

**Doria Beach Nanofiltration Plant - Chemicals**

	one	two	
	skid	skids	
<b>Acid Consumption</b>			Sulfuric Acid 93%, H2SO4 (65.7 Baume, not 66) SG=1.8279
ml/min	250	500	
L/hr	15	30	measured for one skid running to get pH = 6.0
gal/hr	4.0	7.9	ask for iron level in acid or have it
gal/day	95	190	analyzed for iron. This has been a problem
lbs/gal	15.2	15.2	in past. Don't use 98% acid.
lbs/day	1452	2904	
mgd feed	1.11	2.22	
<b>ppm 93% acid</b>	<b>157</b>	<b>157</b>	note: original design was for 178 ppm
days per 4000 tank	42	21	

<b>Antiscalant</b>			an organic polymer SG=1.13
ml/min	11	22	
L/hr	0.7	1.3	3 ppm was specified by GE Betz,
gal/hr	0.17	0.35	but metering pump is so slow we are
gal/day	$\frac{1}{2}$ Dose 2.1 4.2	4.2 8.4	concerned about getting good mixing
lbs/gal	9.43	9.43	so we increased speed and dose.
lbs/day	40	79	
mgd feed	1.11	2.22	
<b>ppm antiscalant</b>	<b>4.3</b>	<b>4.3</b>	
days per tote	64	32	

<b>Corrosion Inhibitor</b>			Zinc Orthophosphate also known as ZOP SG=1.4
ml/min	10.5	21	
L/hr	0.6	1.3	AWC promised to do coupon test
gal/hr	0.17	0.33	once NF running every day, call AWC for test
gal/day	4.00	8.00	set up.
lbs/gal	11.7	11.7	5 ppm for two weeks followed by 4 ppm for one week
lbs/day	47	93	then 2.5 ppm. At 2 ppm, phosphate residual should
mgd feed	1.11	2.22	be 0.7 to 0.9
<b>ppm ZOP</b>	<b>5.0</b>	<b>5.0</b>	analyze for zinc and phosphate in finished water and
days/tote	68	34	run coupon tests

<b>50 % Sodium Hydroxide Solution</b>			also known as Caustic Soda (NaOH) SG=1.5253
ml of solution/min	15	30	
L/hr	0.9	1.8	
gal/hr	0.24	0.48	
gal/day	5.7	11.4	
lbs solution /gal	12.7	12.7	
lbs soution/day	73	145	
lbs 100% / day	36	73	
mgd feed	1.11	2.22	
<b>ppm 100% NaOH</b>	<b>3.9</b>	<b>3.9</b>	check finished pH and vary dose to obtain desired pH
days/tote	47	24	

2-8-11

# Dumont Chemical Expenses

Feb 15 - Oct 31 → "2012"

Antiscalant → \$11,453.40

Zink Orthophosphate → \$11,977.20

Sodium Hydroxide → \$4,540.00

(Existing lime softening)

Fluoride → \$6,000.00

Total For Dumont

\$33,970.60