



Alpha Analytical Laboratories Inc.

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CHEMICAL EXAMINATION REPORT

Page 2 of 3

Love's Point Ltd.
P.O. Box 1260
Lower Lake, CA 95457
Attn: Cliff Rediger

Report Date: 09/23/08 14:20
Project No: [none]
Project ID: Ag. Dev.

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
0810408	09/10/2008 13:10	ZCLIRED	

Alpha Analytical Laboratories, Inc.

METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	PQL	NOTE
Clear Lake 5182 Lake Rd., Lower Lake Ca 95457 (0810408-0) Sample Type: Water					Sampled: 09/10/08 09:00		
Metals by EPA 200 Series Methods							
Boron	EPA 200.7	A181222	09/12/08	09/17/08	1	1.1 mg/l	0.050
Calcium	"	"	"	"	"	28 "	1.0
Iron	"	"	"	"	"	0.24 "	0.10
Magnesium	"	"	"	"	"	20 "	1.0
Manganese	"	"	"	"	"	0.023 "	0.020
Potassium	"	"	"	"	"	2.3 "	1.0
Sodium	"	"	"	"	"	13 "	1.0
Conventional Chemistry Parameters by APHA/EPA Methods							
Bicarbonate	SM2320B	A181007	09/10/08	09/10/08	1	180 mg/l	5.0
Carbonate	"	"	"	"	"	ND "	5.0
Hardness, Total	SM2340B	A181222	09/12/08	09/17/08	"	151 "	5
pH	SM4500-11+ B	A181007	09/10/08	09/10/08	"	8.4 pH Units	1.0 T-14
Specific Conductance (EC)	EPA 120.1	"	"	"	"	310 umhos/cm	20
Total Dissolved Solids	Calculation	"	"	"	"	160 mg/l	10
Miscellaneous Physical/Conventional Chemistry Parameters							
Sodium Adsorption Ratio-Adj RNA	SAR	A181222	09/12/08	09/23/08	1	0.49 N/A	
Anions by EPA Method 300.0							
Nitrate as NO3	EPA 300.0	A181017	09/10/08	09/11/08	1	ND mg/l	1.0
Chloride	"	"	"	"	"	7.5 "	0.50
Sulfate as SO4	"	"	"	"	"	6.9 "	0.50

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bruce L. Gove
Laboratory Director

9/23/2008



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Notes and Definitions

- T-14 Residual chlorine, dissolved oxygen, and pH must be analyzed in the field to meet the EPA specified 15 minute hold time. Sample was received and analyzed outside of this "window."
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- PQL Practical Quantitation Limit

WATER QUALITY - Guidelines for Irrigation

Interpretation is related to type of problem and its severity but modified by circumstances of soil, crop, and local experience.

TYPE OF PROBLEM

DEGREE OF PROBLEM

	<u>None</u>	<u>Increasing</u>	<u>Very Severe</u>
<u>Salinity</u> ¹			
EC (mmhos/cm or dS/m)	less than 0.75	0.75 - 3.0	more than 3.0
TDS (mg/L)	less than 480	480 - 1920	more than 1920
<u>Permeability</u>			
Low EC (mmhos/cm or dS/m)	more than 0.5	0.5 - 0	-----
Low TDS (mg/L)	more than 320	320 - 0	-----
SAR ²	less than 6.0	6.0 - 9.0	more than 9.0
CO ₃ + HCO ₃ ³	-----	-----	-----
<u>Toxicity</u> ⁴ of specific ions to sensitive crops			
<u>Related to soil</u>			
Sodium (evaluated by SAR)	SAR less than 3	3 - 9	more than 9
Chloride (mc/L)	less than 2	2 - 10	more than 10
(mg/L)	less than 70	70 - 345	more than 345
Boron (mg/L)	1.0	1.0 - 2.0	2.0 - 10.0
<u>Related to foliar adsorption</u>			
<u>Sprinkler irrigated</u> ⁵			
Sodium (mc/L)	less than 3.0	more than 3.0	-----
(mg/L)	less than 70	70	-----
Chloride (mc/L)	less than 3.0	more than 3.0	-----
(mg/L)	less than 100	100	-----
<u>Miscellaneous</u> ⁶			
NO ₃ -N	less than 5	5 - 30	more than 30
HCO ₃ (mc/L)	less than 1.5	1.5 - 8.5	more than 8.5
(mg/L)	less than 40	40 - 520	more than 520
pH	normal range is 6.5 to 8.4		

¹ Assumes water for crop plus needed water for leaching requirement will be applied. Crops vary in tolerance to salinity. Refer to crop tolerance tables.

² SAR means Sodium Adsorption Ratio. Calculated from SAR equals Na divided by the square root of ((HCO₃ divided by Ca) + Mg divided by 2).

(Na equals sodium in mc/l; HCO₃ - Bicarbonate; Ca - Calcium; Mg - magnesium). Permeability problems due to SAR are more likely to occur with swelling clay soils and with low salt water than with high salt water.

³ High CO₃+HCO₃ can result in permeability problems due to precipitation of Ca as lime, which will reduce Ca and increase SAR. Where problems are suspected, evaluate by an adjusted SAR (SAR_{adj} equals SAR (1 + (8.4-pH)). Reference: J.D. Rhoades, 1972, Soil Sci, 113, p. 272-284.

⁴ Most tree crops and woody ornamentals are sensitive to sodium and chloride. Most annual crops are not sensitive (Use salinity tolerance tables). For boron sensitivity, refer to boron tolerance tables.

⁵ Occurrence and severity is directly related to low humidity - high evaporation climatic conditions.

⁶ NO₃-N is problem with certain crops, e.g. sugar beets, grapes; HCO₃ can be problem in sprinkler irrigation due to white carbonate deposit on fruit or leaves.