

80

Verdi  
Springs

**VERDI SPRINGS  
AQUIFER TEST**

October 2002  
By

**Washoe County Department  
Of  
Water Resources**

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## **EXECUTIVE SUMMARY**

The Verdi Spring has been utilized as a quasi-municipal source of water since the 1970's. It has been and still is equipped with multiple pumps, each with a specific purpose related to either the potable system or emergency fire flow. It was test pumped in 1982 at a flow rate between 500 and 750 gallons per minute for 24 hours. The results of that test pumping suggested the well was capable of a continuous yield of about 700 gpm. However, review of the drawdown data from that test showed that the test was terminated at a point (24 hours) shortly after the data suggested the drawdown radius of influence had encountered a negative boundary. Because of the indication of a negative aquifer boundary, Washoe County conducted a longer test, extending the pumping period to approximately 4.5 days. The result of the 4.5 day test shows the well should not be equipped to pump more than 150 gallons per minute on a continuous basis.

Water quality from the spring is excellent and meets all current standards for drinking water.

# **VERDI SPRINGS PUMPING TEST**

## **OCTOBER 2002**

### **Summary**

The Washoe County Department of Water Resources conducted an approximately 4.5 day constant-discharge pumping test on the Verdi Spring in October, 2002. The spring currently is a supply for industrial facilities and a few commercial and domestic customers. The purpose of the test was to determine the long-term yield of the spring as a source of water for an expanded municipal water supply system planned for that area. The test was conducted at 300 gallons per minute (gpm) plus an added 27 gpm average pumping from facility operations.

### **Physical Characteristics**

The spring well is a large diameter casing installed to a depth of about 14.3 feet. Static water levels, depending on when measured, ranged between 7.0 and 7.5 feet below the top of the casing. Using the assumption that the maximum depth a pump could be set is 14 feet and the pump should maintain at least two feet of water above the intake, the maximum recommended pumping level would be about 12 feet below the top of the casing (See figure 1).

### **Pumping Test Results**

Based on the pumping test data, the spring well should not be equipped to pump more than 150 gpm on a continuous basis. At 150 gallons per minute, the pumping level is likely to approach a pumping level of 11 feet after 30 days of uninterrupted pumping. The additional 1-foot of available drawdown to 12 feet would be a reserve for continuous pumping periods longer than 30 days.

Data from the monitoring well suggests the spring well could possibly be improved to allow higher pumping rates for longer periods. Improvements would primarily be deepening the well to allow more available drawdown.

### **Pumping Test Analysis**

Pumping and recovery data was collected on the pumping and nearby monitoring well. Table 1 shows the calculated Transmissivity values for the test.

- VERDI SPRINGS -

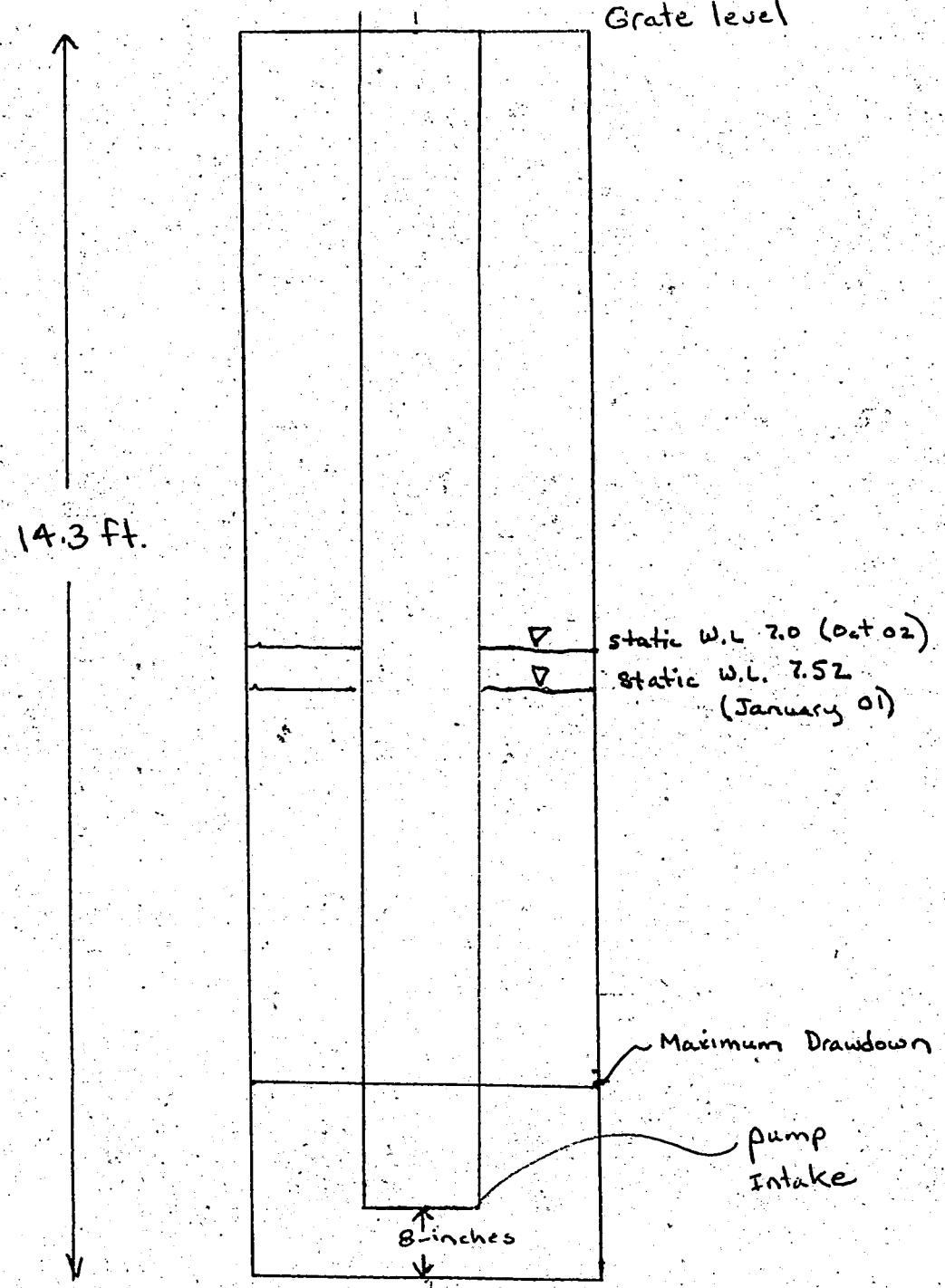


Figure 1

Jan 2003

**Table 1-Transmissivity Values**

Pumping Well (Pumping)		Pumping Well (Recovery)		Observation Well (Pumping) (gpd/ft)	Observation Well (Recovery) (gpd/ft)
Early Time (gpd/ft)	Late Time (gpd/ft)	Early Time (gpd/ft)	Late Time (gpd/ft)		
270,000	13,000	120,000	27,000	43,000	45,000

The variations in transmissivity values likely are the result of the efficiency of the spring well itself. The values calculated from the recovery data in the spring well are probably the most representative of the performance of the spring well itself. The values calculated from the monitoring well, also about 14 feet deep suggest the spring could be improved and increase the yield if both wells are completed in the same aquifer.

Figures 2, 3, 4 and 5 are graphical representations of the drawdown and recovery data. These data were used to prepare the pumping analysis graph (Figure 6) showing predicted drawdown at a pumping rate of 150 gpm. Pumping test data are included in Appendix 1.

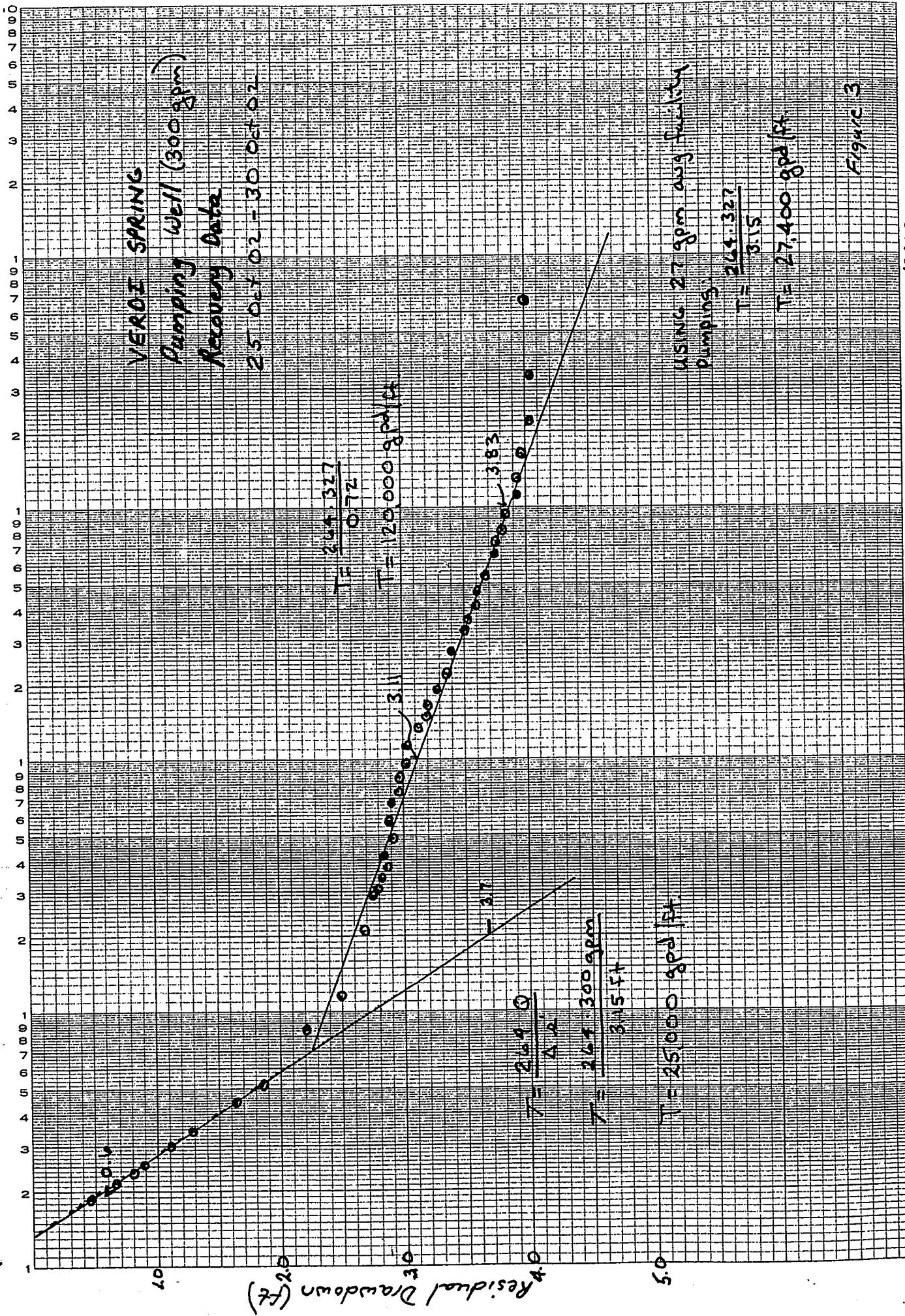
### **Water Quality**

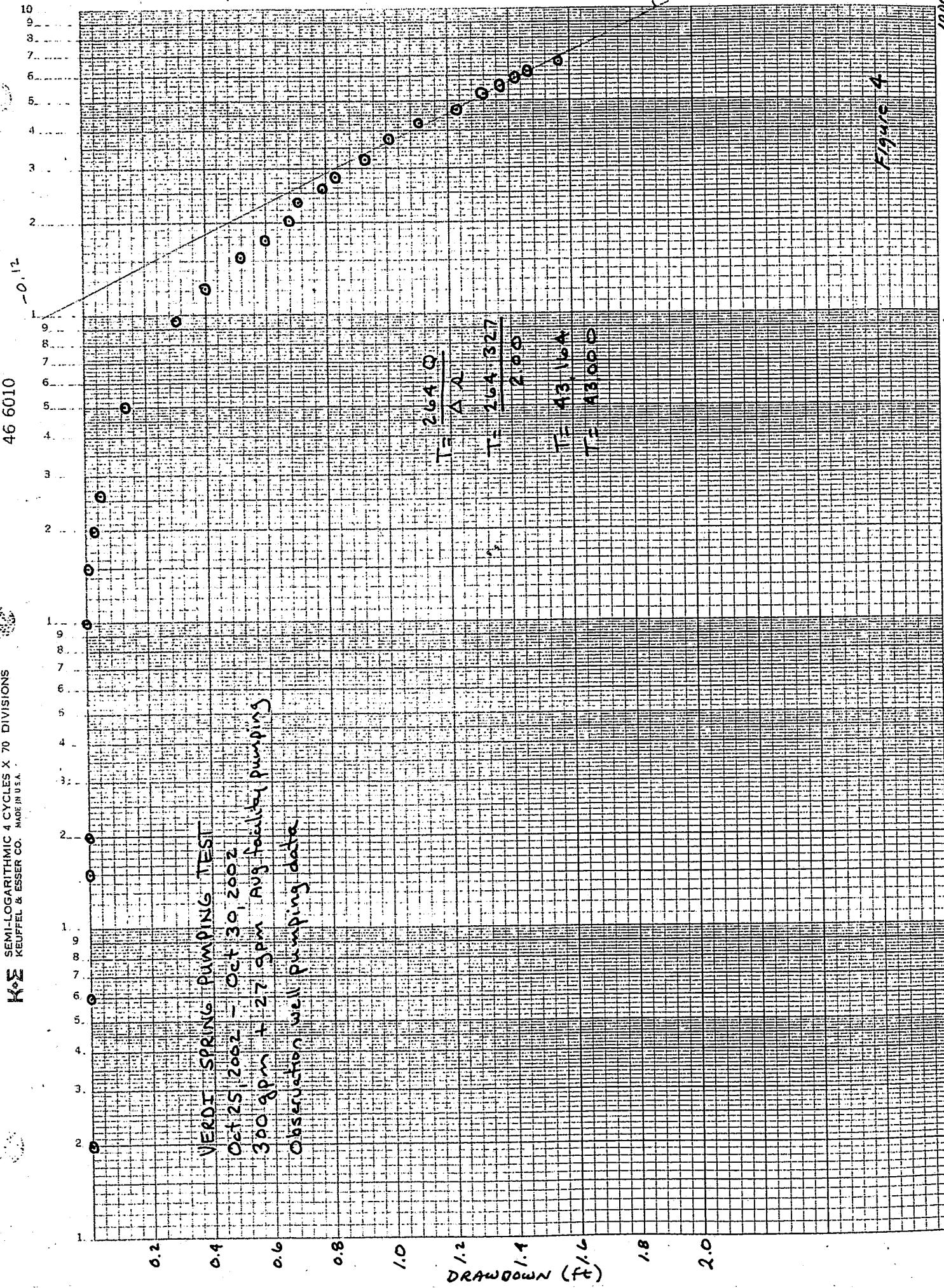
The water originating from the spring has been evaluated with respect to the Environmental Protection Agency's Safe Drinking Water Act (SDWA) water quality standards. The water quality meets all existing SDWA standards and is suitable for human consumption. Results are included in Appendix 2.

### **Conclusion**

The spring well meets current water quality standards for drinking water. The well should not be equipped to pump more than 150 gallons per minute. There is a possibility the spring could be improved to provide more yield, but the outcome of improvements is not certain. Ideally, the yield of the spring should be tied to a recommended maximum pumping level of about 11 feet.

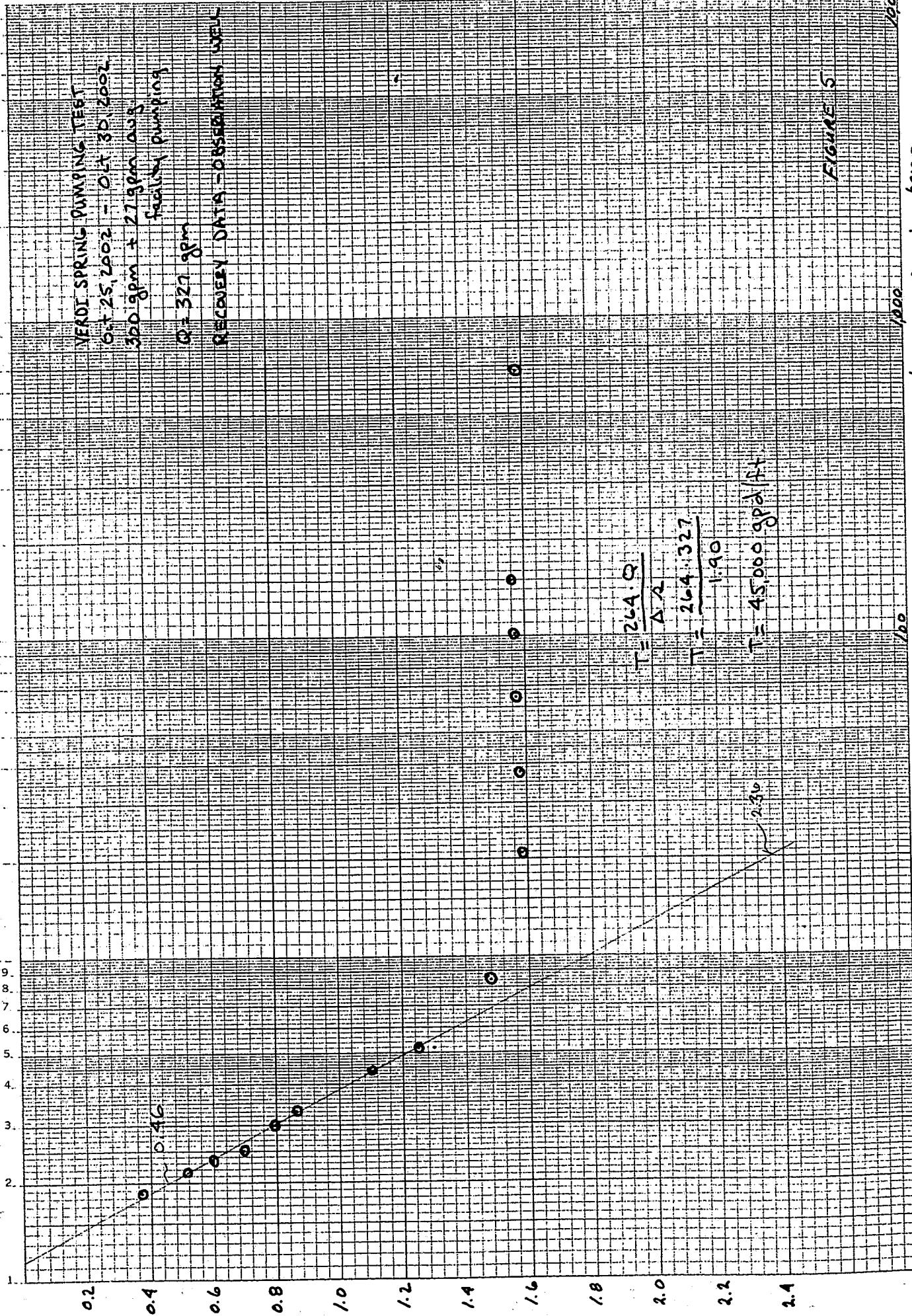






10000

$t = \text{time in minutes since pumping started}$

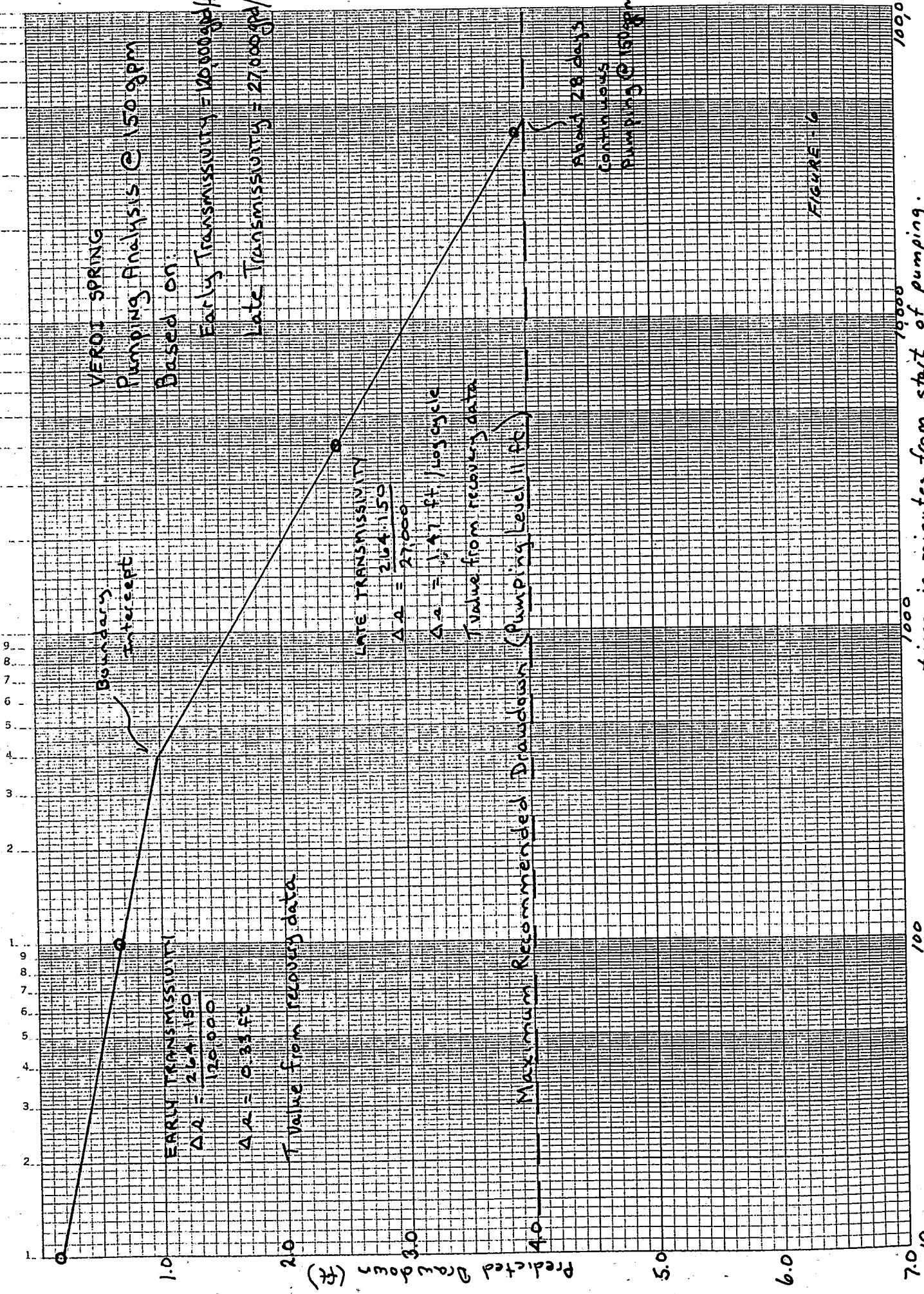


$t$  = time in minutes since pumping began

1000

100

10



## **APPENDIX 1 – Test Pumping Data**











## **APPENDIX 2 – Water Quality Results**





**Acculabs C.**

**Sparks/Reno**

992 Spice Islands Drive, Sparks NV 89431 • 702-355-0202 • Fax 355-0817

## Laboratory Report

Report To: Verdi Mutual Water      EPA Lab ID.: #NV004  
              P.O. Box 587  
              Verdi, NV 89439

Telephone: 345-0444      Fax: 345-8223

Work Authorized By: Glenn Kress  
                 Date Sampled: 11/10/98  
                 Source: Drinking Water      Date Submitted: 11/10/98  
                 Acculabs Sample ID: 5-811-025      Sampled By: Client  
     Your Reference: Quarterly Monitoring

Notes:

Nitrate Nitrogen, mg/L		<1.0

Remarks:

Approved By: Michelle Khan

Date: 11-24-98



**Acculabs C.**

**Sparks/Reno**

992 Spice Islands Drive, Sparks NV 89431 • 702-355-0202 • Fax 355-0817

## Laboratory Report

Report To: Verdi Mutual Water      EPA Lab ID.: #NV004  
P.O. Box 587  
Verdi, NV 89439

Telephone: 345-0444      Fax: 345-8223

Work Authorized By: Glenn Kress  
Date Sampled: 11/19/98      Date Submitted: 11/19/98  
Source: Pump House      Sampled By: Client  
Acculabs Sample ID: 5-811-054      Your Reference: PWS No. 773

Notes:

Nitrite Nitrogen, mg/L	
	<0.05

Remarks:

Approved By: Michele Hahn

Date: 11-24-98

Page 1 of 1

Phoenix • Tucson • North Phoenix • Davis/Sacramento • Durango • Gorden • Sparks/Reno









Date: 11/18/98

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## REPORT OF ANALYSIS

Ms Michelle Kramer  
 Acculabs Inc.  
 992 Spice Islands Drive  
 Sparks, NV 89431

Lab Job Number: 026677 CHE009  
 Date Samples Received: 11/11/98

ALR Designation: 98-A23026  
 Client Designation: 5-811-D25-01  
 Sample Location:  
 Location II:  
 Data/Time Collected 11/10/98

## Organic Chemistry (results as noted):

## EPA Method 524.2 (ug/L):

Chloroform	< 0.5
Bromodichloromethane	< 0.5
Chlorodibromomethane	< 0.5
Bromoform	< 0.5
1,1-Dichloroethane	< 0.5
1,1,1-Trichloroethane	< 0.5
1,1,2-Trichloroethane	< 0.5
1,2-Dichloroethane	< 0.5
1,2-Dichloropropane	< 0.5
1,2,4-Trichlorobenzene	< 0.5
Benzene	< 0.5
Carbon Tetrachloride	< 0.5
cis-1,2-Dichloroethane	< 0.5
Methylene chloride	< 0.5
Ethylbenzene	< 0.5
Chlorobenzene	< 0.5
1,2-Dichlorobenzene	< 0.5
1,4-Dichlorobenzene	< 0.5
Styrene	< 0.5
Tetrachloroethene	< 0.5
Toluene	< 0.5
trans-1,2-Dichloroethene	< 0.5
Trichloroethene	< 0.5
Vinyl chloride	< 0.5
Xylenes (Total)	< 0.5
1,1-Dichloroethane	< 0.5
1,1-Dichloropropane	< 0.5
1,1,1,2-Tetrachloroethane	< 0.5
1,1,2,2-Tetrachloroethane	< 0.5
1,2,3-Trichlorobenzene	< 0.5
1,2,3-Trichloropropane	< 0.5
1,2,4-Trimethylbenzene	< 0.5
1,3-Dichloropropane	< 0.5
1,3-Dichloropropene	< 0.5
1,3,5-Trimethylbenzene	< 0.5
2,2-Dichloropropane	< 0.5
Bromobenzene	< 0.5
Bromochloromethane	< 0.5

Date: 11/18/98  
Page 2 - B

Acculabs Inc.



REPORT OF ANALYSIS

Ms Michelle Kramer  
Acculabs Inc

Lab Job Number: 026677 CHE009  
Date Samples Received: 11/11/98

ALR Designation: 98-A23026  
Client Designation: 5-811-025-01  
Sample Location:  
Location III:  
Date/Time Collected 11/10/98

Bromomethane	< 0.5
Chloroethane	< 0.5
Chloromethane	< 0.5
Dibromomethane	< 0.5
Dichlorodifluoromethane	< 0.5
Trichlorofluoromethane	< 0.5
Hexachlorobutadiene	< 0.5
Isopropyl benzene	< 0.5
Naphthalene	< 0.5
1,3-Dichlorobenzene	< 0.5
n-Propylbenzene	< 0.5
2-Chlorotoluene	< 0.5
4-Chlorotoluene	< 0.5
p-Isopropyltoluene	< 0.5
sec-Butylbenzene	< 0.5
tert-Butylbenzene	< 0.5
n-Butylbenzene	< 0.5
Surrogate Recovery (%):	
Bromofluorobenzene	97
1,2-Dichlorobenzene-d4	93

---

ALR Designation: 98-A23027  
Client Designation: 5-811-025-02  
Sample Location:  
Location III:  
Date/Time Collected 11/10/98

Organic Chemistry (results as noted):  
EPA Method 524.2 (ug/L):

Chloroform	< 0.5
Bromodichloromethane	< 0.5
Chlorodibromomethane	< 0.5
Bromoform	< 0.5
1,1-Dichloroethene	< 0.5
1,1,1-Trichloroethane	< 0.5
1,1,2-Trichloroethane	< 0.5
1,2-Dichloroethane	< 0.5

Date: 08/26/98

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✓  
Accu-Labs Research, Inc.

### REPORT OF ANALYSIS

Mr Max-Noel Shen  
Chemax Laboratories Inc  
992 Spice Islands Drive  
Sparks, NV 89431

Lab Job Number: 024836 CHE009  
Date Samples Received: 08/19/98

ALR Designation:	98-A16610
Client Designation:	8-808-055-01
Sample Location:	
Location ID:	
Date/Time Collected:	08/17/98

#### Organic Chemistry (results as noted):

##### EPA Method 524.2 (ug/L):

Chloroform	< 0.5
Bromodichloromethane	< 0.5
Chlorodibromomethane	< 0.5
Bromoform	< 0.5
1,1-Dichloroethene	< 0.5
1,1,1-Trichloroethane	< 0.5
1,1,2-Trichloroethane	< 0.5
1,2-Dichloroethane	< 0.5
1,2-Dichloropropane	< 0.5
1,2,4-Trichlorobenzene	< 0.5
Benzene	< 0.5
Carbon Tetrachloride	< 0.5
cis-1,2-Dichloroethene	< 0.5
Methylene chloride	< 0.5
Ethylbenzene	< 0.5
Chlorobenzene	< 0.5
1,2-Dichlorobenzene	< 0.5
1,4-Dichlorobenzene	< 0.5
Styrene	< 0.5
Tetrachloroethene	< 0.5
Toluene	< 0.5
trans-1,2-Dichloroethene	< 0.5
Trichloroethene	< 0.5
Vinyl chloride	< 0.5
Xylenes (Total)	< 0.5
1,1-Dichloroethane	< 0.5
1,1-Dichloropropene	< 0.5
1,1,1,2-Tetrachloroethane	< 0.5
1,1,2,2-Tetrachloroethane	< 0.5
1,2,3-Trichlorobenzene	< 0.5
1,2,3-Trichloropropane	< 0.5
1,2,4-Trimethylbenzene	< 0.5
1,3-Dichloropropane	< 0.5
1,3-Dichloropropene	< 0.5
1,3,5-Trimethylbenzene	< 0.5
2,2-Dichloropropane	< 0.5
Bromobenzene	< 0.5

Date: 08/26/98  
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## REPORT OF ANALYSIS

Mr Max-Noel Shen  
Chemax Laboratories Inc

Lab Job Number: 024836 CHE009  
Date Samples Received: 08/19/98

ALR Designation: 58-A15510  
Client Designation: 8-808-055-01  
Sample Location:  
Location (L):  
Date/Time Collected: 08/17/98

Bromochloromethane	< 0.5
Bromomethane	< 0.5
Chloroethane	< 0.5
Chloromethane	< 0.5
Dibromomethane	< 0.5
Dichlorodifluoromethane	< 0.5
Trichlorofluoromethane	< 0.5
Hexachlorobutadiene	< 0.5
Isopropyl benzene	< 0.5
Naphthalene	< 0.5
1,3-Dichlorobenzene	< 0.5
n-Propylbenzene	< 0.5
2-Chlorotoluene	< 0.5
4-Chlorotoluene	< 0.5
p-Isopropyltoluene	< 0.5
sec-Butylbenzene	< 0.5
tert-Butylbenzene	< 0.5
n-Butylbenzene	< 0.5
Surrogate Recovery (%):	
Bromofluorobenzene	86
1,2-Dichlorobenzene-d4	86

## NOTES:

Scheduled sample disposal/return date: September 25, 1998.

Trudy L. Scott

Trudy L. Scott  
Laboratory Manager

**Alpha Analytical, Inc.**

255 Glendale Avenue, Suite 21  
 Sparks, Nevada 89431  
 (702) 355-1044  
 FAX: (702) 355-0406  
 1-800-283-1183

e-mail: alpha@powernet.net  
<http://www.powernet.net/~alpha>

Las Vegas, Nevada  
 (702) 498-3312  
 FAX: (702) 736-7523  
 Sacramento, California  
 (916) 366-9039  
 FAX: (916) 266-9138

**ANALYTICAL REPORT**

Chemax Laboratories  
 992 Spice Island Dr.  
 Sparks NV 89431

Job#: Verdi Mutual Water  
 Phone: 355-0202  
 Attn: Max-Shen

Client ID: Verdi Mutual Water 98-3197  
 Lab ID: MAX98050809-01

Sampled: 05/07/98  
 Received: 05/08/98

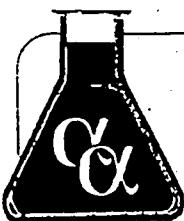
Analyzed: 05/13/98

**SDWA VOLATILES PLUS LISTS 1 AND 3 UNREGULATED COMPOUNDS EPA 524.2**

<u>Compound</u>	<u>Concentration</u> ug/L	<u>RL</u> ug/L	<u>Compound</u>	<u>Concentration</u> ug/L	<u>RL</u> ug/L
1 Benzene	ND	0.50	28 Chloroform	ND	0.50
2 Vinyl Chloride	ND	0.50	29 Chloromethane	ND	0.50
3 Carbon tetrachloride	ND	0.50	30 o-Chlorotoluene	ND	0.50
4 1,2-Dichloroethane	ND	0.50	31 p-Chlorotoluene	ND	0.50
5 Trichloroethylene	ND	0.50	32 Dibromomethane	ND	0.50
6 p-Dichlorobenzene	ND	0.50	33 m-Dichlorobenzene	ND	0.50
7 1,1-Dichloroethylene	ND	0.50	34 1,1-Dichloroethane	ND	0.50
8 1,1,1-Trichloroethane	ND	0.50	35 1,1-Dichloropropene	ND	0.50
10 Regulated Volatile Organic Compounds (VOC's)		36	36 1,3-Dichloropropane	ND	0.50
(Phase II)		37	37 e,z-1,3-Dichloropropene	ND	0.50
9 Cls-1,2-Dichloroethylene	ND	0.50	38 2,2-Dichloropropene	ND	0.50
10 1,2-Dichloropropane	ND	0.50	39 1,1,1,2-Tetrachloroethane	ND	0.50
11 Ethylbenzene	ND	0.50	40 1,1,2,2-Tetrachloroethane	ND	0.50
12 Merechlorobenzene	ND	0.50	41 1,2,3-Trichloropropene	ND	0.50
13 o-Dichlorobenzene	ND	0.50	List 3- Monitoring Required at State Discretion		
14 Styrene	ND	0.50	42 Bromochloromethane	ND	0.50
15 Tetrachloroethylene	ND	0.50	43 n-Butylbenzene	ND	0.50
16 Toluene	ND	0.50	44 Dichlorodifluoromethane	ND	0.50
17 Trans-1,2-Dichloroethylene	ND	0.50	45 Fluorotrichloromethane	ND	0.50
18 Xylenes (total)	ND	0.50	46 Hexachlorobutadiene	ND	0.50
3 Regulated Volatile Organic Compounds (VOC's)		47	47 Isopropylbenzene	ND	0.50
(Phase V)		48	48 p-Isopropyltoluene	ND	0.50
19 Dichloromethane	ND	0.50	49 Naphthalene	ND	0.50
20 1,1,2-Trichloroethane	ND	0.50	50 n-Propylbenzene	ND	0.50
21 1,2,4-Trichlorobenzene	ND	0.50	51 sec-Butylbenzene	ND	0.50
List 1 - Unregulated Compounds - All Systems		52	52 tert-Butylbenzene	ND	0.50
22 Bromobenzene	ND	0.50	53 1,2,3-Trichlorobenzene	ND	0.50
23 Bromodichloromethane	ND	0.50	54 1,2,4-Trimethylbenzene	ND	0.50
24 Bromoform	ND	0.50	55 1,3,5-Trimethylbenzene	ND	0.50
25 Bromomethane	ND	0.50	ND=Not Detected		
26 Chlorodibromomethane	ND	0.50	RL=Reporting Limit		
27 Chloroethane	ND	0.50			

Approved by:

*Roger Scholl* Date: 5/19/98  
 Roger L. Scholl, Ph.D.  
 Laboratory Director



# Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21  
 Sparks, Nevada 89431  
 (702) 355-1044  
 FAX: (702) 355-0406  
 1-800-283-1183

e-mail: alpha@powernet.net  
<http://www.powernet.net/~alpha>

✓ Las Vegas, Nevada  
 (702) 498-3312  
 FAX: (702) 736-7523  
 Sacramento, California  
 (916) 366-9089  
 FAX: (916) 366-9138

## ANALYTICAL REPORT

Chemax Laboratories  
 992 Spice Island Dr.  
 Sparks NV 89431

Job#: Wells Manufacturing  
 Phone: 355-0202  
 Attn: Max-Shen

Client ID: 98-1982  
 Lab ID: MAX98032306-01

Sampled: 03/23/98  
 Received: 03/23/98

Analyzed: 04/01/98

### SDWA VOLATILES PLUS LISTS 1 AND 3 UNREGULATED COMPOUNDS EPA 524.2

<u>Compound</u>	<u>Concentration</u> ug/L	<u>RL</u> ug/L	<u>Compound</u>	<u>Concentration</u> ug/L	<u>RL</u> ug/L	
1 Benzene	ND	0.50	28 Chloroform	ND	0.50	
2 Vinyl Chloride	ND	0.50	29 Chloromethane	ND	0.50	
3 Carbon tetrachloride	ND	0.50	30 o-Chlorotoluene	ND	0.50	
4 1,2-Dichloroethane	ND	0.50	31 p-Chlorotoluene	ND	0.50	
5 Trichloroethylene	ND	0.50	32 Dibromomethane	ND	0.50	
6 p-Dichlorobenzene	ND	0.50	33 m-Dichlorobenzene	ND	0.50	
7 1,1-Dichloroethylene	ND	0.50	34 1,1-Dichloroethane	ND	0.50	
8 1,1,1-Trichloroethane	ND	0.50	35 1,1-Dichloropropene	ND	0.50	
10 Regulated Volatile Organic Compounds (VOC's) (Phase II)			36 1,3-Dichloropropane	ND	0.50	
9 Cis-1,2-Dichloroethylene	ND	0.50	37 e,z-1,3-Dichloropropene	ND	0.50	
10 1,2-Dichloropropane	ND	0.50	38 2,2-Dichloropropane	ND	0.50	
11 Ethylbenzene	ND	0.50	39 1,1,1,2-Tetrachloroethane	ND	0.50	
12 Monochlorobenzene	ND	0.50	40 1,1,2,2-Tetrachloroethane	ND	0.50	
13 o-Dichlorobenzene	ND	0.50	41 1,2,3-Trichloropropane	ND	0.50	
14 Styrene	ND	0.50	List 3- Monitoring Required at State Discretion			
15 Tetrachloroethylene	ND	0.50	42 Bromochloromethane	ND	0.50	
16 Toluene	ND	0.50	43 n-Butylbenzene	ND	0.50	
17 Trans-1,2-Dichloroethylene	ND	0.50	44 Dichlorodifluoromethane	ND	0.50	
18 Xylenes (total)	ND	0.50	45 Fluorotrifluoromethane	ND	0.50	
3 Regulated Volatile Organic Compounds (VOC's) (Phase V)			46 Hexachlorobutadiene	ND	0.50	
19 Dichloromethane	ND	0.50	47 Isopropylbenzene	ND	0.50	
20 1,1,2-Trichloroethane	ND	0.50	48 p-Isopropyltoluene	ND	0.50	
21 1,2,4-Trichlorobenzene	ND	0.50	49 Naphthalene	ND	0.50	
List 1 - Unregulated Compounds - All Systems			50 n-Propylbenzene	ND	0.50	
22 Bromobenzene	ND	0.50	51 sec-Butylbenzene	ND	0.50	
23 Bromodichloromethane	ND	0.50	52 tert-Butylbenzene	ND	0.50	
24 Bromoform	ND	0.50	53 1,2,3-Trichlorobenzene	ND	0.50	
25 Bromomethane	ND	0.50	54 1,2,4-Trimethylbenzene	ND	0.50	
26 Chlorodibromomethane	ND	0.50	55 1,3,5-Trimethylbenzene	ND	0.50	
27 Chloroethane	ND	0.50	ND-Not Detected			
			RL-Reporting Limit			

Approved by:

*Roger Scholl*

Date:

*4/3/98*

Roger L. Scholl, Ph.D.  
 Laboratory Director



Nevada State Health Laboratory  
1660 N. Virginia St.  
Reno, Nevada 89503-1783  
(775) 688-1335  
FAX: (775) 688-1460

REPORT TO: WASHOE COUNTY WATER RESOURCES  
ATTN: TERRY SVETICH  
4930 ENERGY WAY  
RENO, NV 89502

PROJECT NAME: VERDI SPRINGS WATER CO. - SPRING  
SAMPLE NUMBER: 148541  
DATE SAMPLED: 1/16/2001  
SAMPLED BY: JOHN HULETT  
NEL ORDER ID #: R0101037  
DATE REPORTED: 2/16/2001

TEST: Semivolatile Organic Compounds (SOC's)

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 1/16/2001.

Samples were analyzed as received.

Where applicable we have included the following quality control data:

Method blank- used to demonstrate absence of contamination or interferences in the analytical process.

Laboratory Control Spike (LCS)- used to demonstrate laboratory ability to perform the method within specifications by spiking representative analytes into a clean matrix.

Surrogates- compounds added to each sample to ensure that the method requirements are met for each individual sample.

**Some QA results have been flagged as follows:**

Ja - This concentration should be considered an estimate. The continuing calibration check standard meets SW846 QC requirements for this analyte, but does not meet State of Arizona QC requirements for this analyte.

*Stacey Rice*  
\_\_\_\_\_  
Stacey Rice  
Chemistry Laboratory Supervisor

*4/10/01*

Date Reviewed

Test performed at:  
NEL Laboratories  
4750 Longley Lane, Suite 106  
Reno, NV 89502  
Laboratory Manager:  
Doug McCormack



UNIVERSITY  
OF NEVADA  
SCHOOL OF MEDICINE

Nevada State Health Laboratory  
1660 N. Virginia St.  
Reno, Nevada 89503-1783  
(775) 688-1335  
FAX: (775) 688-1460

CLIENT: WASHOE COUNTY WATER RESOURCES  
PROJECT: VERDI SPRINGS - SPRING  
CLIENT ID: 148541  
MATRIX: Drinking Water  
DATE SAMPLED: 1/16/2001  
NEL SAMPLE ID# R0101037-01

Parameter	Result mg/L	Reported Limit	Method	Extracted	Analyzed
DBCP	ND	0.00002 mg/L	EPA 504.1	1/24/2001	1/24/2001
EDB	ND	0.00001 mg/L	EPA 504.1	1/24/2001	1/24/2001
Aldrin	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Chlordane	ND	0.001 mg/L	EPA 508	1/22/2001	1/23/2001
Dieldrin	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Endrin	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Heptachlor	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Heptachlor Epoxide	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Lindane	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Methoxychlor	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Polychlorinated Biphenyls	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Toxaphene	ND	0.001 mg/L	EPA 508	1/22/2001	1/23/2001
Glyphosate	ND	0.006 mg/L	EPA 547	1/18/2001	1/19/2001
Diquat	ND	0.0004 mg/L	EPA 549.1	1/19/2001	1/23/2001

QUALITY CONTROL DATA:

Surrogate	Method	Percent Recovery	Acceptable Range
4,4'-Dichlorobiphenyl	EPA 508	84	70-136

ND - NOT DETECTED

TEST PERFORMED AT:

NEL Laboratories



UNIVERSITY  
OF NEVADA  
SCHOOL OF MEDICINE

Nevada State Health Laboratory  
1660 N. Virginia St.  
Reno, Nevada 89503-1783  
(775) 688-1335  
FAX: (775) 688-1460

CLIENT: METHOD BLANK  
PROJECT: VERDI SPRINGS - SPRING  
CLIENT ID: 148541  
MATRIX: Drinking Water  
DATE SAMPLED: N/A  
NEL ID #: METHOD BLANK

<u>Parameter</u>	<u>Result</u> <u>mg/L</u>	<u>Reported</u> <u>Limit</u>	<u>Method</u>	<u>Extracted</u>	<u>Analyzed</u>
DBCP	ND	0.00002 mg/L	EPA 504.1	1/24/2001	1/24/2001
EDB	ND	0.00001 mg/L	EPA 504.1	1/24/2001	1/24/2001
Aldrin	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Chlordane	ND	0.001 mg/L	EPA 508	1/22/2001	1/23/2001
Dieldrin	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Endrin	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Heptachlor	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Heptachlor Epoxide	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Lindane	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Methoxychlor	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Polychlorinated Biphenyls	ND	0.0001 mg/L	EPA 508	1/22/2001	1/23/2001
Toxaphene	ND	0.001 mg/L	EPA 508	1/22/2001	1/23/2001
Glyphosate	ND	0.006 mg/L	EPA 547	1/18/2001	1/19/2001
Diquat	ND	0.0004 mg/L	EPA 549.1	1/19/2001	1/23/2001

QUALITY CONTROL DATA:

<u>Surrogate</u>	<u>Method</u>	<u>Percent</u> <u>Recovery</u>	<u>Acceptable</u> <u>Range</u>
4,4'-Dichlorobiphenyl	EPA 508	93	70-136

ND - NOT DETECTED

TEST PERFORMED AT:

NEL Laboratories



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SCHOOL OF MEDICINE

Nevada State Health Laboratory  
1660 N. Virginia St.  
Reno, Nevada 89503-1783  
(775) 688-1335  
FAX: (775) 688-1460

CLIENT: Quality Control Sample  
PROJECT: VERDI SPRINGS - SPRING  
CLIENT ID: 148541  
MATRIX: Drinking Water  
DATE SAMPLED: N/A  
EPA METHODS: 504.1, 508, 547 & 549

<u>Parameter</u>	<u>Sample ID Number</u>	<u>Spiked Amount</u>	<u>Spike Result</u>	<u>Percent Recovery</u>	<u>Acceptable Range</u>	<u>RPD</u>
DBCP	012401-E3-LCS	0.25	0.241	96	60-140	
DBCP	012401-E3-LCSD	0.25	0.257	103	60-140	6.4
DBCP	R0101037-01-MS	0.25	0.171	68	60-140	
EDB	012401-E3-LCS	0.25	0.239	96	60-140	
EDB	012401-E3-LCSD	0.25	0.259	104	60-140	8.
EDB	R0101037-01-MS	0.25	0.193	77	60-140	
Aldrin	012201-E3-LCS	1	0.865	87	70-130	
Aldrin	012201-E3-LCSD	1	0.886	89	70-130	2.4
Dieldrin	012201-E3-LCS	1	0.91	91	70-130	
Dieldrin	012201-E3-LCSD	1	0.95	95	70-130	4.3
Endrin	012201-E3-LCS	1	0.931	93	70-130	
Endrin	012201-E3-LCSD	1	0.955	96	70-130	2.5
Heptachlor	012201-E3-LCS	1	0.808	81	70-130	
Heptachlor	012201-E3-LCSD	1	0.853	85	70-130	5.4
Heptachlor Epoxide	012201-E3-LCS	1	0.928	93	70-130	
Heptachlor Epoxide	012201-E3-LCSD	1	0.963	96	70-130	3.7
Lindane	012201-E3-LCS	1	0.878	88	70-130	
Lindane	012201-E3-LCSD	1	0.909	91	70-130	3.5
Methoxychlor	012201-E3-LCS	1	1.04	104	70-130	
Methoxychlor	012201-E3-LCSD	1	1.09	109	70-130	4.7
Toxaphene	012201-E3-LCS	10	7.36	74	70-130	
Toxaphene	012201-E3-LCSD	10	8.15	82	70-130	10.2
Glyphosate	011801-H1-LCS	100	117	117	67-127	
Glyphosate	R01010515-01-MS	100	126	126	67-127	
Diquat	011901-E2-LCS	8	7.08	89	45-95	
Diquat	011901-E2-LCSD	2	1.54	77	45-95	
Diquat	R0101037-01-MS	8	4.82	60	45-95	13.9

TEST PERFORMED AT: NEL Laboratories



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Nevada State Health Laboratory  
1660 N. Virginia St.  
Reno, Nevada 89503-1783  
(775) 688-1335  
FAX: (775) 688-1460

CLIENT:	WASHOE COUNTY WATER RESOURCES		
PROJECT:	VERDI SPRINGS - SPRING		
CLIENT ID:	148541		
TEST:	EPA 525.2, Rev. 2.0, 1995		
NEL ID #:	R0101037-01	DATE SAMPLED:	1/16/2001
MATRIX:	DRINKING WATER	EXTRACTED:	1/23/2001
ANALYST:	SNB      Reno Division	ANALYZED:	1/23/2001

<u>Parameter</u>	<u>Result</u>	<u>Reporting Limit</u>
Alachlor	ND	0.0002 mg/L
Atrazine	ND	0.0002 mg/L
Benzo (a) pyrene	ND	0.0001 mg/L
Butachlor	ND	0.001 mg/L
Di(2-ethylhexyl) adipate	ND	0.002 mg/L
Di(2-ethylhexyl) phthalate	ND	0.002 mg/L
2,4-Dinitrotoluene (DNT)	ND	0.001 mg/L
2,6-Dinitrotoluene (DNT)	ND	0.001 mg/L
EPTC	ND	0.0001 mg/L
Hexachlorobenzene	ND	0.0001 mg/L
Hexachlorocyclopentadiene	ND	0.0001 mg/L
Metolachlor	ND	0.001 mg/L
Metribuzin	ND	0.001 mg/L
Molinate	ND	0.001 mg/L
Propachlor	ND	0.001 mg/L
Simazine	ND	0.001 mg/L
Nitrobenzene	ND	0.001 mg/L
Terbacil	ND	0.001 mg/L

QUALITY CONTROL DATA:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptable Range</u>
1,3-Dimethyl-2-nitrobenzene	96	70-130
Perylene-d12	102	70-130
Pyrene-d10	110	70-130
Triphenylphosphate	100	70-130

ND - NOT DETECTED

TEST PERFORMED AT:

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(775) 688-1335  
FAX: (775) 688-1460

CLIENT: METHOD BLANK  
PROJECT: VERDI SPRINGS - SPRING  
CLIENT ID: 148541  
TEST: EPA 525.2, Rev. 2.0, 1995  
NEL ID #: 0122E1 525-BLK  
MATRIX: DRINKING WATER  
ANALYST: SNB Reno Division      DATE SAMPLED: NA  
EXTRACTED: 1/23/2001  
ANALYZED: 1/23/2001

<u>Parameter</u>	<u>Result</u>	<u>Reporting Limit</u>
Alachlor	ND	0.0002 mg/L
Atrazine	ND	0.0002 mg/L
Benzo (a) pyrene	ND	0.0001 mg/L
Butachlor	ND	0.001 mg/L
Di(2-ethylhexyl) adipate	ND	0.002 mg/L
Di(2-ethylhexyl) phthalate	ND	0.002 mg/L
2,4-Dinitrotoluene (DNT)	ND	0.001 mg/L
2,6-Dinitrotoluene (DNT)	ND	0.001 mg/L
EPTC	ND	0.001 mg/L
Hexachlorobenzene	ND	0.0001 mg/L
Hexachlorocyclopentadiene	ND	0.0001 mg/L
Metolachlor	ND	0.001 mg/L
Metribuzin	ND	0.001 mg/L
Molinate	ND	0.001 mg/L
Propachlor	ND	0.001 mg/L
Simazine	ND	0.001 mg/L
Nitrobenzene	ND	0.001 mg/L
Terbacil	ND	0.001 mg/L

QUALITY CONTROL DATA:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptable Range</u>
1,3-Dimethyl-2-nitrobenzene	98	70-130
Perylene-d12	98	70-130
Pyrene-d10	102	70-130

ND - NOT DETECTED

TEST PERFORMED AT:

NEL Laboratories



**CLIENT:** Quality Control Sample  
**PROJECT:** VERDI SPRINGS - SPRING  
**CLIENT ID:** 148541  
**MATRIX:** Drinking Water  
**DATE SAMPLED:** N/A  
**EPA METHOD:** 525.2 - REV. 2.0, 1995

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1660 N. Virginia St.  
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(775) 688-1335  
FAX: (775) 688-1460

<u>Parameter</u>	<u>NEL Sample ID Number</u>	<u>Spike Amount</u>	<u>Spike Result</u>	<u>Percent Recovery</u>	<u>Acceptable Range</u>	<u>RPD</u>
Hexachlorocyclopentadiene	0122E1 525-LCS	1	1	100	3-175	
Propachlor	0122E1 525-LCS	1	1.5	150	74-170	
Hexachlorobenzene	0122E1 525-LCS	1	1.1	110	63-129	
Simazine	0122E1 525-LCS	1	1.35	135	60-145	
Atrazine	0122E1 525-LCS	2	1.4	70	69-157	
Alachlor	0122E1 525-LCS	2	1.34	67	69-170	
Metribuzin	0122E1 525-LCS	1	1.4	140	69-165	
Metolachlor	0122E1 525-LCS	1	1.4	140	70-164	
Butachlor	0122E1 525-LCS	1	1.34	134	79-155	
Di(2-ethylhexyl) adipate	0122E1 525-LCS	1	1.25	125	75-155	
Di(2-ethylhexyl) phthalate	0122E1 525-LCS	1	1.4	140	73-163	
Benzo (a) pyrene	0122E1 525-LCS	1	1.25	125	58-153	
Nitrobenzene	0122E1 525-LCS	1	1.03	103	70-130	
EPTC	0122E1 525-LCS	1	1.4	140	79-163	
2,6-Dinitrotoluene (DNT)	0122E1 525-LCS	1	0.77	77	58-171	
2,4-Dinitrotoluene (DNT)	0122E1 525-LCS	1	0.84	84	65-149	
Molinate	0122E1 525-LCS	1	1.4	140	89-153	
Terbacil	0122E1 525-LCS	1	1.28	128	60-147	



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Reno, Nevada 89503-1783  
(775) 688-1335  
FAX: (775) 688-1460

CLIENT: WASHOE COUNTY WATER RESOURCES  
PROJECT: VERDI SPRINGS - SPRING  
CLIENT ID: 148541  
TEST: N-Methylcarbamoyloximes & N-Methylcarbamates by EPA 531.1  
NEL ID #: R0101037-01 DATE SAMPLED: 1/16/2001  
MATRIX: DRINKING WATER EXTRACTED: 1/25/2001  
ANALYST: WSS Reno Division ANALYZED: 2/14/2001

<u>Parameter</u>	<u>Result</u>	<u>Reporting Limit</u>
Aldicarb	ND	0.001 mg/L
Aldicarb Sulfoxide	ND	0.001 mg/L
Aldicarb Sulfone	ND	0.001 mg/L
Carbaryl	ND	0.001 mg/L
Carbofuran	ND	0.004 mg/L
3-Hydroxycarbofuran	ND	0.001 mg/L
Methiocarb	ND	0.002 mg/L
Methomyl	ND	0.001 mg/L
Oxamyl	ND	0.001 mg/L
Baygon (Propoxur)	ND	0.001 mg/L

ND - NOT DETECTED

TEST PERFORMED AT:

NEL Laboratories



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Nevada State Health Laboratory  
1660 N. Virginia St.  
Reno, Nevada 89503-1783  
(775) 688-1335  
FAX: (775) 688-1460

CLIENT: METHOD BLANK  
PROJECT: VERDI SPRINGS - SPRING  
CLIENT ID: 148541  
TEST: N-Methylcarbamoyloximes & N-Methylcarbamates by EPA 531.1  
NEL ID #: 012501-H1-BLK DATE SAMPLED: N/A  
MATRIX: DRINKING WATER EXTRACTED: 1/25/2001  
ANALYST: WSS Reno Division ANALYZED: 2/14/2001

<u>Parameter</u>	<u>Result</u>	<u>Reporting Limit</u>
Aldicarb	ND	0.001 mg/L
Aldicarb Sulfoxide	ND	0.001 mg/L
Aldicarb Sulfone	ND	0.001 mg/L
Carbaryl	ND	0.001 mg/L
Carbofuran	ND	0.004 mg/L
3-Hydroxycarbofuran	ND	0.001 mg/L
Methiocarb	ND	0.002 mg/L
Methomyl	ND	0.001 mg/L
Oxamyl	ND	0.001 mg/L
Baygon (Propoxur)	ND	0.001 mg/L

ND - NOT DETECTED

TEST PERFORMED AT:

NEL Laboratories



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SCHOOL OF MEDICINE

Nevada State Health Laboratory  
1660 N. Virginia St.  
Reno, Nevada 89503-1783  
(775) 688-1335  
FAX: (775) 688-1460

CLIENT: Quality Control Sample  
PROJECT: VERDI SPRINGS - SPRING  
CLIENT ID: 148541  
MATRIX: Drinking Water  
DATE SAMPLED: N/A  
EPA METHOD: 531.1

Parameter	NEL Sample ID Number	Spike Amount	Spike Result	Percent Recovery	Acceptable Range	RPD
Aldicarb	012501-H1-LCS	10	13.5	135 Ja	70-130	
Aldicarb	R0101037-01-MS	10	10.1	101	70-130	
Aldicarb Sulfoxide	012501-H1-LCS	10	8.87	89	70-130	
Aldicarb Sulfoxide	R0101037-01-MS	10	7.72	77	70-130	
Aldicarb Sulfone	012501-H1-LCS	10	8.77	88	75-116	
Aldicarb Sulfone	R0101037-01-MS	10	8.26	83	75-116	
Carbaryl	012501-H1-LCS	10	7.75	78	72-121	
Carbaryl	R0101037-01-MS	10	10.7	107	72-121	
Carbofuran	012501-H1-LCS	10	11	110	75-122	
Carbofuran	R0101037-01-MS	10	9.16	92	75-122	
3-Hydroxycarbofuran	012501-H1-LCS	10	8.29	83	70-130	
3-Hydroxycarbofuran	R0101037-01-MS	10	8.98	90	70-130	
Methiocarb	012501-H1-LCS	10	5.44	54 Ja	70-130	
Methiocarb	R0101037-01-MS	10	9.43	94	70-130	
Methomyl	012501-H1-LCS	10	9.52	95	74-114	
Methomyl	R0101037-01-MS	10	8.11	81	74-114	
Oxamyl	012501-H1-LCS	10	4.39	44 Ja	75-119	
Oxamyl	R0101037-01-MS	10	8.63	86	75-119	
Baygon (Propoxur)	012501-H1-LCS	10	10.4	104	80-115	
Baygon (Propoxur)	R0101037-01-MS	10	9.14	91	80-115	



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FAX: (775) 688-1460

CLIENT: WASHOE COUNTY WATER RESOURCES  
PROJECT: VERDI SPRINGS - SPRING  
CLIENT ID: 148541  
ATEL SAMPLE ID #: MEL01-00642  
MATRIX: DRINKING WATER  
DATE SAMPLED: 1/16/2001  
DATE RECEIVED BY ATEL: 1/18/2001

<u>Parameter</u>	<u>EPA Method</u>	<u>Result</u>	<u>Analyzed Date</u>	<u>Case #</u>	<u>Prep Date</u>	<u>Analyst</u>	<u>Typical Report Limit</u>
Dalapon	515.1	1.4 ug/l	1/27/2001	75-99-0	1/23/2001	DAW	1
Dicamba	515.1	<0.50 ug/l	1/27/2001	1918-00-9	1/23/2001	DAW	0.5
2,4-D**	515.1	<0.10 ug/l	1/27/2001	94-75-7	1/23/2001	DAW	0.1
Dinoseb	515.1	<0.20 ug/l	1/27/2001	88-85-7	1/23/2001	DAW	0.2
Pentachlorophenol	515.1	<0.04 ug/l	1/27/2001	87-86-5	1/23/2001	DAW	0.04
Picloram	515.1	<0.10 ug/l	1/27/2001	1918-02-1	1/23/2001	DAW	0.1
Silvex	515.1	<0.20 ug/l	1/27/2001	93-72-1	1/23/2001	DAW	0.2
Endothall	548.1	<5.0 ug/l	1/23/2001	145-73-3	1/22/2001	DRA	5

(\*\*) Denotes - 2,4-Dichlorophenoxyacetic Acid

Surrogate Recoveries

<u>Surrogate Name</u>	<u>EPA Method</u>	<u>QC Lab #</u>	<u>Percent Recovery</u>	<u>Lower Limit</u>	<u>Upper Limit</u>
DCAA (Sur)	515.1	MEL01-00642	116 %R	70	130

TEST PERFORMED AT:  
Aqua Tech Environmental Laboratories  
6878 S. State Route 100  
Melmore, OH 44845  
Report Approved By:  
Wade T. DeLong

IN TRIPPLICATE  
(PLEASE PRINT OR TYPE)

NEVADA STATE HEALTH LABORATORY  
University of Nevada School of Medicine/38  
Reno, Nevada 89557  
(775) 688-1335

348541

## WATER CHEMISTRY ANALYSIS:

Attn: Fees may apply to some types of samples.

All of the information below must be filled in  
or the analysis will not be performed.

### TYPE OF ANALYSIS:

Check here for ROUTINE DOMESTIC ANALYSIS.

Circle the constituents needed for PARTIAL ANALYSIS.

### SAMPLING INSTRUCTIONS:

The sample submitted must be representative of the source. Spring and surface water samples should be as free of dirt and debris as possible. Wells should be pumped thoroughly before sampling, changing the water in the casing at least three times. Product water from filters should be sampled after running for about ten (10) minutes.

Sampled by John Hulett Date 1-16-01  
Owner ..... Phone .....

Address ..... State .....

City ..... State .....

### REPORT TO:

Name Terri Svetick - Washoe County, Dept of Water Resources  
Address 4930 Energy Way  
City Reno  
State NV Zip 89502

State NV County Washoe  
Township 19 Range 18 Section 8  
General Location Verdi  
Source Address Verdi Springs Water Co - Springs

### REASON FOR ANALYSIS:

- Loan  
 Personal health reasons  
 Purchase of the property  
 Rental or sale of property  
 Subdivision approval  
 Other SDWA

### USE OF WATER:

- Domestic drinking water  
 Geothermal  
 Industrial or mining  
 Irrigation  
 Other

Initials .....

### SOURCE OF WATER:

Filter  Yes  No  
Public  Yes  No  
Spring Verdi spring  
Well ..... Depth ..... ft. Casing diameter ..... in.  
Hot ..... Cold ..... Casing depth ..... ft.  
IN USE:  Yes  No

The results below are representative only of the sample submitted to this laboratory.

FOR LABORATORY USE ONLY						PRINT OTHER DESIRED CONSTITUENTS BELOW			
Constituent	ppm	Constituent	ppm	Constituent	ppm	Constituent	S.U.	Constituent	ppm
T.D.S. @ 180° C.		Chloride		Iron		Color		Cd	
Hardness		Nitrate		Manganese		Turbidity		Cr	
Calcium		Alkalinity		Copper		pH		Hg	
Magnesium		Bicarbonate		Zinc				Se	
Sodium		Carbonate		Barium				Sh	
Potassium		Fluoride						Be	
Sulfate		Arsenic						Ji	
		Gross A		MBSAS		CN-			
		Gross B				NO2		X	
Fee		Remarks							
Collected by									
PWS I.D.									
SDWA — Pri.		Sec.							
1st		2nd		3rd					
Date Rec'd		Init.							

ppm = parts per million. milligrams per liter; S.U. = Standard Units

(Rev. 6/9)