



COUNTY OF SONOMA PERMIT AND RESOURCE MANAGEMENT DEPARTMENT

2550 Ventura Avenue, Santa Rosa, CA 95403-2829
(707) 565-1900 FAX (707) 565-1103

CERTIFICATION OF WATER YIELD IN WATER SCARCE AREAS

The Permit and Resource Management Department shall be notified 24 hours in advance of this test

Water Yield # _____

Well Permit # WEL15-0091

I. Individual performing test: Cody Monday

II. Type of license/registration, number and expiration date: C61/D21 #903708 Exp 9/30/2017

III. Location of well:
Address: 3550 Porter Creek Rd, Santa Rosa CA 95404 A.P. #: 028 070 029

IV. Type and model of test pump: Grundfos 10SQ Sub

V. Test pump setting depth: 227 Feet

VI. Maximum reported yield for this pump type at this setting: 13.9 GPM

VII. Type of discharge measurement method: Meter/S.Watch/Bucket

VIII. Type and model of flow meter (or provide an accurate description of weir or orifice plate):
5/8" Meter Meter

Geographic coordinates (Plane Coordinate Method or distance from fixed landmarks): N38deg 33.385' W122deg 41.172'

IX. Estimated elevation of well head: 657 Feet

X. Initial static water level (include measuring points such as top of casing, surface seal, access port): 17.1 Feet
Measured from top of casing. Casing is 17 inches above grade.

XI. Date & time of initial static water level measurement: 2015-12-09 8:05 a.m./p.m.

- A. Discharge Rate: 8.2 GPM
- B. Dynamic Water Level: 227 Feet
- C. Specific Capacity: 0.035
- D. Pump Test duration: 14 Hours 35 Minutes

XII. Immediately after the test take the following measurements:

- A. Dynamic water level: 227 Feet
- B. Final discharge rate: 7.5 GPM

XIII. Post - Test Measurement:

- A. Dynamic water level: 227 Feet
- B. Static water level: 17.1 Feet
- C. Percentage of recovery of final static level: 95.8%

Testing performed by (signature): *Cody Monday*

Date: 12/9/15 Company: Ray's Well Testing Service Phone Number: 707 823 3191

Approved _____ Denied _____ Specialist _____ Date _____

Well Pump Test Data Recordation

Address: 3550 Porter Creek Rd, Santa Rosa CA 95404 A.P.# 028-070-029

Date	Time	Interval	SWL	GPM	Comments	Water Color	Sand
12/9/15	8:05 AM	1 Min	17.1'	8.2		Grey	No
12/9/15	8:06 AM	1 Min	25.2'	8.2		'	'
12/9/15	8:07 AM	1 Min	33.1'	8.1		'	'
12/9/15	8:08 AM	1 Min	37.5'	8.1		'	'
12/9/15	8:09 AM	1 Min	41.1'	8		'	'
12/9/15	8:10 AM	5 Mins	44.1'	10.5		'	'
12/9/15	8:15 AM	5 Mins	67.1'	10.4		'	'
12/9/15	8:20 AM	5 Mins	80.1'	10.2		'	'
12/9/15	8:25 AM	5 Mins	92'	11.4		'	'
12/9/15	8:30 AM	5 Mins	102.1'	11		'	'
12/9/15	8:35 AM	5 Mins	110.5'	11		'	'
12/9/15	8:40 AM	5 Mins	116.1'	12.1		'	'
12/9/15	8:45 AM	5 Mins	125.2'	13.9		'	'
12/9/15	8:50 AM	5 Mins	137'	13.8		'	'
12/9/15	8:55 AM	5 Mins	146.5'	13.4		'	'
12/9/15	9:00 AM	5 Mins	155'	13.3		'	'
12/9/15	9:05 AM	5 Mins	162.6'	12.9		'	Pinch Grey
12/9/15	9:10 AM	20 Mins	169.1'	12.9		'	'
12/9/15	9:30 AM	20 Mins	192.9'	12		'	'
12/9/15	9:50 AM	20 Mins	210'	11.1		'	'
12/9/15	10:10 AM	30 Mins	222.1'	10.6		'	'
12/9/15	10:40 AM	30 Mins	227'	9.3	Start 12 Hour Test	'	'
12/9/15	11:10 AM	30 Mins	227'	8.8		'	'
12/9/15	11:40 AM	30 Mins	227'	8.6		'	'
12/9/15	12:10 PM	30 Mins	227'	8.4		Light Grey	No
12/9/15	12:40 PM	30 Mins	227'	8.1		'	'
12/9/15	1:10 PM	30 Mins	227'	7.9		'	'
12/9/15	1:40 PM	30 Mins	227'	7.7		'	'
12/9/15	2:10 PM	30 Mins	227'	7.6		'	'
12/9/15	2:40 PM	30 Mins	227'	7.6		'	'
12/9/15	3:10 PM	30 Mins	227'	7.6		'	'
12/9/15	3:40 PM	30 Mins	227'	7.6		'	'
12/9/15	4:10 PM	30 Mins	227'	7.6		'	'
12/9/15	4:40 PM	30 Mins	227'	7.6		'	'
12/9/15	5:10 PM	30 Mins	227'	7.6		'	'
12/9/15	5:40 PM	30 Mins	227'	7.5		'	'
12/9/15	6:10 PM	30 Mins	227'	7.5		'	'
12/9/15	6:40 PM	30 Mins	227'	7.5		'	'
12/9/15	7:10 PM	30 Mins	227'	7.5		'	'
12/9/15	7:40 PM	30 Mins	227'	7.5		'	'
12/9/15	10:40 PM	180 Mins	227'	7.5	End 12 Hr Test	'	'
12/11/15	3:45 PM	72 Hrs. or	25.9'	-	Recovery		

Calculation of Well Recovery

(Worksheet example taken from PRMD No. 9-2-28)

1. Determine the water level draw down by subtracting the initial static water level measurement from the stabilized pumping level. Record this result as the well draw down.
2. Next determine the water level recovery by subtracting the post test (within 72 hours) static water level from the stabilized dynamic pumping level. Record this result as the well recovery.
3. Next determine the percent recovery of the well. Divide the water level recovery by the water level draw down and multiply by 100. Record this result as the percent well recovery.

Example:

a.	Initial static water level:	<u>17.1 Feet</u>	(measured value)
b.	*Post test static water level:	<u>25.9 Feet</u>	(measured value)
b.1.	Time (hours) of measurement:	<u>41 Hrs 5 Min</u>	(within 72 hours)
c.	**Stabilized pumping level:	<u>227 Feet</u>	(measured value)
d.	Draw down:	<u>209.9 Feet</u>	(calculate by subtracting A from C)
e.	Recovery:	<u>201.1 Feet</u>	(calculate by subtracting B from C)
f.	Percent recovery:	<u>95.8%</u>	(calculate by dividing E by D and multiplying result by 100)

Well percent recovery (F) must be 90% or greater within a 72 hour period.

* The static water level after 72 hours or less post pump test.

** Kleinfelder refers to this as the dynamic pumping level.

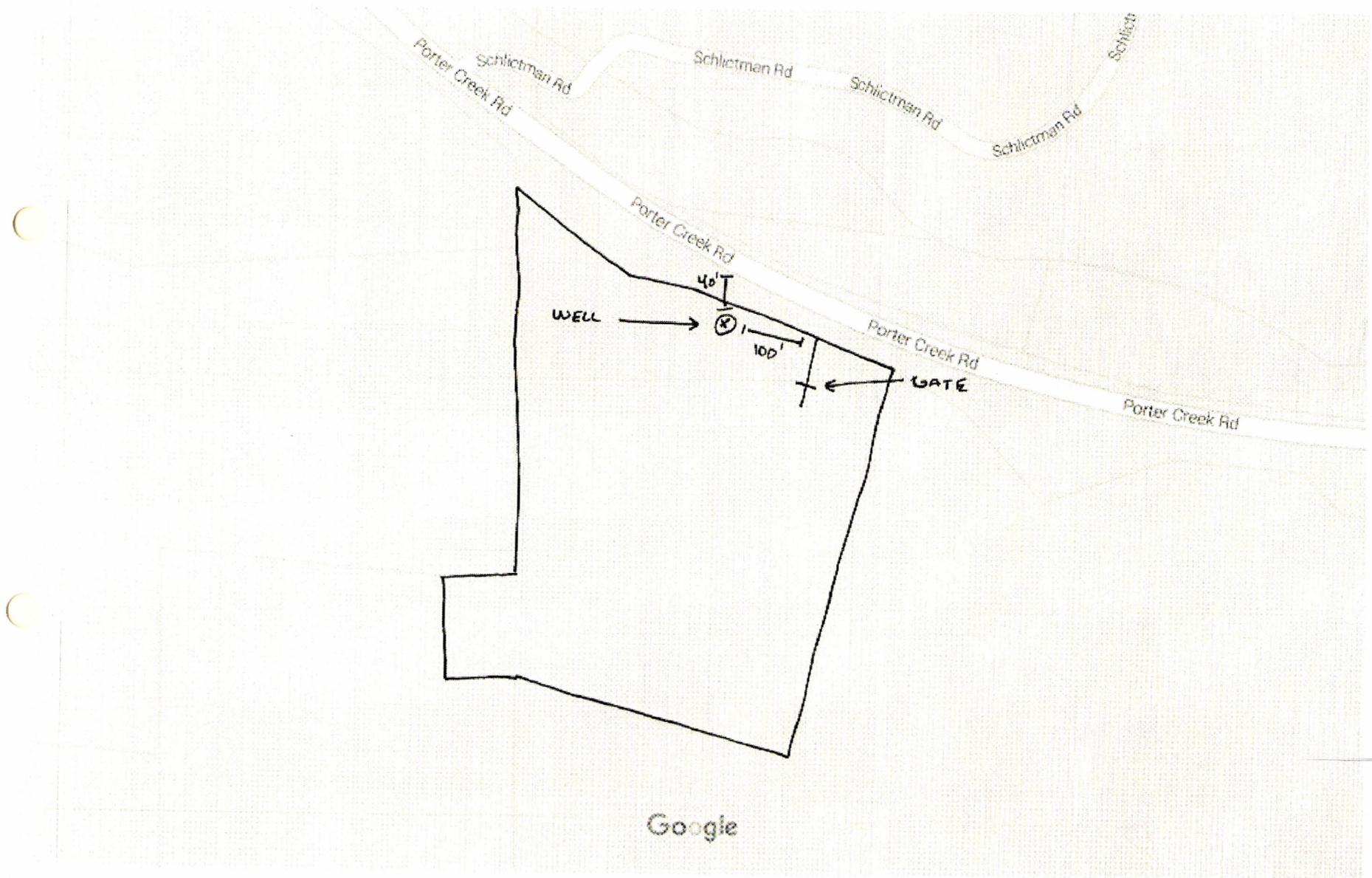


WELL LOCATION PLOT MAP

Parcel Number: 028 070 029

Address: 3550 Porter Creek Rd,
Santa Rosa Ca 95404

Google Maps





WELL TESTING SERVICE

Phone: (707) 823-3191 Fax: (707) 317-0057 Email: rayswelltesting@gmail.com
Address: 4853 Vine Hill Rd, Sebastopol Ca 95472 CA Lic. #: 903708

Report of Water Analysis

DATE: 12/9/15

CUSTOMER NAME: Bruce Mentzer

PROPERTY ADDRESS: 3550 Porter Creek Rd Santa Rosa CA 95404

Table with 3 columns: PARAMETER, RESULT (Raw - Well), and RESIDENTIAL STANDARDS. Rows include PH, TOTAL IRON, TOTAL MANGANESE, CONDUCTIVITY, NITRATES, SILICA, and VISUAL APPEARANCE.

*Silica is increasingly reported as a nuisance at levels above 50 mg/l. 30 mg/l to 70 mg/l is common.

Abbreviations: MCL = Maximum Contaminant Level
mg/l = Milligrams Per Liter
us/cm = Microsiemens per centimeter
< = Less Than
> = Greater Than
NT = Not Tested
ND = Not Detected

IMPORTANT INFORMATION ON THE LIMITATIONS OF THIS REPORT:

The purpose of this report is to provide information regarding the general mineralogical character of a water supply. Unless specifically noted, this report does not include analysis for bacteria or any other health related contaminants. This analysis alone is therefore not suitable for determining the safety of a drinking water supply. This report is intended for the sole and exclusive use of our client named above. Our liability for error or omissions is expressly limited to the amount paid for the analysis.

ANALYTICAL SCIENCES

AGRICULTURAL SUITABILITY

Parameter	Ranges
Alkalinity	<100 ppm may be corrosive 100-200 ppm ideal >150 ppm scaling may occur
Boron	<0.5 ppm safe 0.5-1.0 ppm potential problems with sensitive crops 1.0-2.0 ppm semi tolerant crops 2.0-10 ppm tolerant crops
Chloride	<70 ppm generally safe for plants 70-140 ppm Sensitive Plants 140-350 ppm Moderately Tolerant Plants show injury >350 ppm Can cause severe problems >250 ppm Corrosion salty taste
Conductivity	<750 uS/cm suitable 750-2000 uS/cm ok may need soil leaching >2000 uS/cm not suitable
Hardness	150-300 ppm moderate plugging >300 ppm severe plugging
Iron	0.15-0.22 ppm potential hazard for drip systems 0.2-1.5 ppm moderate clogging hazard >0.5 ppm should not be used for drip irrigation without treatment >1.5 ppm severe clogging
Manganese	<0.1 ppm slight 0.1-1.5 ppm moderate clogging >1.5 ppm severe
Nitrate	45 ppm Drinking Water MCL <i>can use nitrate number for conversion into nitrogen fertilizer requirements for crops</i>
pH	6.0-7.0 most desirable
SAR	<1 excellent <2 good <3 fair >4 poor
Silica	1-100 ppm common well water ranges scaling can occur at high levels
Sodium	<50 ppm is desirable
TDS	<500 ppm is desirable (MCL = 500)



Report Date: December 14, 2015

Laboratory Report

Nick Brasesco
Ray's Well Testing Service
4853 Vine Hill Rd
Sebastopol, CA 95472

Project Name: **3550 Porter Creek**

Lab Project Number: **5121006**

This 5 page report of analytical data has been reviewed and approved for release.

Mark A. Valentini, Ph.D.

Laboratory Director



Total Coliform & E. Coli

Lab#	Sample ID	Compound Name	Result (MPN/100 mL)	RDL (MPN/100 mL)
5121006-01	Raw Well	Total Coliform	1700	1
		E. Coli	<1 QT	1

Date Sampled:	12/09/15	Date Analyzed:	12/11/15	QC Batch:	B015267
Date Received:	12/10/15	Method:	SM 9223 B-2004		

Metals by Graphite Furnace

Lab#	Sample ID	Compound Name	Result (µg/L)	RDL (µg/L)
5121006-01	Raw Well	Arsenic (As)	ND	2.0

Date Sampled:	12/09/15	Date Analyzed:	12/11/15	QC Batch:	B015261
Date Received:	12/10/15	Method:	EPA 200.9		

Metals (ug/L)

Lab#	Sample ID	Compound Name	Result (µg/L)	RDL (µg/L)
5121006-01	Raw Well	Zinc (Zn)	ND	50

Date Sampled:	12/09/15	Date Analyzed:	12/11/15	QC Batch:	B015259
Date Received:	12/10/15	Method:	EPA 200.7		

Metals (mg/L)

Lab#	Sample ID	Compound Name	Result (mg/L)	RDL (mg/L)
5121006-01	Raw Well	Boron (B)	0.57	0.050
		Sodium (Na)	67	2.0

Date Sampled:	12/09/15	Date Analyzed:	12/14/15	QC Batch:	B015259
Date Received:	12/10/15	Method:	EPA 200.7		



Hardness

Lab#	Sample ID	Compound Name	Result (mg/L)	RDL (mg/L)
5121006-01	Raw Well	Calcium (Ca)	42	0.25
		Magnesium (Mg)	33	0.10
		Hardness	240	1.0

Date Sampled:	12/09/15	Date Analyzed:	12/11/15	QC Batch:	B015259
Date Received:	12/10/15	Method:	SM 2340 B-2011		

Alkalinity

Lab#	Sample ID	Compound Name	Result (mg CaCO3/L)	RDL (mg CaCO3/L)
5121006-01	Raw Well	Total Alkalinity	280	5.0
		Bicarbonate Alkalinity	280	5.0
		Carbonate Alkalinity	ND	5.0
		Hydroxide Alkalinity	ND	5.0

Date Sampled:	12/09/15	Date Analyzed:	12/11/15	QC Batch:	B015265
Date Received:	12/10/15	Method:	SM 2320 B-2011		

Anions

Lab#	Sample ID	Compound Name	Result (mg/L)	RDL (mg/L)
5121006-01	Raw Well	Chloride	13	0.80
		Sulfate as SO4	53	2.0

Date Sampled:	12/09/15	Date Analyzed:	12/11/15	QC Batch:	B015279
Date Received:	12/10/15	Method:	EPA 300.0		

Total Dissolved Solids

Lab#	Sample ID	Compound Name	Result (mg/L)	RDL (mg/L)
5121006-01	Raw Well	Total Dissolved Solids	390	10

Date Sampled:	12/09/15	Date Analyzed:	12/11/15	QC Batch:	B015244
Date Received:	12/10/15	Method:	SM 2540 C-2011		



Sodium Absorption Ratio

Lab#	Sample ID	Compound Name	Result (SAR)	RDL (SAR)
5121006-01	Raw Well	Sodium Absorption Ratio (SAR)	1.89	0.00

Date Sampled:	12/09/15	Date Analyzed:	12/14/15	QC Batch:	B015259
Date Received:	12/10/15	Method:	SAR by Calculation		

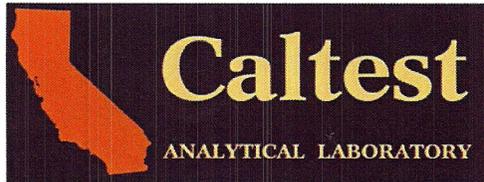


Notes and Definitions

QT	The bacterial test utilized is a quantitative test. A result of less than 1 (<1) is indicating bacteria are "absent" in 100 milliliters of sample water.
RDL	Reporting Detection Limit
ND	Analyte NOT DETECTED at or above the reporting detection limit (RDL)
RPD	Relative Percent Difference
NR	Not Reported

Please Note: The drinking water Maximum Contamination Limits (MCL) set by the California Department of Health Services are as follows:

Arsenic (10 ug/L)
Iron (300 ug/L)
Manganese (50 ug/L)
Nitrate (45 mg/L)
Lead (15 ug/L)
Total Coliform (<1 MPN/100 mL)



ENVIRONMENTAL ANALYSES

Dear Client:

Caltest provides a variety of water analyses, but cannot provide an opinion regarding the quality of the water or its suitability for any particular use. If you would like information, please feel free to contact any of the following suggested resources listed below.

Human Health Concerns:

EPA Safe Drinking Water Hotline	800/426-4791
Napa County Environmental Health	707/253-4471
Sonoma County Environmental Health	707/565-6565

Irrigation Concerns:

University of California at Davis Department of Land, Air, and Water Resources/ Cooperative Extension. Ask for Blaine Hanson or Steve Grattan	530/752-1130
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Thank you for choosing Caltest for your water testing needs. Please feel free to contact us if we can provide you with any further testing assistance.

Sincerely,
Caltest Analytical Laboratory

Todd M Albertson
Vice President

(For your information, the next page contains various regulatory limits)

The following information is from California Code of Regulations Title 22, Napa County Env. Health "Interpreting Drinking Water Test Results" and UC Davis Department of Land, Air, and Water Resources - Cooperative Extension. This information is provided for your convenience. Caltest does not provide consultation regarding the suitability of water for a given purpose.

Arsenic has a drinking water Maximum Contaminant Level (MCL) of 10 ug/L (ppb) or 0.010 mg/L (ppm)

Boron has an agricultural recommended limit and a state drinking water Action (Advisory) Limit of 1000 ug/L (ppb) or 1 mg/L (ppm). Boron affects the health and production of boron sensitive plants. Drinking water with greater than 10 times the Action Limit Level are recommended for removal from service.

Calcium and Magnesium are related to water hardness. See Hardness remarks.

Chloride has a drinking water Maximum Contaminant Level (MCL) of 600 mg/L, with a recommended level of 250 mg/L and a short-term limit of 600 mg/L.

Copper has a drinking water Maximum Contaminant Level (MCL) of 1000 ug/L (ppb) or 1 mg/L (ppm).

Electrical Conductance has a drinking water Maximum Contaminant Level (MCL) of 1,600 umhos/cm, with a recommended level of 900 umhos/cm and a short term limit of 2,200 umhos/cm. Electrical Conductance is a measure of the ability of a water to conduct an electrical current and is expressed in micromhos per centimeter at 25 degrees C.

Fluoride has a recommended level of 1.0 mg/L in temperate climates. Fluoride in concentrations greater than 3 mg/L can cause dental fluorosis (a brownish discoloration of the teeth).

Iron has a drinking water Maximum Contaminant Level (MCL) of 300 ug/L (ppb) or 0.3 mg/L (ppm).

Hardness is due primarily to calcium and magnesium carbonates and bi-carbonates. Up to 60 mg/L is SOFT. Between 60 to 120 mg/L is MODERATE (typically most desirable). Between 120 to 180 mg/L is HARD. Over 180 mg/L is VERY HARD.

Manganese has a drinking water Maximum Contaminant Level (MCL) of 50 ug/L (ppb) or 0.05 mg/L (ppm).

Sodium has a recommended limit of 100 mg/L. According to the American Heart Association, water containing more than 270 mg/L should not be consumed by those on a moderately restricted sodium diet.

Nitrate as N, has a drinking water Maximum Contaminant Level (MCL) of 10 mg/L.

Nitrate as NO₃ has a drinking water MCL of 45 mg/L.

Lead has a drinking water Action Limit of 15 ug/L (ppb) or 0.015 mg/L (ppm).

pH suggested level is 6.5 - 8.5.

Silica has a recommended limit of 70 mg/L. Silica in water may etch various household materials such as leaded crystal, marble, tile, windows, and porcelain.

Sulfate has a drinking water Maximum Contaminant Level (MCL) of 500 mg/L, with a recommended level of 250 mg/L and a short term limit of 600 mg/L.

Zinc has a drinking water Maximum Contaminant Level (MCL) of 5000 ug/L (ppb) or 5 mg/L (ppm).

www.CaltestLabs.com

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Revised 06/29/11