Laboratory)		28	3 7 6 1
mg/L	Total Hardness (as CaCO ₃)		900	9 . 6
mg/L	Calcium (Ca)		916	1 . 3
mg/L	Magnesium (mg)		927	1 . 6
mg/L	Sodium (Na)		929	6 5 . 3
mg/L	Potassium (K)		937	0 . 4
Total Cations	meg/L Value: 3.0			

(Cations, Anions) 3.7 % Meq Difference.

mg/L	Total Alkalinity (as CaCO ₃)		410	1 1 2 . 0
mg/L	Hydroxide (OH)		71830	< 1 . 0
mg/L	Carbonate (CO ₃)		445	< 1 . 0
mg/L	Bicarbonate (HCO ₃)		440	1 3 6 . 6
* mg/L +	Sulfate (SO ₄)		945	1 9 . 1
* mg/L +	Chloride (Cl)		940	1 5 . 9
45 mg/L	Nitrate (NO ₃)		71850	< 1 . 0
1.4 - 2.4 mg/L	Fluoride(F) Temp. Depend.		951	1 . 1
Total Anions	meg/L Value: 3.2			

Std UNITS	pH(Laboratory)		403	8 . 8 0
** umho/cm +	Specific Conductance(E.C.)		95	3 1 0
*** mg/L +	Total Filterable Residue at 180°C (TDS)		70300	1 8 2 . 9
UNITS	Apparent Color (Unfiltered)		81	
TON	Odor Threshold at 60°C		86	
NTU	Lab Turbidity		82079	
0.5 mg/L +	MBAS		38260	< 0 . 0 2

* 250-500-600

** 900-1600-2200

*** 500-1000-1500

DHS 8351(11/86)

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SYSTEM NAME AND NUMBER Kerr McGee Chemical Corporation
No Entry

* THE FOLLOWING CONSTITUENTS ARE REPORTED IN UG/L *

90/C/5176

MCL Reporting Units	Constituent	T T	Storet Code	Analyses Results
50 ug/L	Arsenic(As)		1002	1 5
1000 ug/L	Barium(Ba)		1007	< 1 0 0
10 ug/L	Cadmium(Cd)		1027	< 1
50 ug/L	Chromium(Total Cr)		1034	< 1 0
1000 ug/L+	Copper(Cu)		1042	< 5 0
300 ug/L+	Iron(Fe)		1045	3 6 0
50 ug/L	Lead(Pb)		1051	< 2
50 ug/L+	Manganese(Mn)		1055	< 3 0
2 ug/L	Mercury(Hg)		71900	< 1
10 ug/L	Selenium(Se)		1147	< 5
50 ug/L	Silver(Ag)		1077	< 1 0
5000 ug/L	Zinc(Zn)		1092	7 0

ORGANIC CHEMICALS

0.2 ug/L	Endrin		39390	
4 ug/L	Endane		39340	
100 ug/L	Methoxychlor		39480	
5 ug/L	Toxaphene		39400	
100 ug/L	2,4-D		39730	
10 ug/L	2,4,5-TP Silvex		39045	
Date ORGANIC Analysis Completed			73672	

Y Y M M D D

ADDITIONAL ANALYSES

NTU	Field Turbidity		82078	
C	Source Temperature		10	3 2 . 2
	Langlier Index Source Temp.		71814	7 . 4 9
	Langelier Index at 60°C		71813	7 . 9 3
Std. Units	Field pH		00400	8 . 8 0
	Aggressive Index		82383	1 1 . 4
mg/L	Silica		00955	
mg/L	Phosphate		00650	
	DISSOLVED ALUMINUM			0 . 4 9

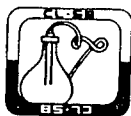
RADIOLOGICAL

5 pC/L	Gross Alpha		1501	
pC/L	Counting Error 95%		1502	
50 pC/L	Gross Beta		3501	
pC/L	Counting Error 95%		3502	

+ Indicates Secondary Drinking Water Standards

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Clinical Laboratory of San Bernardino, Inc.



1595 N. "D" St., San Bernardino, CA 92405
 Phone (714) 885-3216
 P. O. Box 329
 San Bernardino, CA 92402

RADIOACTIVITY ANALYSES

Date of Report: NOV 08 1990		Lab Sample ID No. 90/C/5176	
Laboratory Name: CLINICAL LAB OF SAN BERNARDINO		Signature of Lab Director: <i>C. J. Jelliff</i>	
Name of Sampler: Moulton		Employed By: Kerr McGee Chemical Corp.	
Date/Time Sample Collected: 10/30/90 12:30	Date/Time Sample Received @ Lab: 10/31/90	Were Holding Times Observed: Yes	
System Name: Kerr McGee Chemical Corporation		System Number:	
Description of Sampling Point:			
Name/No. of Sample		Station Number:	
Source: BOR WELL Wec.25 T26S R39E			
Date & Time of Sample: 9/0/1/0/3/0/1/2/3/0	Water Type: ☐ G/S	User ID: ☐	Submitted to SWQIS By:
Sample: Y Y M M D D T T T T			

MCL REPORTING UNITS	CONSTITUENT	T	STORET CODE	ANALYSES RESULTS
Analyzing Agency			28	3, 7, 6, 1
Date Analyses Completed			73672	9, 0, 1, 1, 0, 7
				Y Y M M D D
5 pC/l	Total Alpha		1501	0.18
PC/l	Total Alpha Counting Error		1502	0.17
50 pC/l	Total Beta		3501	
PC/l	Total Beta Counting Error		3502	
PC/l	Natural Uranium		28012	
3 pC/l	Total Radium 226		9501	
PC/l	Total Radium 226 Counting Error		9502	
PC/l	Total Radium 228		11501	
PC/l	Total Radium 228 Counting Error		11502	
5 pC/l	Ra 226 + Ra 228		11503	
PC/l	Ra 226 + Ra 228 Counting Error		11504	
20,000pC/l	Total Tritium		7000	
PC/l	Total Tritium Counting Error		7001	
8 pC/l	Total Strontium-90		13501	
PC/l	Total Strontium-90 Counting Error		13502	

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NAWS CL TP 004, Volume 1

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS

Date of Report: 01/15/92

Sample ID No. 92-0122

Laboratory

Signature Lab

Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *Carol J. Kelly*

Name of Sampler: M. STONER

Employed By: U.S. NAVY

Date/Time Sample

Date/Time Sample

Date Analyses

Collected: 92/01/06/1000

Received @ Lab: 92/01/08/1700

Completed: 92/01/14

System

System

Name: INDIAN WELLS VALLEY CWD - RIDGECREST

Number: 15-017

Name or Number of Sample Source: IWV MONITORING WELL #5 840' TO 860'

* User ID: CYA

Station Number:

* Date/Time of Sample: |92|01|06|1000|

Laboratory Code: 3761 *

* YY MM DD TTTT

Date Analysis Completed: |92|01|14|

* Submitted by:

Phone #:

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO ₃)	00900	128.0	
	mg/L	Calcium (Ca)	00916	20.8	
	mg/L	Magnesium (Mg)	00927	18.5	
	mg/L	Sodium (Na)	00929	154.6	
	mg/L	Potassium (K)	00937	9.4	
Total Cations Meq/L Value: 9.5					
	mg/L	Total Alkalinity (AS CaCO ₃)	00410	186.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO ₃)	00445	< 1.0	
	mg/L	Bicarbonate (HCO ₃)	00440	226.9	
*	mg/L*	Sulfate (SO ₄)	00945	149.6	
*	mg/L*	Chloride (Cl)	00940	85.5	
45	mg/L	Nitrate (as NO ₃)	71850	< 1.0	
****	mg/L	Fluoride (F) Temp. Depend.	00951	1.1	0.1
Total Anions Meq/L Value: 9.3					
	Std. Units	PH (Laboratory)	00403	8.5	
**	umho/cm**	Specific Conductance (E.C.)	00095	1000.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	533.5	
	Units	Apparent Color (Unfiltered)	00081	< 70.0	
	TON	Odor Threshold at 60 C	00086	2.0	
	NTU	Lab Turbidity	82079	58.0	
0.5	mg/L	MBAS	38260	< 0.02	
* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4					

BR-5 Shallow

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INORGANIC CHEMICALS

92-0122

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	
1000	ug/L	Aluminum (Al)	01105	210.00	100.0
50	ug/L	Arsenic (As)	01002	17.00	10.0
1000	ug/L	Barium (Ba)	01007	<100.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	2655.0	100.0
50	ug/L	Lead (Pb)	01051	11.00	5.0
50	ug/L	Manganese (Mn)	01055	175.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0

RADIOACTIVITY ANALYSIS

15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		5
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078		0.1
C	Source Temperature C	00010		
	Langelier Index Source Temp.	71814		
	Langelier Index at 60 C	71813		
Std. Units	Field PH	00400		
	Agressiveness Index	82383		
mg/L	Silica	00955		
mg/L	Phosphate	00650		
mg/L	Iodide	71865		
	Sodium Absorption Ratio	00931		
	Asbestos	81855		
mg/L	Boron	01020		

BR-5 Shallow

NAWS CL TP 004, Volume 1

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

RADIOACTIVITY ANALYSIS

Date of Report: 01/17/92 Sample ID No. 92-0122-
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *Carol J. Kelly*
Name of Sampler: M. STONER Employed By: INDIAN WELLS VALLEY CWD
Date/Time Sample Date/Time Sample Date Analyses
Collected: 92/01/06/1000 Received @ Lab: 92/01/08/1700 Completed: 92/01/17

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: IWV MONITORING WELL #5 840' TO 860'

* User ID: CYA Station Number: *
* Date/Time of Sample: |92|01|06|1000| Laboratory Code: 3761 *
* YY MM DD TTTT *
* Date Analysis Completed: |92|01|17| *
* YY MM DD *
* Submitted by: Phone #: *

MCL REPORT UNITS	CONSTITUENT	STORET CODE	ANALYSES RESULTS	DLR
15 pCi/l Total Alpha		01501	4.0	
pCi/l Total Alpha Counting Error		01502	2.4	
50 pCi/l Total Beta		03501		4.0
pCi/l Total Beta Counting Error		03502		
20 pCi/l Natural Uranium		28012		2.0
pCi/l Total Radium 226		09501		.5
pCi/l Total Radium 226 Counting Error		09502		
pCi/l Total Radium 228		11501		.5
pCi/l Total Radium 228 Counting Error		11502		
5 pCi/l Ra 226 + Ra 228		11503		
pCi/l Ra 226 + Ra 228 Counting Error		11504		
20000 pCi/l Total Tritium		07000		1.0
pCi/l Total Tritium Counting Error		07001		
8 pCi/l Total Strontium - 90		13501		2.0
pCi/l Total Strontium - 90 Counting Error		13502		
pCi/l Total Radon 222		82303		100.0
pCi/l Total Radon 222 Counting Error		82302		--

BR-5 Shallow

NAWS CL TP 004, Volume 1

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS
Date of Report: 01/15/92 Sample ID No. 92-0123
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *Carol Jacoby*
Name of Sampler: M. STONER Employed By: U.S. NAVY
Date/Time Sample Date/Time Sample Date Analyses
Collected: 92/01/06/1000 Received @ Lab: 92/01/08/1700 Completed: 92/01/14

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: IWV MONITORING WELL #5 1580' - 1600'

* User ID: CYA Station Number: *
* Date/Time of Sample: |92|01|06|1000| Laboratory Code: 3761 *
* YY MM DD TTTT *
* Date Analysis Completed: |92|01|14| *
* YY MM DD *
* Submitted by: Phone #: *

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO ₃)	00900	80.0	
	mg/L	Calcium (Ca)	00916	20.8	
	mg/L	Magnesium (Mg)	00927	6.8	
	mg/L	Sodium (Na)	00929	346.0	
	mg/L	Potassium (K)	00937	9.0	
Total Cations Meq/L Value: 16.9					
	mg/L	Total Alkalinity (AS CaCO ₃)	00410	626.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO ₃)	00445	< 1.0	
	mg/L	Bicarbonate (HCO ₃)	00440	763.7	
*	mg/L*	Sulfate (SO ₄)	00945	65.5	
*	mg/L*	Chloride (Cl)	00940	72.7	
45	mg/L	Nitrate (as NO ₃)	71850	< 1.0	
****	mg/L	Fluoride (F) Temp. Depend.	00951	2.1	0.1
Total Anions Meq/L Value: 16.0					
	Std. Units	PH (Laboratory)	00403	8.7	
**	umho/cm**	Specific Conductance (E.C.)	00095	1880.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	836.9	
	Units	Apparent Color (Unfiltered)	00081	> 70.0	
	TON	Odor Threshold at 60 C	00086	1.0	
	NTU	Lab Turbidity	82079	> 200.0	
0.5	mg/L	MBAS	38260	< 0.02	
* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4					

BR-5 Medium

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INORGANIC CHEMICALS

92-0123

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	D
1000	ug/L	Aluminum (Al)	01105	460.00	100.0
50	ug/L	Arsenic (As)	01002	80.00	10.0
1000	ug/L	Barium (Ba)	01007	170.00	100.0
10	ug/L	Cadmium (Cd)	01027	< 1.00	1.0
50	ug/L	Chromium (Total Cr)	01034	< 10.00	10.0
1000	ug/L	Copper (Cu)	01042	< 50.00	50.0
300	ug/L	Iron (Fe)	01045	1520.0	100.0
50	ug/L	Lead (Pb)	01051	6.00	5.0
50	ug/L	Manganese (Mn)	01055	165.00	30.0
2	ug/L	Mercury (Hg)	71900	< 1.00	1.0
10	ug/L	Selenium (Se)	01147	< 5.00	5.0
50	ug/L	Silver (Ag)	01077	< 10.00	10.0
5000	ug/L	Zinc (Zn)	01092	< 50.00	50.0

RADIOACTIVITY ANALYSIS

15	PCi/L	Total Alpha	01501		
	PCi/L	Total Alpha Counting Error	01502		
50	PCi/L	Total Beta	03501		4.0
	PCi/L	Total Beta Counting Error	03502		
20	PCi/L	Natural Uranium	28012		2.0
	PCi/L	Total Radium 226	09501		0.5
	PCi/L	Total Radium 226 Counting Error	09502		
	PCi/L	Total Radium 228	11501		5
	PCi/L	Total Radium 228 Counting Error	11502		
5	PCi/L	Ra 226 + Ra 228	11503		
	PCi/L	Ra 226 + Ra 228 Counting Error	11504		
	PCi/L	Radon 222	82303		100.0
	PCi/L	Radon 222 Counting Error	82302		
20000	PCi/L	Total Tritium	07000		1.0
	PCi/L	Total Tritium Counting Error	07001		
8	PCi/L	Total Strontium - 90	13501		2.0
	PCi/L	Total Strontium - 90 Counting Error	13502		

ADDITIONAL ANALYSES

NTU	Field Turbidity	82078		0.1
C	Source Temperature C	00010		
	Langelier Index Source Temp.	71814		
	Langelier Index at 60 C	71813		
Std. Units	Field PH	00400		
	Agressiveness Index	82383		
mg/L	Silica	00955		
mg/L	Phosphate	00650		
mg/L	Iodide	71865		
	Sodium Absorption Ratio	00931		
	Asbestos	81855		
mg/L	Boron	01020		

BR-5 Medium

NAWS CL TP 004, Volume 1

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

RADIOACTIVITY ANALYSIS

Date of Report: 01/17/92
Laboratory
Name: CLINICAL LABORATORIES OF SAN BERNARDINO
Name of Sampler: M. STONER
Date/Time Sample Collected: 92/01/06/1000
Signature Lab Director: *Carol Kelly*
Employed By: INDIAN WELLS VALEY CWD
Date/Time Sample Received @ Lab: 92/01/08/1700
Sample ID No. 92-0123
Date Analyses Completed: 92/01/17

System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST
Name or Number of Sample Source: IWV MONITORING WELL #5 1580' - 1600'

* User ID: CYA
* Date/Time of Sample: |92|01|06|1000|
* YY MM DD TTTT
* Station Number:
* Laboratory Code: 3761
* Date Analysis Completed: |92|01|17|
* YY MM DD
* Submitted by: Phone #:

MCL REPORT UNITS	CONSTITUENT	STORET CODE	ANALYSES RESULTS	DLR
15 pCi/l Total Alpha		01501	9.8	
pCi/l Total Alpha Counting Error		01502	2.3	
50 pCi/l Total Beta		03501		4.0
pCi/l Total Beta Counting Error		03502		
20 pCi/l Natural Uranium		28012		2.0
pCi/l Total Radium 226		09501		.5
pCi/l Total Radium 226 Counting Error		09502		
pCi/l Total Radium 228		11501		.5
pCi/l Total Radium 228 Counting Error		11502		
5 pCi/l Ra 226 + Ra 228		11503		
pCi/l Ra 226 + Ra 228 Counting Error		11504		
20000 pCi/l Total Tritium		07000		1.0
pCi/l Total Tritium Counting Error		07001		
8 pCi/l Total Strontium - 90		13501		2.0
pCi/l Total Strontium - 90 Counting Error		13502		
pCi/l Total Radon 222		82303		-100.0
pCi/l Total Radon 222 Counting Error		82302		

BR-5 Medium

NAWS CL TP 004, Volume 1

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS
Date of Report: 01/15/92 Sample ID No. 92-0124
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *Carol J. [Signature]*
Name of Sampler: M. STONER Employed By: U.S. NAVY
Date/Time Sample Date/Time Sample Date Analyses
Collected: 92/01/06/1000 Received @ Lab: 92/01/08/1700 Completed: 92/01/14

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: IWY MONITORING WELL #5 1970' - 1990'

* User ID: CYA Station Number: *
* Date/Time of Sample: |92|01|06|1000| Laboratory Code: 3761 *
* YY MM DD TTTT *
* Date Analysis Completed: |92|01|14| *
* YY MM DD *
* Submitted by: Phone #: *

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO ₃)	00900	108.0	
	mg/L	Calcium (Ca)	00916	14.4	
	mg/L	Magnesium (Mg)	00927	17.5	
	mg/L	Sodium (Na)	00929	334.9	
	mg/L	Potassium (K)	00937	8.7	
Total Cations Meq/L Value: 16.9					
	mg/L	Total Alkalinity (AS CaCO ₃)	00410	708.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO ₃)	00445	< 1.0	
	mg/L	Bicarbonate (HCO ₃)	00440	863.8	
*	mg/L*	Sulfate (SO ₄)	00945	90.0	
*	mg/L*	Chloride (Cl)	00940	68.6	
45	mg/L	Nitrate (as NO ₃)	71850	< 1.0	
****	mg/L	Fluoride (F) Temp. Depend.	00951	1.5	0.1
Total Anions Meq/L Value: 18.0					
	Std. Units	PH (Laboratory)	00403	8.7	
**	umho/cm**	Specific Conductance (E.C.)	00095	1870.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	890.6	
	Units	Apparent Color (Unfiltered)	00081	> 70.0	
	TON	Odor Threshold at 60 C	00086	1.0	
	NTU	Lab Turbidity	82079	> 200.0	
0.5	mg/L	MBAS	38260	< 0.02	
* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4					

BR-5 Deep

NAWS CL TP 004, Volume 1

CLINICAL LABORATORY OF SAN BERNARDINO
1595 NORTH "D" STREET
SAN BERNARDINO, CA. 92405

GENERAL MINERAL & PHYSICAL, INORGANIC, & RADIOLOGICAL CHEMICAL ANALYSIS
Date of Report: 02/06/92 Sample ID No. 92-0736
Laboratory Signature Lab
Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: *Carol J. J. J.*
Name of Sampler: UNKNOWN Employed By: UNKNOWN
Date/Time Sample Date/Time Sample Date Analyses
Collected: 92/01/10/0000 Received @ Lab: 92/01/29/1700 Completed: 92/02/05

System System
Name: INDIAN WELLS VALLEY CWD - RIDGECREST Number: 15-017
Name or Number of Sample Source: BOR WELL 6 330 - 350

* User ID: CYA Station Number: *
* Date/Time of Sample: |92|01|10|0000| Laboratory Code: 3761 *
* YY MM DD TTTT *
* Date Analysis Completed: |92|02|05| *
* YY MM DD *
* Submitted by: Phone #: *

MCL	REPORTING UNITS	CONSTITUENT	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO ₃)	00900	100.0	
	mg/L	Calcium (Ca)	00916	24.0	
	mg/L	Magnesium (Mg)	00927	9.7	
	mg/L	Sodium (Na)	00929	198.7	
	mg/L	Potassium (K)	00937	13.9	
Total Cations Meq/L Value: 11.0					
	mg/L	Total Alkalinity (AS CaCO ₃)	00410	192.0	
	mg/L	Hydroxide (OH)	71830	< 1.0	
	mg/L	Carbonate (CO ₃)	00445	< 1.0	
	mg/L	Bicarbonate (HCO ₃)	00440	234.2	
*	mg/L*	Sulfate (SO ₄)	00945	168.0	
*	mg/L*	Chloride (Cl)	00940	76.0	
45	mg/L	Nitrate (as NO ₃)	71850	6.3	
****	mg/L	Fluoride (F) Temp. Depend.	00951	3.7	0.1
Total Anions Meq/L Value: 9.8					
	Std. Units	PH (Laboratory)	00403	8.9	
**	umho/cm**	Specific Conductance (E.C.)	00095	1030.0	
***	mg/L***	Total Filterable Residue at 180C (TDS)	70300	596.3	
	Units	Apparent Color (Unfiltered)	00081	15.0	
	TON	Odor Threshold at 60 C	00086	2.0	
	NTU	Lab Turbidity	82079	180.0	
0.5	mg/L	MBAS	38260	< 0.02	
* 250-500-600 ** 900-1600-2200 *** 500-1000-1500 **** 1.4-2.4					

BR-6 Shallow

Appendix D
DEPTH-TO-GROUNDWATER MEASUREMENTS

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements on April 9, 1991, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	Comments
BR-3	medium	(shal) ?	
	tall	(med) ?	
	short	(deep) 308.44	
Black oily coating on inside of pipe. Due to "skin friction" could only get sounder down to about 150-170 feet.			
BR-1	tall	(shal) 181.30	TOC to TOP ----->.12
	next tall	(sh/med) 166.62	(Top of Casing to) .25
	next short	(dp/med) 173.84	(Top of 2" pipe) .36
	short	(deep) 184.96	.39
BR-2	tall (blue)	(shal) 275.9	.20
	(yellow)	(med) 272.13	.40
	(red)	(deep) 281.19	.42
NR-1	(red)	(shal) 94.14	.91
	(yellow)	(med) 4.0 psi (GAGE)	
	(white)	(deep) 111.51	.93
NR-2	tall	(shal) 131.72	.32
	medium	(med) 142.51	.59
	short	(deep) 141.98	.79
BR-4	10:20am	245.19	
	5:25pm	245.05	

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements on April 29, 1991, by Dennis Watt and Bill Green using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	Comments
			TOC to TOP
BR-3	medium (shal)	?	Could not get sounder down. Heavy black "oil" in pipes.
	tall (med)	?	
	short (deep)	?	
BR-1	tall (shal)	182.18	.12
	next tall (sh/med)	171.80	.25
	next short (dp/med)	178.65	.36
	short (deep)	188.88	.39
BR-2	tall (blue) (shal)	275.84	.20
	(yellow) (med)	272.27	.40
	(red) (deep)	281.21	.42
NR-1	(red) (shal)	93.25	.91
	(yellow) (med)	4.5 psi (GAGE)	
	(white) (deep)	110.84	.93
NR-2	tall (shal)	132.04	.32
	medium (med)	141.77	.59
	short (deep)	142.14	.79
BR-4		246.67	

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements on June 11, 1991, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	Comments
		TOC to TOP	
BR-3	medium (shal)	326.2	
	tall (med)	?	Can't get sounder down
	short (deep)	307.66	
BR-1	tall (shal)	183.09	.12
	next tall (sh/med)	176.30	.25
	next short (dp/med)	183.00	.36
	short (deep)	193.37	.39
BR-2	tall (blue) (shal)	275.85	.20
	(yellow) (med)	272.30	.40
	(red) (deep)	282.41	.42
NR-1	(red) (shal)	94.58	.91
	(yellow) (med)	5.5 psi (GAGE)	
	(white) (deep)	98.98	.93
NR-2	tall (shal)	132.48	.32
	medium (med)	136.92	.59
	short (deep)	137.95	.79
BR-4		251.83	

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements on June 24, 25, and 26, 1991, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	TOC to TOP	Comments
BR-3	medium	(shal) 326.90		6-26
	tall	(med) ?		
	short	(deep) ?		
BR-1	tall	(shal) 183.38	.12	6-24
	next tall	(sh/med) 177.15	.25	
	next short	(dp/med) 183.83	.36	
	short	(deep) 194.51	.39	
BR-2	tall (blue)	(shal) 275.86	.20	6-26
	(yellow)	(med) 272.30	.40	
	(red)	(deep) 281.46	.42	
NR-1	(red)	(shal) 93.85	.91	6-26
	(yellow)	(med) ZERO ? psi (GAGE)		
	(white)	(deep) 99.20	.93	
NR-2	tall	(shal) 132.33	.32	6-25
	medium	(med) 137.07	.59	
	short	(deep) 138.13	.79	
BR-4		253.98		6-25

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements on August 22, 1991, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	TOC to TOP	Comments
BR-3	medium (shal)	325.4	Measure	Try chalk next time
	tall (med)	?	next	
	short (deep)	309.15	time!!	
BR-1	tall (shal)	184.7	.12	
	next tall (sh/med)	179.91	.25	
	next short (dp/med)	185.53	.36	
	short (deep)	194.49	.39	
BR-2	tall (blue) (shal)	276.22	.20	
	(yellow) (med)	272.45	.40	
	(red) (deep)	281.66	.42	
NR-1	(red) (shal)	94.11	.91	
	(yellow) (med)	0 psi (GAGE)		
	(white) (deep)	99.75	.93	
NR-2	tall (shal)	132.72	.32	
	medium (med)	140.12	.59	
	short (deep)	139.52	.79	
BR-4		260.34		

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements on October 22, 1991, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	Comments
		TOC to TOP	
BR-3	medium (shal)	327.07	.43
	tall (med)	?	.39
	short (deep)	308.18	.64
BR-1	tall (shal)	184.78	.12
	next tall (sh/med)	181.07	.25
	next short (dp/med)	186.42	.36
	short (deep)	195.68	.39
BR-2	tall (blue) (shal)	275.92	.20
	(yellow) (med)	272.32	.40
	(red) (deep)	281.57	.42
NR-1	(red) (shal)	94.15	.91
	(yellow) (med)	78.55?	Measure
	(white) (deep)	100.35	.93
NR-2	tall (shal)	132.82	.32
	medium (med)	140.70	.59
	short (deep)	139.18	.79
MW-32	tall (shal)	?	Measure!
	next tall (sh/med)	242.32	.42
	next short (dp/med)	240.63	.50
	short (deep)	239.65	.64
BR-4		258.88	

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements on December 12, 1991, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	TOC to TOP	Comments
BR-3	medium	(shal) 327.20	.43	
	tall	(med) 310.	.39	
	short	(deep) 307.95	.64	
BR-1	tall	(shal) 184.97	.12	
	next tall	(sh/med) 181.81	.25	
	next short	(dp/med) 187.07	.36	
	short	(deep) 196.94	.39	
BR-2	tall (blue)	(shal) 276.02	.20	
	(red)	(med) 272.52	.40	
	(yellow)	(deep) 281.79	.42	
NR-1	(red)	(shal) 93.95	.91	
	(yellow)	(med) 76.51	.33	Valve top = TOP
	(white)	(deep) 100.11	.93	
NR-2	tall	(shal) 132.35	.32	
	medium	(med) 140.27	.59	
	short	(deep) 138.77	.79	
MW-32	tall	(shal) 240.7	.31	
	next tall	(sh/med) 241.25	.42	
	next short	(dp/med) 240.65	.50	
	short	(deep) 239.71	.64	
BR-4		251.70		

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements on January 28, 1992, by Dennis Watt (USBR) and Mike Hasting (NWC Geothermal Office) using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	Comments
		TOC to TOP	
BR-3	medium (shal)	327.25	.43 Re-sound bottoms
	tall (med)	?	.39 (Done 1-93)
	short (deep)	308.04	.64 (tall = med piezo)
BR-1	tall (shal)	185.04	.12
	next tall (sh/med)	182.23	.25
	next short (dp/med)	187.55	.36
	short (deep)	197.38	.39
BR-2	tall (blue) (shal)	276.02	.20
	(yellow) (med)	272.52	.40 Re-sound bottom
	(red) (deep)	281.84	.42
BR-5	tall (shal)	334.75	.19-Pressure equalization
	medium (med)	341.51	.41-(hiss) while unscrew-
	short (deep)	343.05	.64 ing the cap!!
BR-6	tall (shal)	163.56	.38
	medium (med)	163.88	.70
	short (deep)	148.81	1.08
NR-2	tall (shal)	132.20	.32
	medium (med)	139.96	.59
	short (deep)	138.42	.79
NR-1	(red) (shal)	93.41	.91
	(yellow) (med)	74.88	.33 Valve top = TOP
	(white) (deep)	99.73	.93
MW-32	tall (shal)	240.64	.31
	next tall (sh/med)	241.06	.42
	next short (dp/med)	240.32	.50
	short (deep)	239.58	.64
BR-4		247.11	Measure

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements in mid-February 1992 by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	TOC to TOP	Comments
BR-3	medium	(shal) 326.95	.43	Feb. 20
	tall	(med) 310+/-	.39	
	short	(deep) 307.92	.64	
BR-1	tall	(shal) 187.54	.12	Feb. 20
	next tall	(sh/med) 182.10	.25	
	next short	(dp/med) 187.56	.36	
	short	(deep) 197.64	.39	
BR-2	tall (blue)	(shal) 275.57	.20	Feb. 19
	(yellow)	(med) 272.07	.40	
	(red)	(deep) 281.68	.42	
BR-5	tall	(shal) 334.68	.19	Feb. 12
	medium	(med) 340.93	.41	
	short	(deep) 342.78	.64	
BR-6	tall	(shal) 163.13	.38	Feb. 11
	medium	(med) 163.71	.70	
	short	(deep) 148.63	1.08	
NR-2	tall	(shal) 132.02	.32	Feb. 20
	medium	(med) 139.57	.59	
	short	(deep) 138.02	.79	
NR-1	(red)	(shal) 93.65	.91	Feb. 20
	(yellow)	(med) 74.09	.33	
	(white)	(deep) 99.21	.93	
MW-32	tall	(shal) 240.64	.31	Feb. 11
	next tall	(sh/med) 240.94	.42	
	next short	(dp/med) 240.13	.50	
	short	(deep) 239.37	.64	
BR-4		247.11		

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements on May 18 and 19, 1992, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	TOC to TOP	Comments
BR-3	medium (shal)	327.52	.43	Re-sound bottoms
	tall (med)	?	.39	(Done 1-93)
	short (deep)	308.50	.64	(tall = med piezo)
BR-1	tall (shal)	185.20	.12	
	next tall (sh/med)	182.96	.25	
	next short (dp/med)	188.38	.36	
	short (deep)	198.08	.39	
BR-2	tall (blue) (shal)	276.03	.20	
	(yellow) (med)	272.40	.40	Re-sound bottoms
	(red) (deep)	281.74	.42	
BR-5	tall (shal)	_____	.19	Different lock.
	medium (med)	_____	.41	Will cut next time.
	short (deep)	_____	.64	
BR-6	tall (shal)	163.97	.38	
	medium (med)	164.15	.70	
	short (deep)	148.74	1.08	
NR-2	tall (shal)	132.49	.32	
	medium (med)	139.46	.59	
	short (deep)	137.82	.79	
NR-1	(red) (shal)	94.62	.91	
	(yellow) (med)	71.65	.33	Valve top = TOP
	(white) (deep)	98.95	.93	
MW-32	tall (shal)	241.15	.31	
	next tall (sh/med)	241.09	.42	
	next short (dp/med)	240.40	.50	
	short (deep)	239.58	.64	
BR-4		250.82		Measure

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements on September 10, 1992, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	Comments		
			TOC to TOP		
				<u>Elev TOP</u>	<u>Water Elev</u>
BR-3	medium (shal)	328.03	.43	2511.43	2183.40
	tall (med)	(310?)	.39	2511.48	2201.48
	short (deep)	310.51	.64	2511.22	2200.71
BR-1	tall (shal)	185.33	.12	2852.05	2666.72
	next tall (sh/med)	182.88	.25	2851.91	2669.03
	next short (dp/med)	187.38	.36	2851.80	2664.42
	short (deep)	195.00	.39	2851.77	2656.77
BR-2	tall (blue) (shal)	276.14	.20	2658.64	2382.50
	(yellow) (med)	272.38	.40	2658.44	2386.06
	(red) (deep)	281.48	.42	2658.42	2376.94
BR-5	tall (shal)	335.26	.19	2521.28	2186.02
	medium (med)	342.21	.41	2521.07	2178.86
	short (deep)	343.80	.64	2520.84	2177.04
BR-10	tall (shal)	307.63	.25	2561.14	2253.51
	next tall (sh/med)	321.59	.42	2560.97	2239.38
	next short (dp/med)	362.35	.54	2560.85	2198.50
	short (deep)	364.62	.68	2560.71	2196.09
BR-6	tall (shal)	163.85	.38	2353.75	2189.90
	medium (med)	164.88	.70	2353.43	2188.55
	short (deep)	149.30	1.08	2353.05	2203.75
NR-2	tall (shal)	133.07	.32	2317.38	2184.31
	medium (med)	141.08	.59	2317.11	2176.08
	short (deep)	139.46	.79	2316.91	2177.45
NR-1	(red) (shal)	95.18	.91	2271.67	2176.49
	(yellow) (med)	69.48	.33	2278.26	2208.78
	(white) (deep)	101.78	.93	2267.65	2165.87
MW-32	tall (shal)	241.93	.31	~2418.69	2176.76
	next tall (sh/med)	243.08	.42	~2418.58	2175.50
	next short (dp/med)	241.92	.50	~2418.50	2176.58
	short (deep)	240.51	.64	~2418.36	2177.85
BR-4		264.51	.27	2377.20	2112.69
SW Wells (SE Mon Well)		396.75		2582.82	2186.07

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements on Sept 30 and Oct 1, 1992, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

Well	Piezometer	Depth to Water	Comments
		TOC to TOP	
BR-3	medium (shal)	.43	Confirmed short s/u is deep piezo w/NACC thief sampler. Deep EC=11,450
	tall (med)	.39	
	short (deep)	.64	
BR-1	tall (shal)	185.39	Sept 30
	next tall (sh/med)	183.04	
	next short (dp/med)	187.79	
	short (deep)	195.73	
BR-2	tall (blue) (shal)	.20	Re-sound bottoms
	(yellow) (med)	.40	
	(red) (deep)	.42	
BR-5	tall (shal)	335.30	Oct 1
	medium (med)	342.39	
	short (deep)	344.08	
BR-10	tall (shal)	308.43	
	next tall (sh/med)	321.76	
	next short (dp/med)	362.14	
	short (deep)	363.95	
BR-6	tall (shal)	163.95	
	medium (med)	165.00	
	short (deep)	149.35	
NR-2	tall (shal)	.32	
	medium (med)	.59	
	short (deep)	.79	
NR-1	(red) (shal)	.91	Valve top = TOP
	(yellow) (med)	.33	
	(white) (deep)	.93	
MW-32	tall (shal)	.31	
	next tall (sh/med)	.42	
	next short (dp/med)	.50	
	short (deep)	.64	
BR-4		.27	

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Sept 30, 1992

SW Wells	Mon #1 [E]	Wood? at ~ 341'	Muted thud sound
	Mon #2 [SE]	396.93	
	Prod Well	373.85	TOP (2" pipe)
	Mon #3 [S]	201.82	

April 7, 1989

(from Tom Field, Krieger and Stewart)

SW Wells	Mon #1	365.9	TOC
	Mon #2	392.4	"
	Mon #3	196.2	"

**Indian Wells Valley Groundwater Project
Depth to Water Measurements**

All measurements on January 5, 1993, by Dennis Watt using (the old) 1000 foot "twin-lead" electric sounder. All measurements are in feet from the top of each 2 inch piezometer pipe.

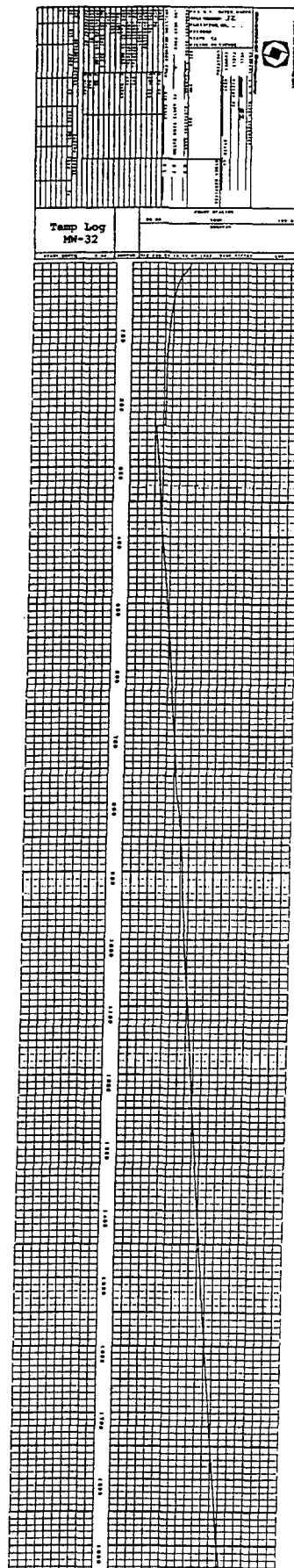
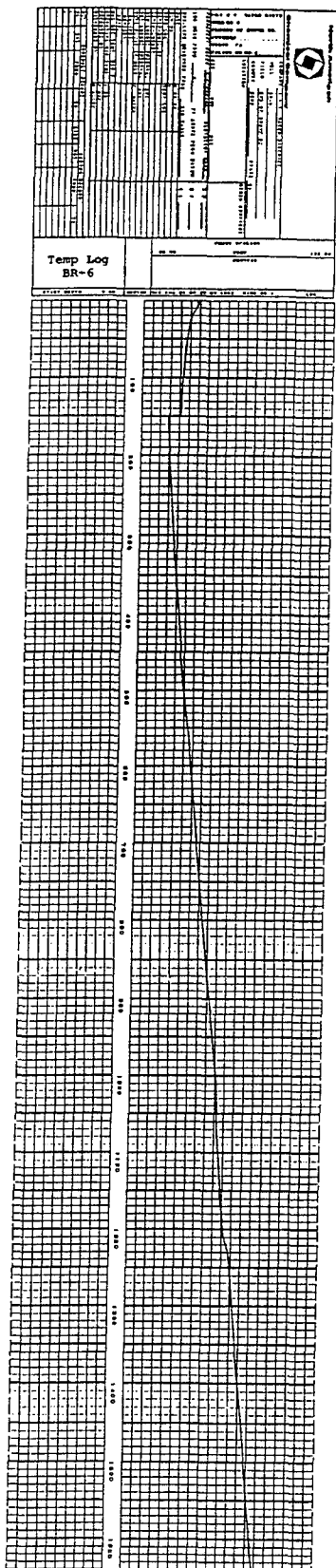
Well	Piezometer	Depth to Water	Comments
		TOC to TOP	
BR-3	medium (shal)	.43	
	tall (med)	.39	NACC test w/thief
	short (deep)	319.2?	tall = med piezo
BR-1	tall (shal)	185.38	.12
	next tall (sh/med)	183.38	.25
	next short (dp/med)	188.18	.36
	short (deep)	196.27	.39
BR-2	tall (blue) (shal)	276.14	.20
	(red) (med)	272.48	.40
	(yellow) (deep)	281.68	.42
BR-5	tall (shal)	335.43	.19
	medium (med)	342.15	.41
	short (deep)	343.73	.64
BR-10	tall (shal)	307.70	.25
	next tall (sh/med)	322.80	.42
	next short (dp/med)	362.15	.54
	short (deep)	363.87	.68
BR-6	tall (shal)	163.08	.38
	medium (med)	164.85	.70
	short (deep)	149.63	1.08
NR-2	tall (shal)	132.68	.32
	medium (med)	140.81	.59
	short (deep)	139.22	.79
NR-1	(red) (shal)	95.21	.91
	(yellow) (med)	68.61	.33
	(white) (deep)	101.44	.93
MW-32	tall (shal)	241.77	.31
	next tall (sh/med)	241.98	.42
	next short (dp/med)	241.44	.50
	short (deep)	240.55	.64
BR-4		250.00	.27

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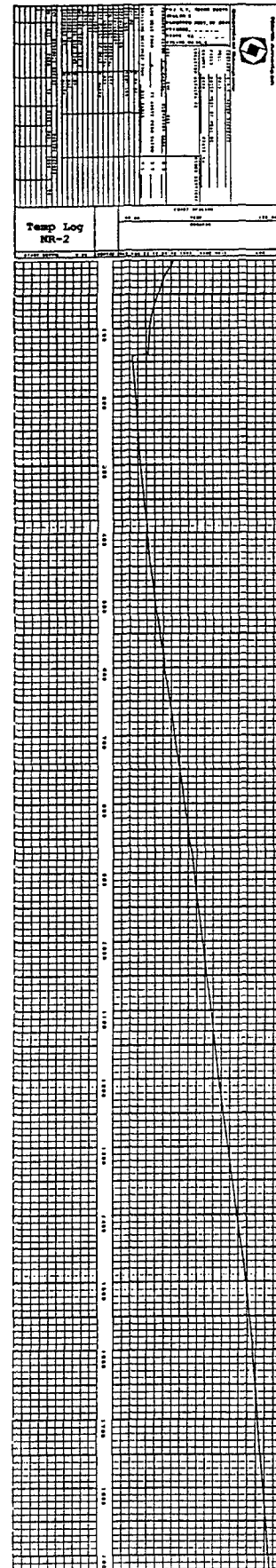
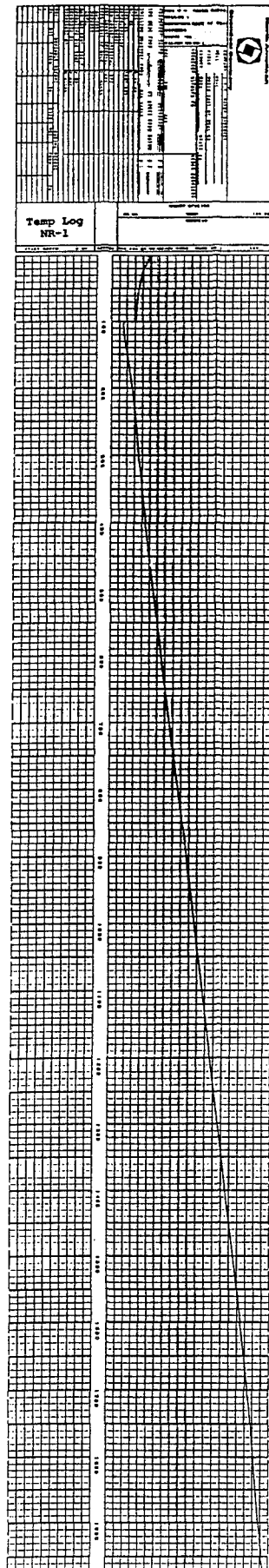
SW Wells	Mon #1 [E]	Wood block at ~ 341'
	Mon #2 [SE]	397.20
	Prod Well	
	Mon #3 [S]	201.96

Appendix E
TEMPERATURE GRADIENT PROFILES

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[illegible]

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