ITEM 10
Doc 4

Rancho Water

January 15, 2002

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Ms. Tanya Bilezikjian
California Regional Water Quality Control Board
San Diego Region
9174 Skypark Court
Suite 100
San Diego, CA. 92123

SUBJECT: RCWD PERCENT SODIUM VIOLATIONS

Dear Ms. Bilezikjian:

Enclosed is the Sodium Adsorption Ratio (SAR) and the Electrical Conductivity Measurements for the following sample dates: January 18, & 25, 2000 and February 1, 8, & 22, 2000. Please note the Adjusted Sodium Adsorption Ratio (ASAR) is calculated for February 1, 2000.

We request consideration of using Table 3-1, Guidelines for interpretation of water quality for irrigation from the San Diego basin plan to alternatively determine compliance with our present sodium violations during the period of January & February 2000.

If you have further questions please call me at 909-296-6900.

Sincerely,

RANCHO CALIFORNIA WATER DISTRICT

Thomas P. Sales

Thomas P. Sales
Wastewater System Supervisor

Rancho California Water District
42135 Winchester Road • Post Office Box 9017 • Temecula, California 92589-9017 • (909) 296-6900 • FAX (909) 296-6860

Live Stream Effluent	1/18/2000
Sodium Percentage	61
Sodium	160
Calcium	52
Magnesium	17
Potassium	13
Total Cations	11.08
Carbonate+Bicarbonate	
EC	1170
Sodium Adsorption Ratio	4.9
1. Ca+Mg+Na in meq/L	11.0
2. Ca+Mg in meq/L	4.0
3. CO3+HCO3 in meq/L	0.0
1. Table Look Up (pK'2-pK'c)	2.3
2. Table Look Up p(Ca+Mg)	2.7
3. Table Look Up p(Alk)	#N/A
pHc= (pK'2-pK'c)+p(Ca+Mg)+p(Alk)	#N/A
Adjusted Sodium Adsorption Ratio	#N/A

Live Stream Effluent	1/25/2000
Sodium Percentage	61
Sodium	160
Calcium	54
Magnesium	16
Potassium	13
Total Cations	11.37
Carbonate+Bicarbonate	
EC	1080
Sodium Adsorption Ratio	4.9
1. Ca+Mg+Na in meq/L	11.0
2. Ca+Mg in meq/L	4.0
3. CO3+HCO3 in meq/L	0.0
1. Table Look Up (pK'2-pK'c)	2.3
2. Table Look Up p(Ca+Mg)	2.7
3. Table Look Up p(Alk)	#N/A
pHc= (pK'2-pK'c)+p(Ca+Mg)+p(Alk)	#N/A
Adjusted Sodium Adsorption Ratio	#N/A

Live Stream Effluent	2/1/2000
Sodium Percentage	61
Sodium	160
Calcium	52
Magnesium	17
Potassium	13
Total Cations	11.12
Carbonate+Bicarbonate	120
EC	1200
Sodium Adsorption Ratio	4.9
1. Ca+Mg+Na in meq/L	11.0
2. Ca+Mg in meq/L	4.0
3. CO3+HCO3 in meq/L	2.0
1. Table Look Up (pK'2-pK'c)	2.3
2. Table Look Up p(Ca+Mg)	2.7
3. Table Look Up p(Alk)	2.7
pHc= (pK'2-pK'c)+p(Ca+Mg)+p(Alk)	7.7
Adjusted Sodium Adsorption Ratio	8.3

Live Stream Effluent	2/8/2000
Sodium Percentage	61
Sodium	150
Calcium	51
Magnesium	17
Potassium	14
Total Cations	10.97
Carbonate+Bicarbonate	
EC	1180
Sodium Adsorption Ratio	4.6
1. Ca+Mg+Na in meq/L	10.5
2. Ca+Mg in meq/L	4.0
3. CO3+HCO3 in meq/L	0.0
1. Table Look Up (pK'2-pK'c)	2.3
2. Table Look Up p(Ca+Mg)	2.7
3. Table Look Up p(Alk)	#N/A
pHc= (pK'2-pK'c)+p(Ca+Mg)+p(Alk)	#N/A
Adjusted Sodium Adsorption Ratio	#N/A

Live Stream Effluent	2/22/2000
Sodium Percentage	64
Sodium	160
Calcium	48
Magnesium	14
Potassium	13
Total Cations	10.82
Carbonate+Bicarbonate	
EC	1180
Sodium Adsorption Ratio	5.2
1. Ca+Mg+Na in meq/L	10.5
2. Ca+Mg in meq/L	3.6
3. CO3+HCO3 in meq/L	0.0
1. Table Look Up (pK'2-pK'c)	2.3
2. Table Look Up p(Ca+Mg)	2.8
3. Table Look Up p(Alk)	#N/A
pHc= (pK'2-pK'c)+p(Ca+Mg)+p(Alk)	#N/A
Adjusted Sodium Adsorption Ratio	#N/A

Table 3-1. GUIDELINES FOR INTERPRETATION OF WATER QUALITY FOR IRRIGATION[a]

Potential Irrigation Problem	Units	Degree or Restriction on use		
		None	Slight to Moderate	Severe
Salinity (affects crop water availability)				
Electrical Conductivity (EC_w[b])	ds/m or mmho/cm	< 0.7	0.7 - 3.0	> 3.0
TDS	mg/l	< 450	450 - 2000	> 2000
Permeability (affects infiltration rate of water into soil. Evaluate using EC_w and Sodium Adsorption Ratio (SAR) together)[c,d]				
SAR =			and EC_w =	
0 - 3		> 0.7	0.7 - 0.2	< 0.2
3 - 6		> 1.2	1.2 - 0.3	< 0.3
6 - 12		> 1.9	1.9 - 0.5	< 0.5
12 - 20		> 2.9	2.9 - 1.3	< 1.3
20 - 40		> 5.0	5.0 - 2.9	< 2.9
Specified Ion toxicity (affects sensitive crops)				
Sodium (Na)[e,f]				
surface irrigation	SAR	< 3	3 - 9	> 9
sprinkler irrigation	mg/l	< 70	> 70	-----
Chloride (Cl)[e,f]				
surface irrigation	mg/l	< 140	140 - 350	> 350
sprinkler irrigation	mg/l	< 100	> 100	-----
Boron (B)	mg/l	< 0.7	0.7 - 3.0	> 3.0
Miscellaneous effects (affects susceptible crops)				
Nitrogen (Total-N)[g]	mg/l	< 5	5 - 30	> 30
Bicarbonate (HCO_3) (overhead sprinkler only)	mg/l	< 90	90 - 500	> 500
pH		normal range	6.5 - 8.4	
Residual chlorine (overhead sprinkler only)	mg/l	< 1.0	1.0 - 5.0	> 5.0