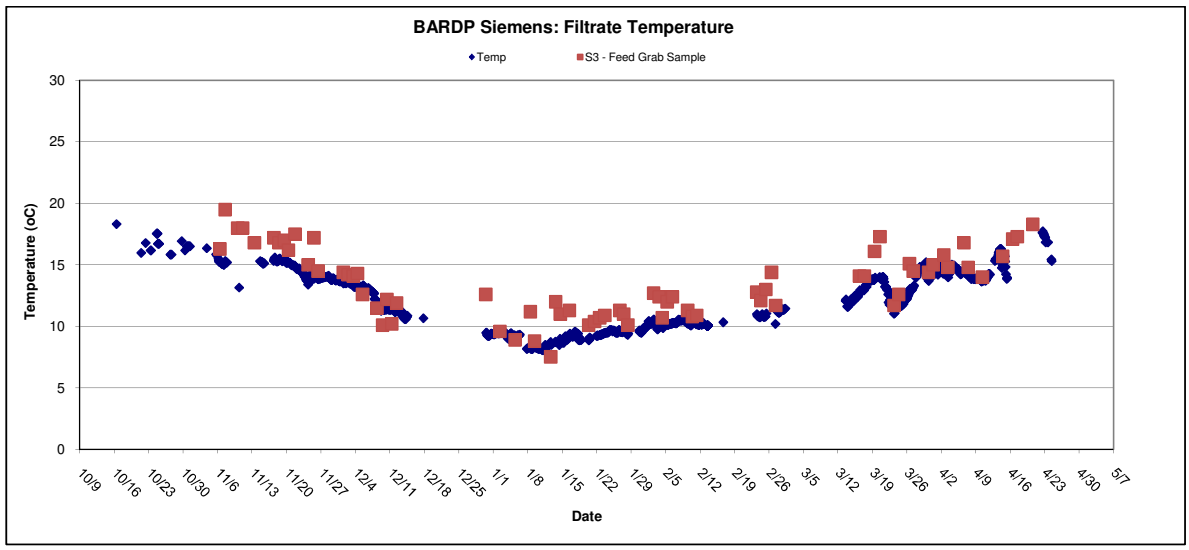
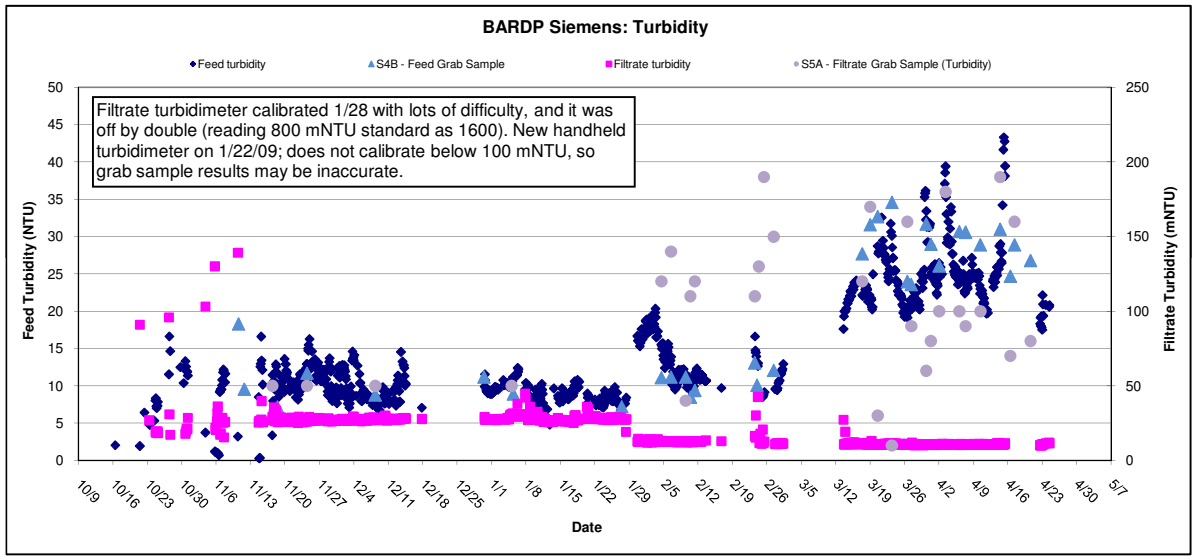
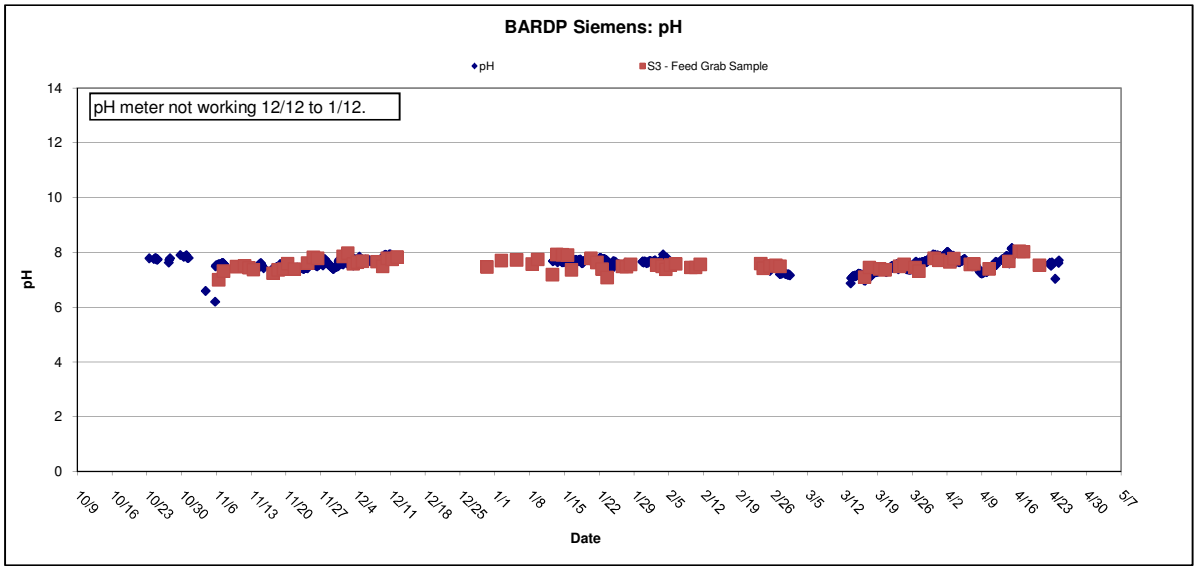
APPENDIX C

Pilot Analytical and Operational Data

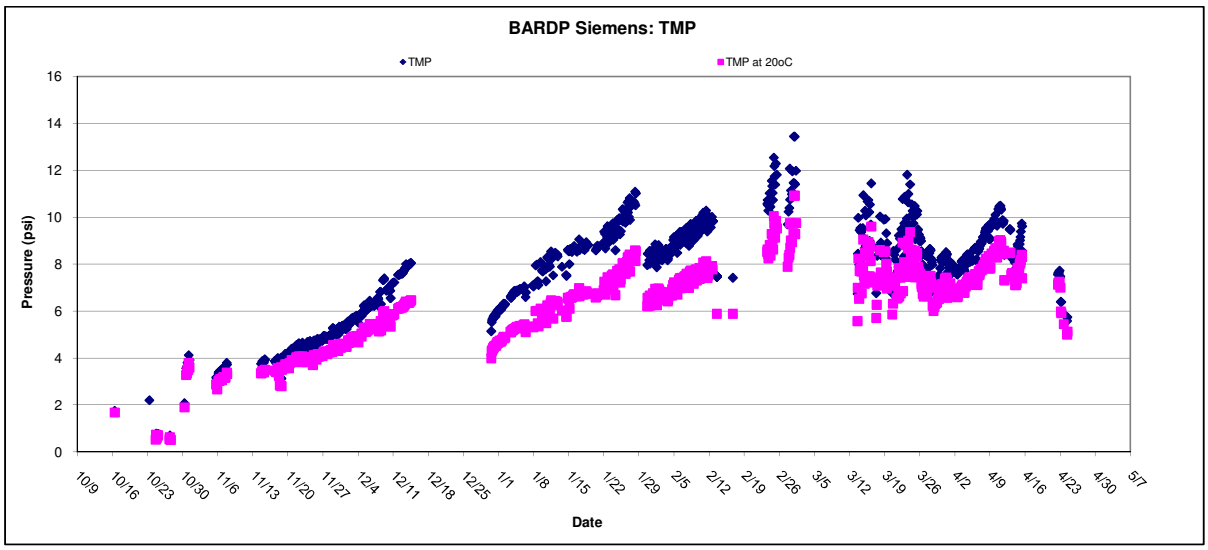
Bay Area Regional Desalination Pilot
Siemens Database

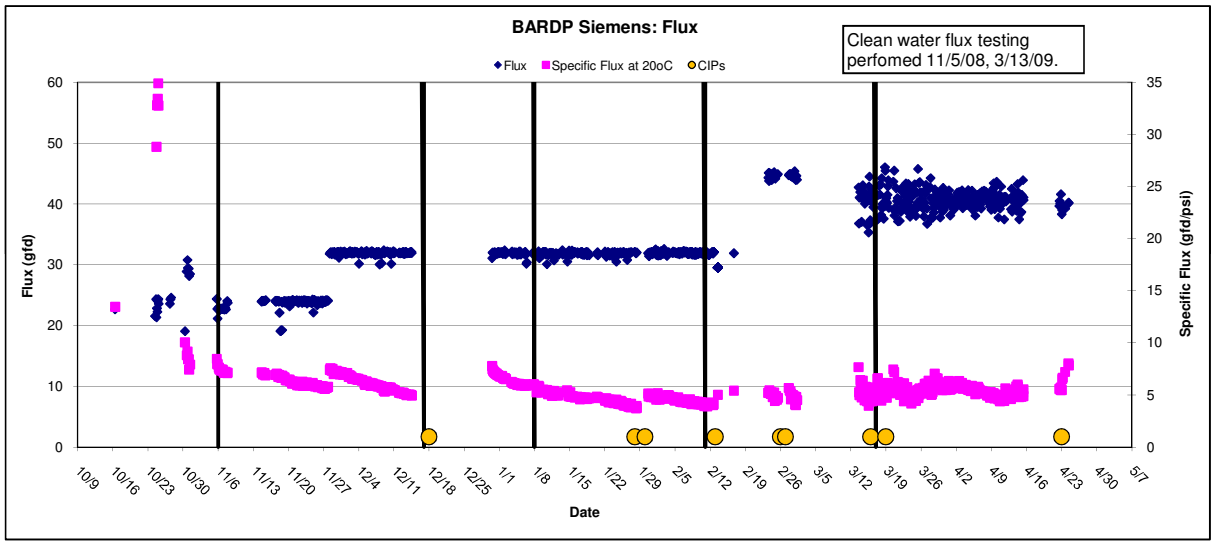


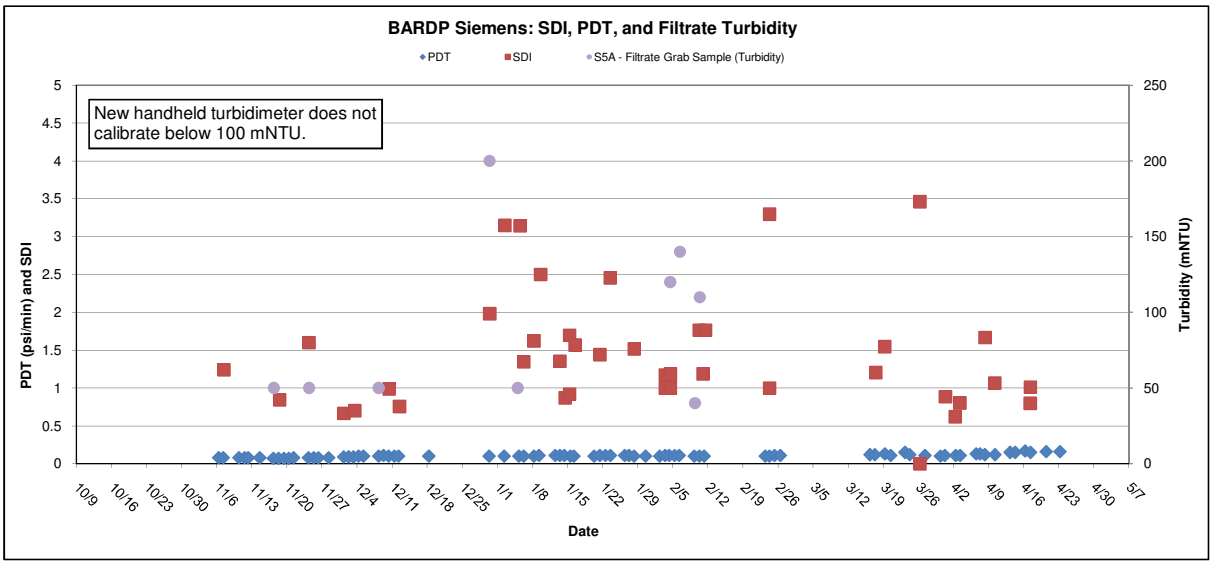




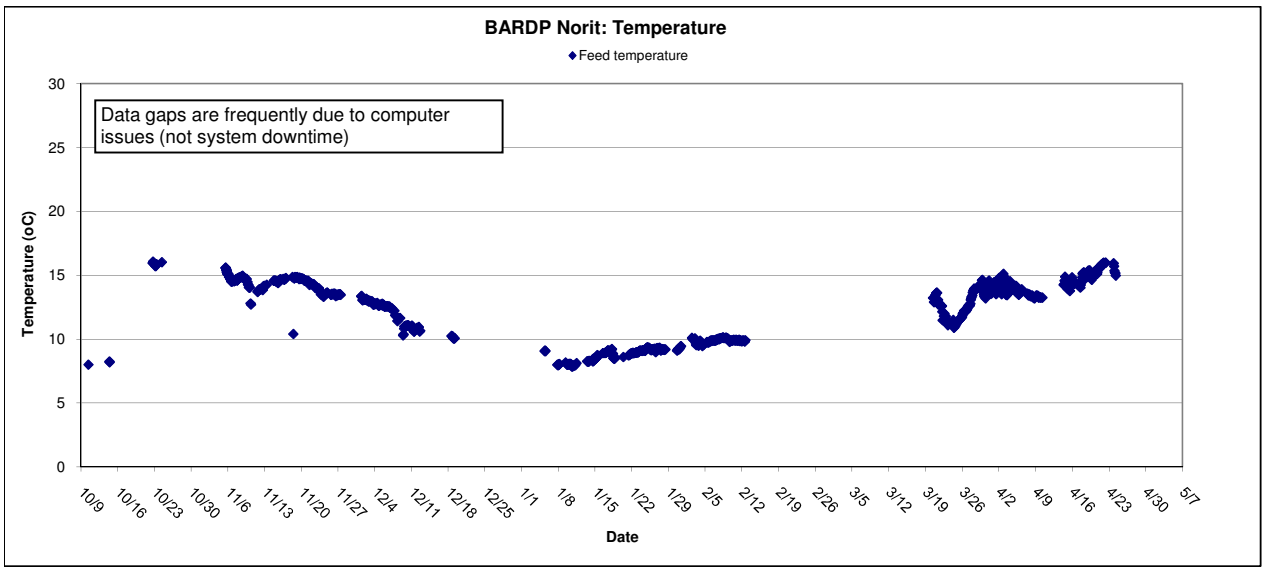
Bay Area Regional Desalination Pilot
Siemens Database

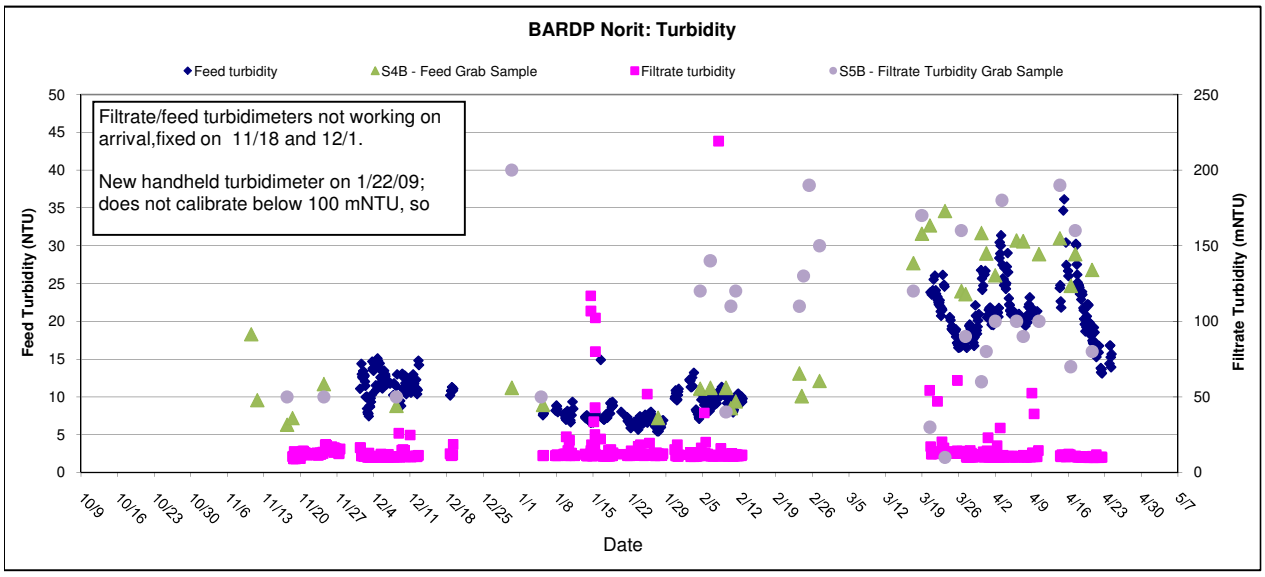


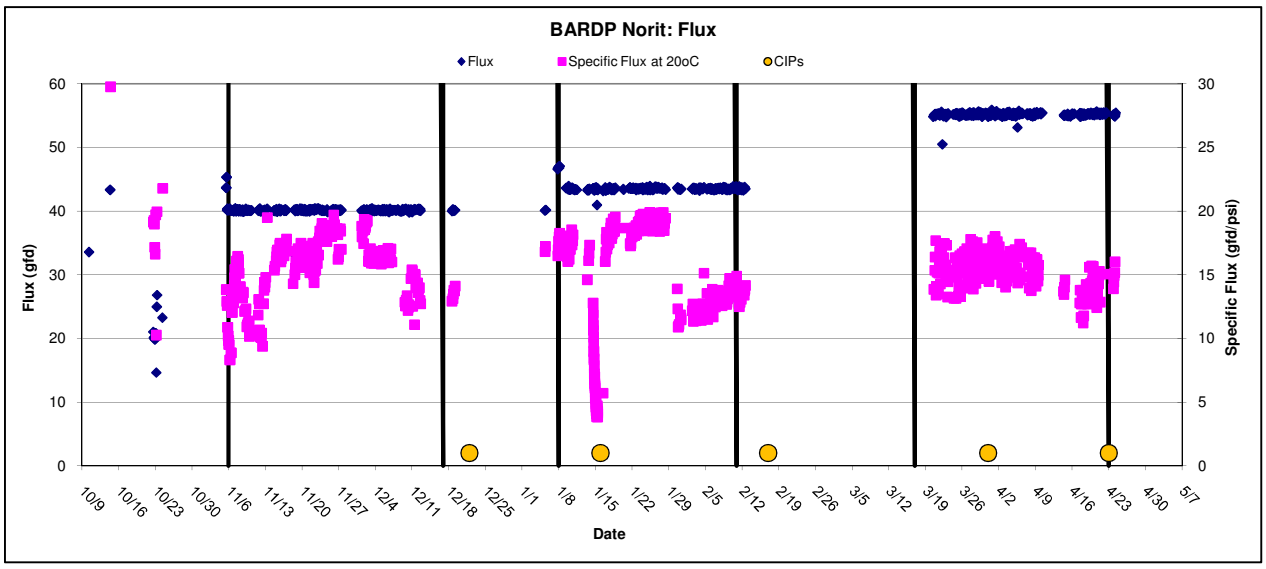




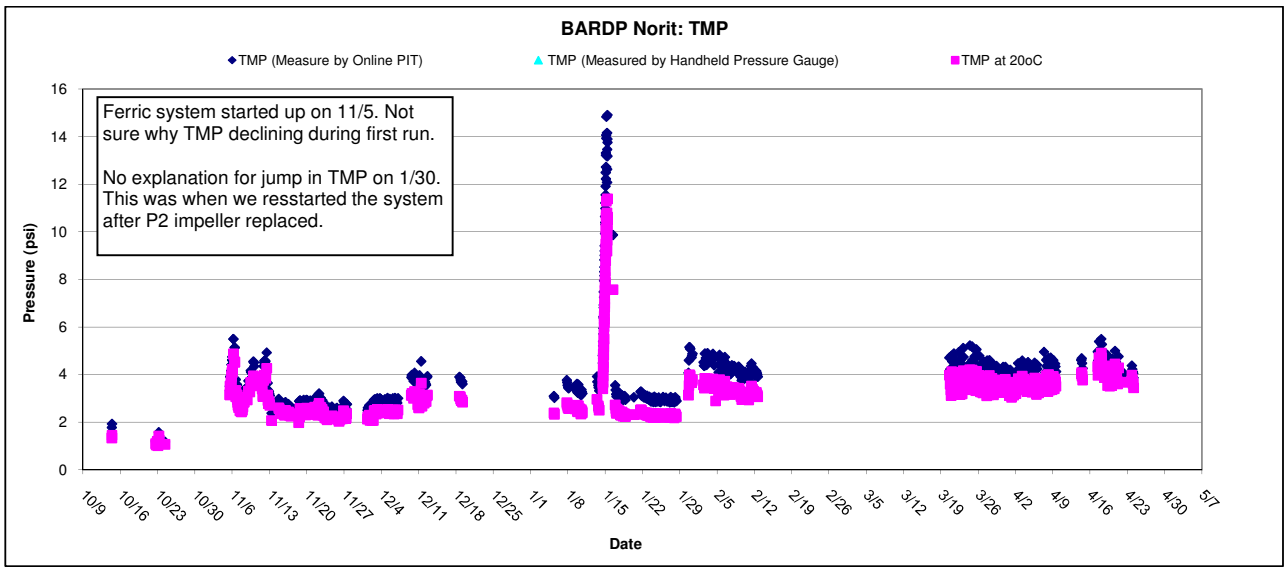
Bay Area Regional Desalination Pilot
Norit Database

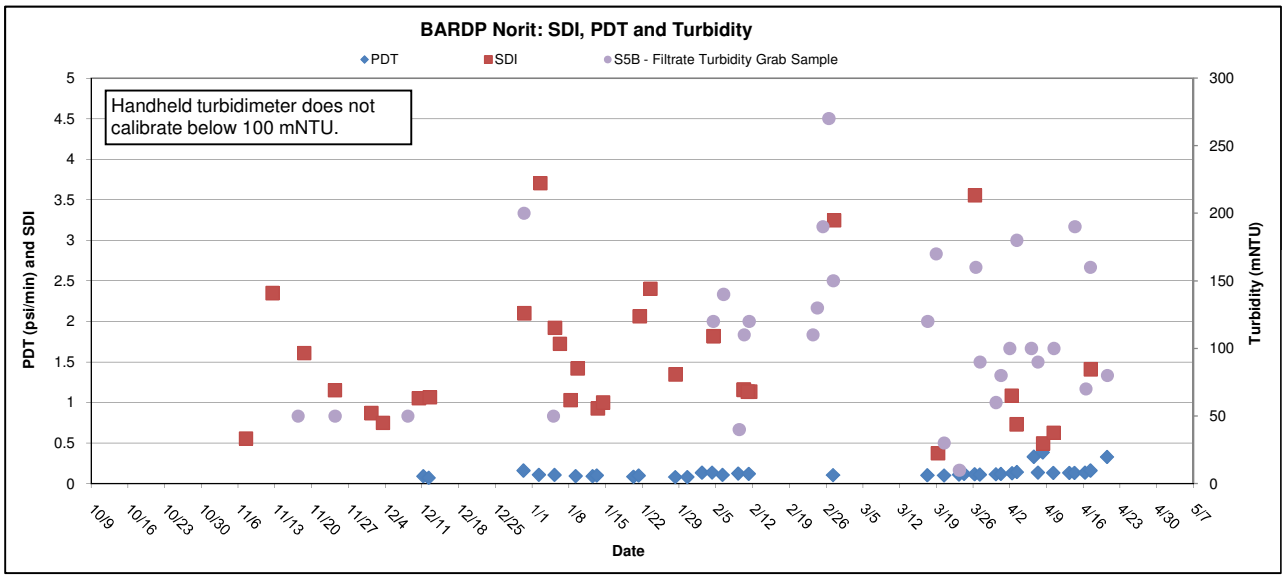




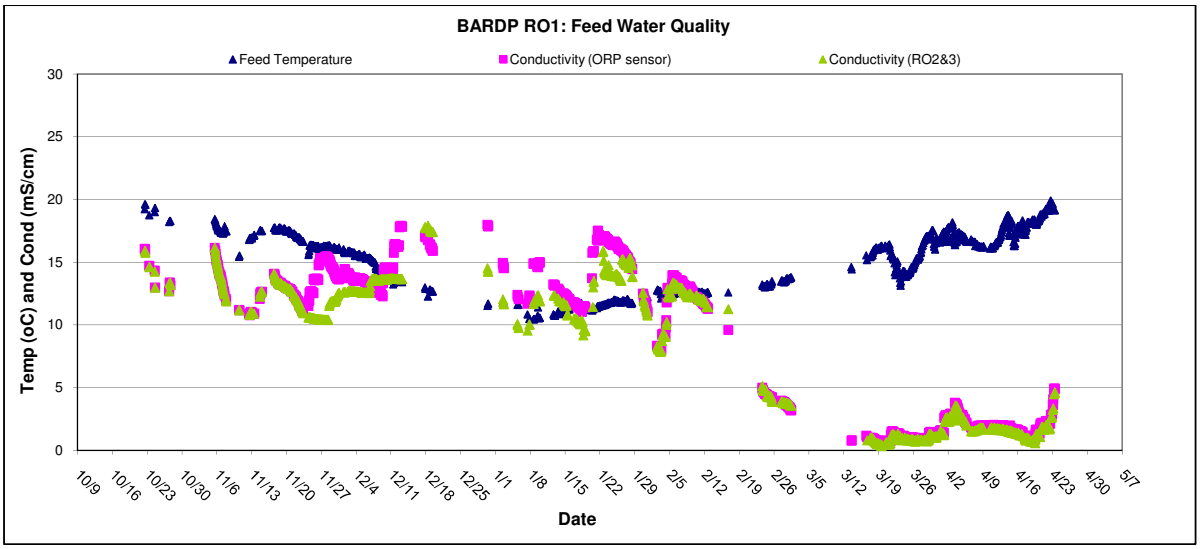


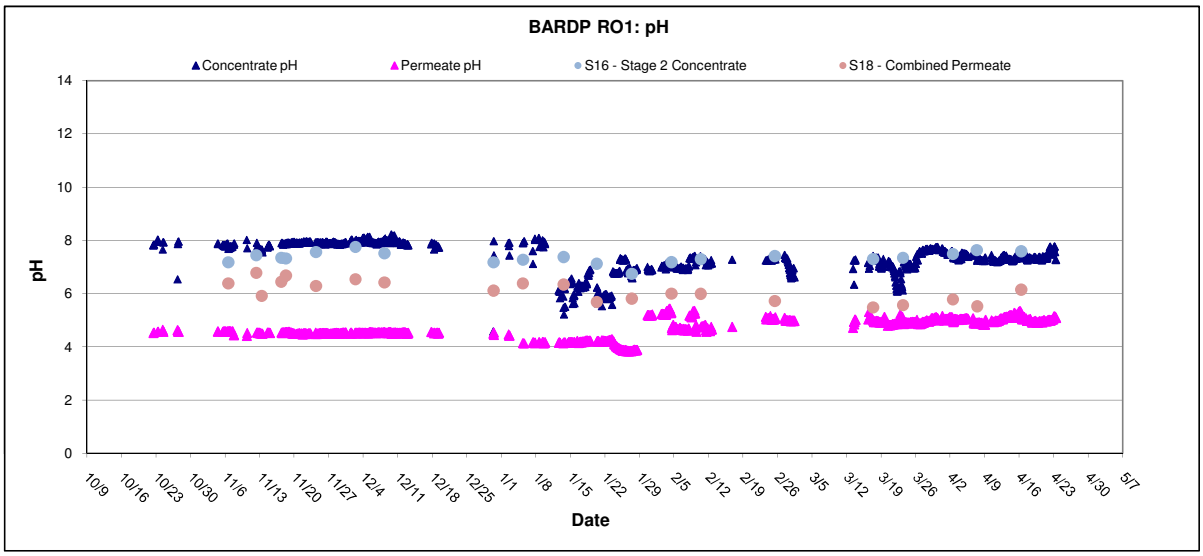
Bay Area Regional Desalination Pilot
Norit Database

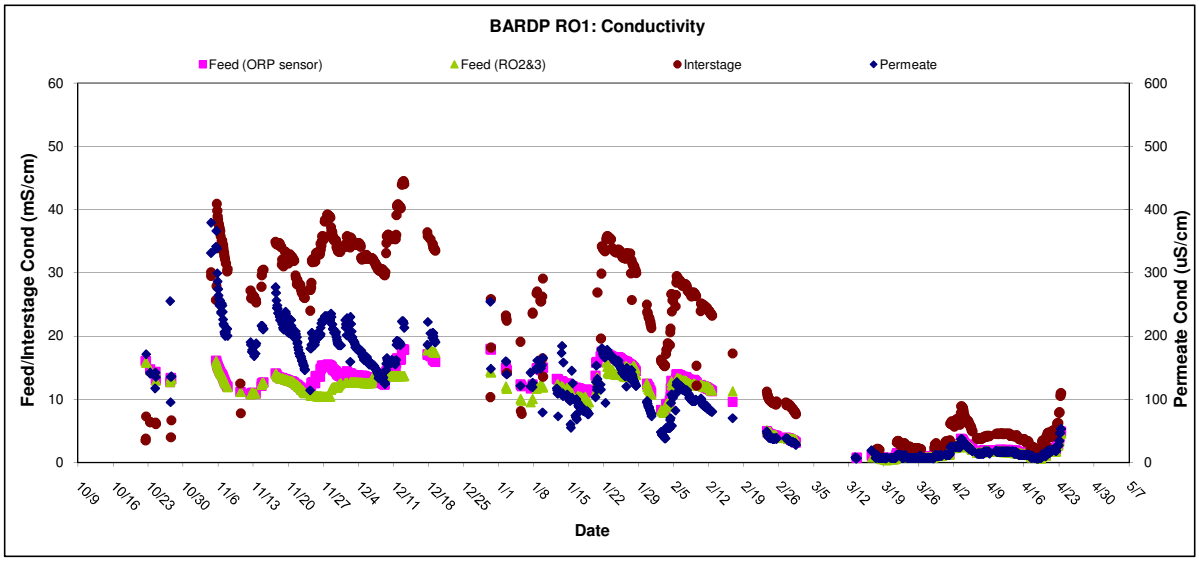


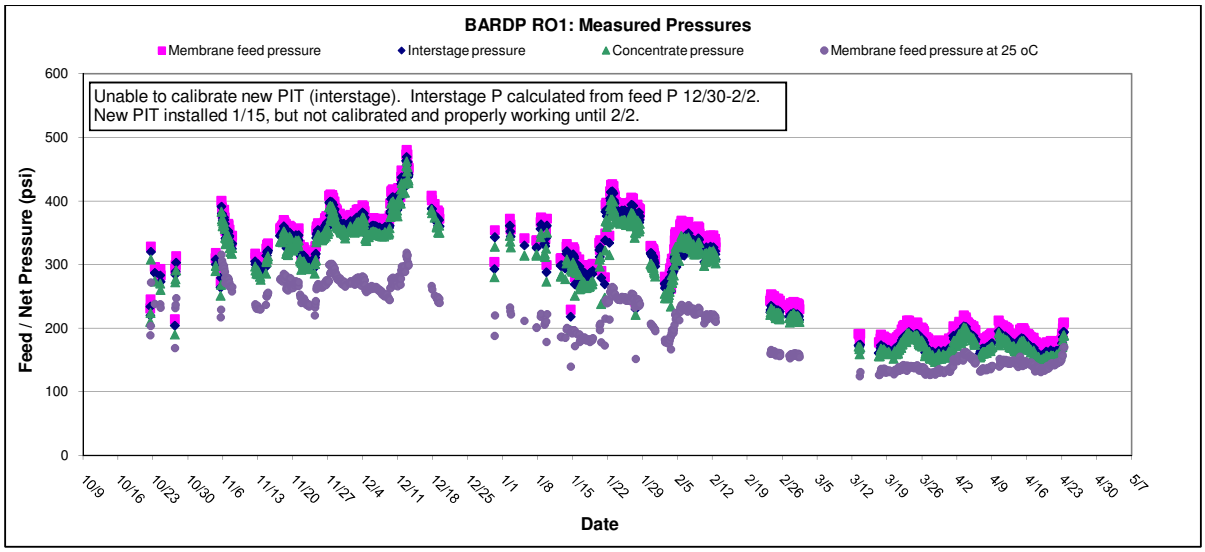


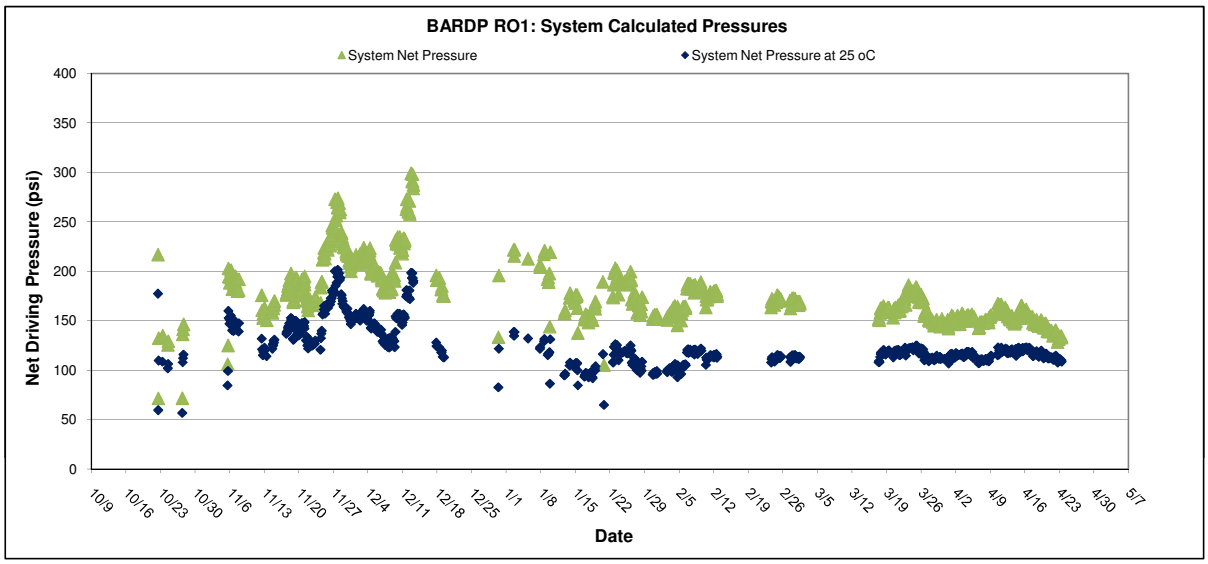
Bay Area Regional Desalination Pilot
RO1 Database

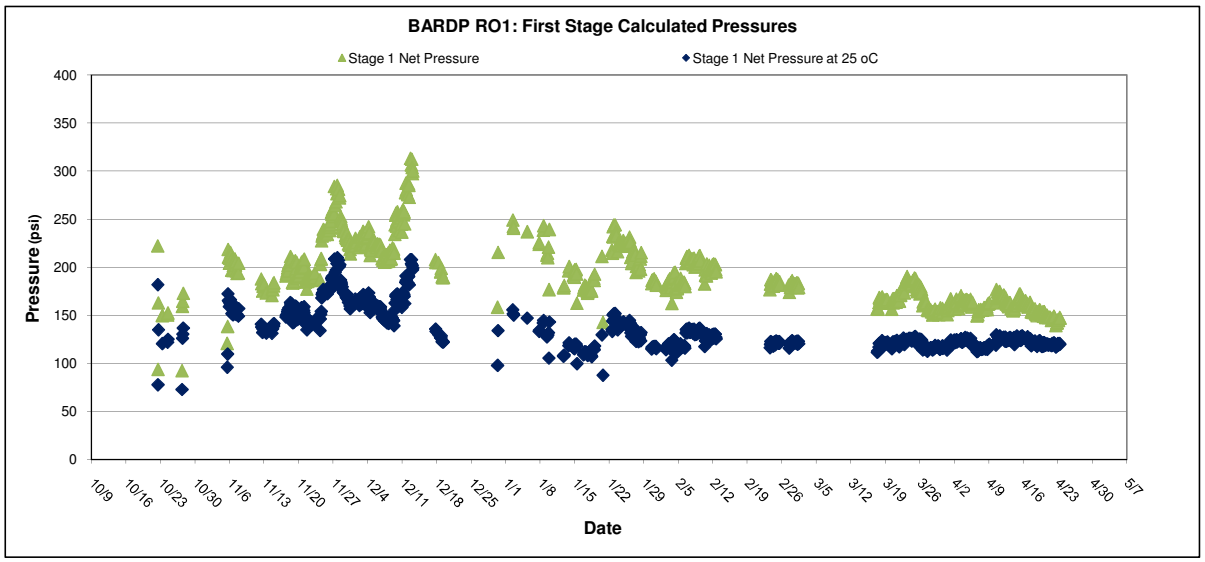


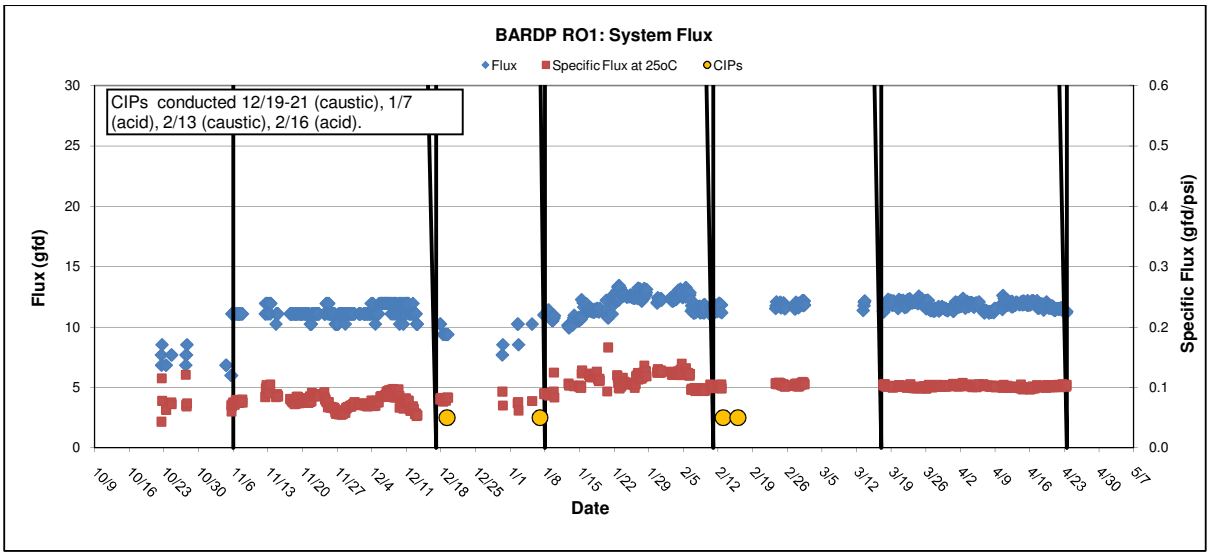


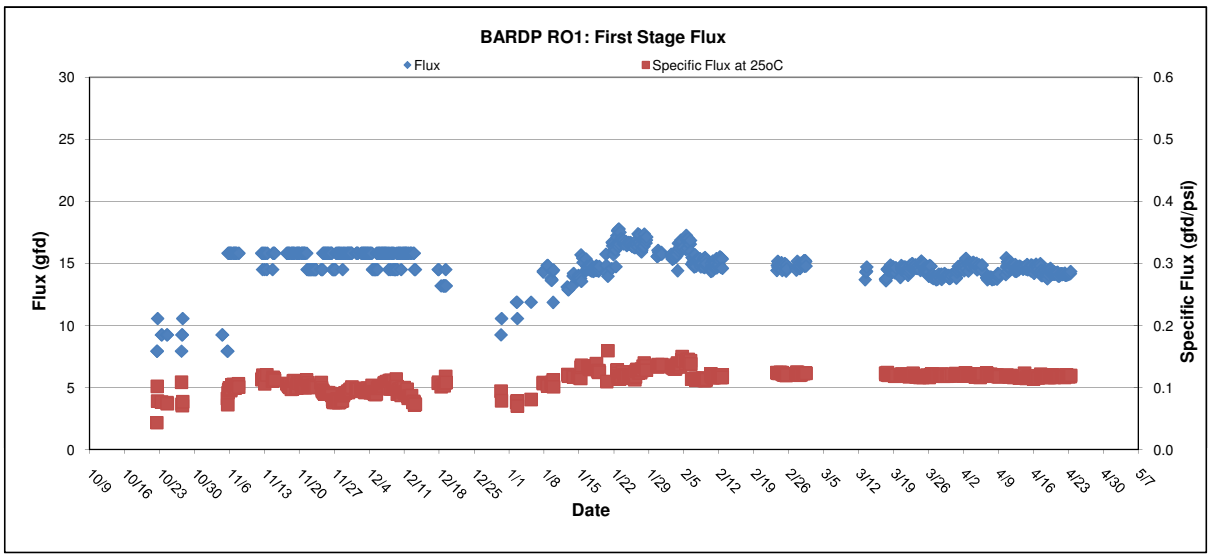


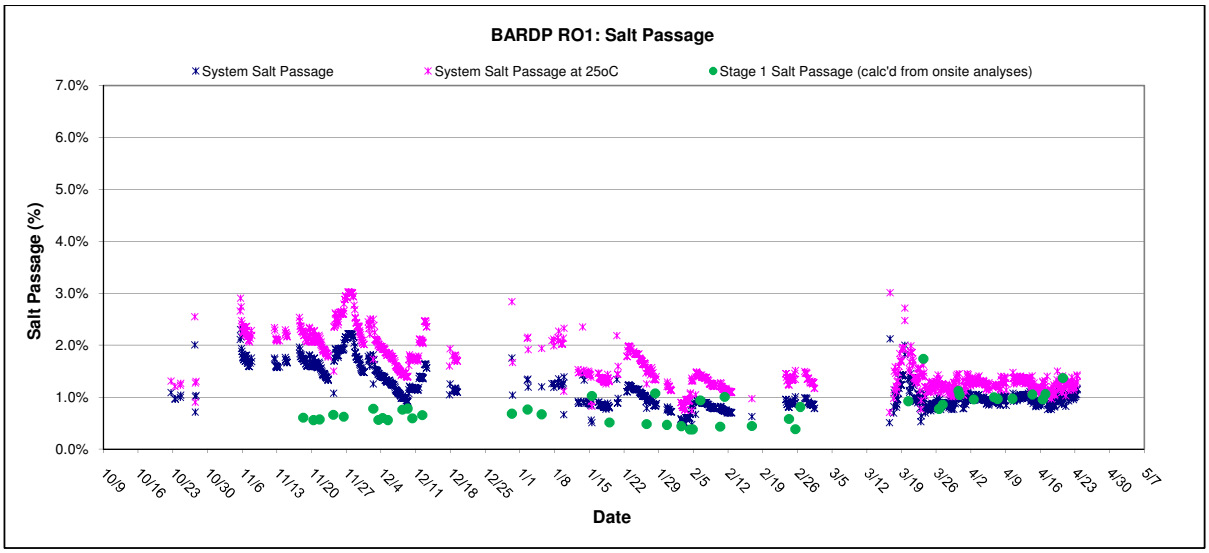

BARDP RO1: Measured Pressures
Membrane feed pressure
Interstage pressure
Concentrate pressure
Membrane feed pressure at 25 oC
Unable to calibrate new PIT (interstage). Interstage P calculated from feed P 12/30-2/2.
New PIT installed 1/15, but not calibrated and properly working until 2/2.
Feed / Net Pressure (psi)
Date

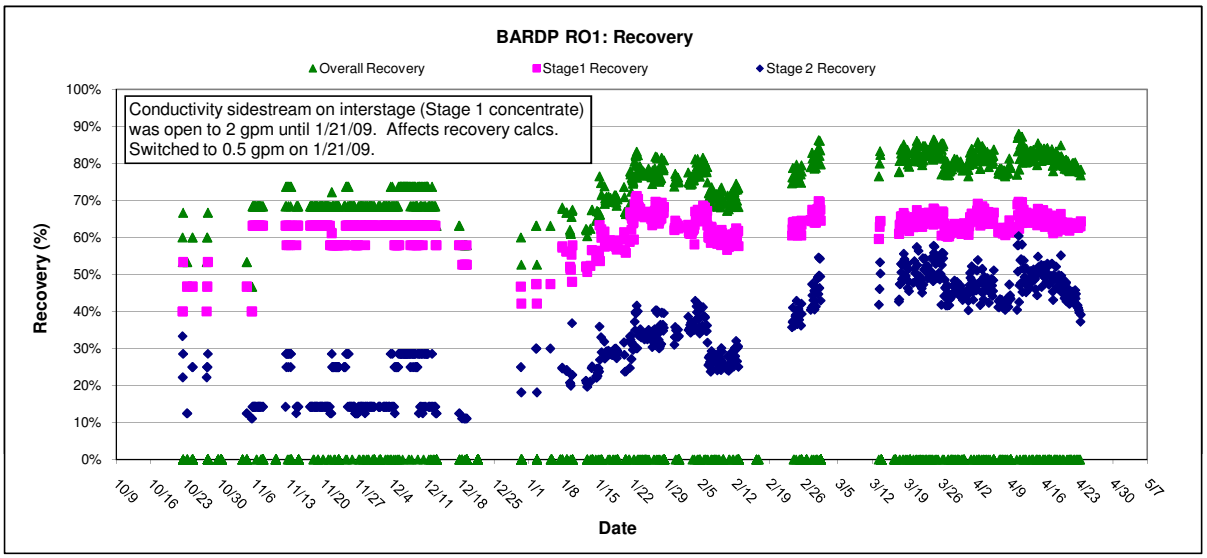

BARDP RO1: System Calculated Pressures
System Net Pressure
System Net Pressure at 25 oC
Net Driving Pressure (psi)
Date


BARDP RO1: First Stage Calculated Pressures
Stage 1 Net Pressure
Stage 1 Net Pressure at 25 oC
Pressure (psi)
Date

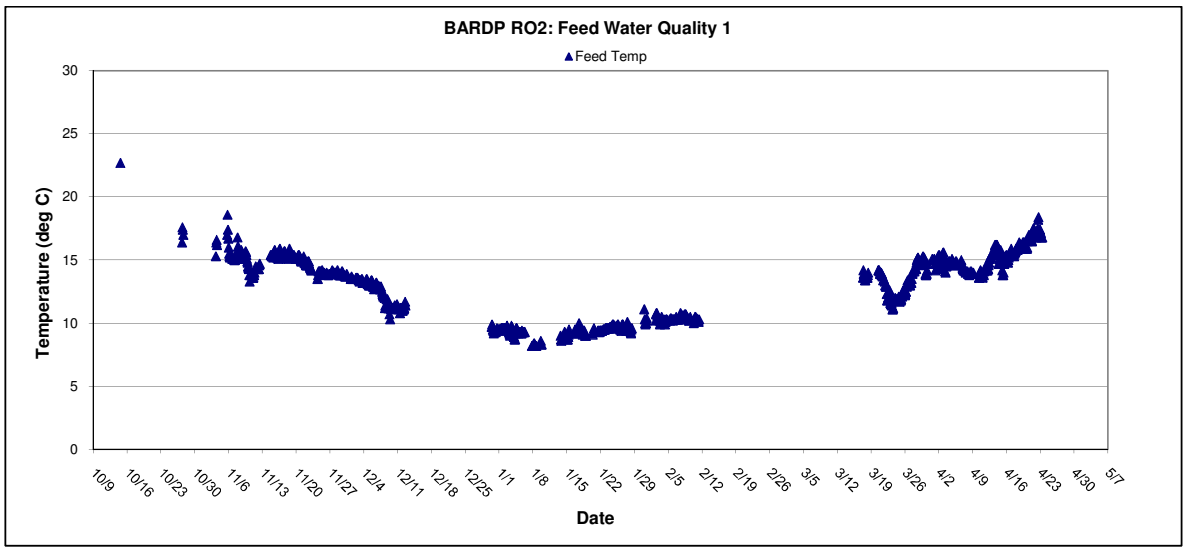

BARDP RO1: System Flux
Flux
Specific Flux at 25oC
CIPs
CIPs conducted 12/19-21 (caustic), 1/7 (acid), 2/13 (caustic), 2/16 (acid).
Flux (gfd)
Specific Flux (gfd/psi)
Date

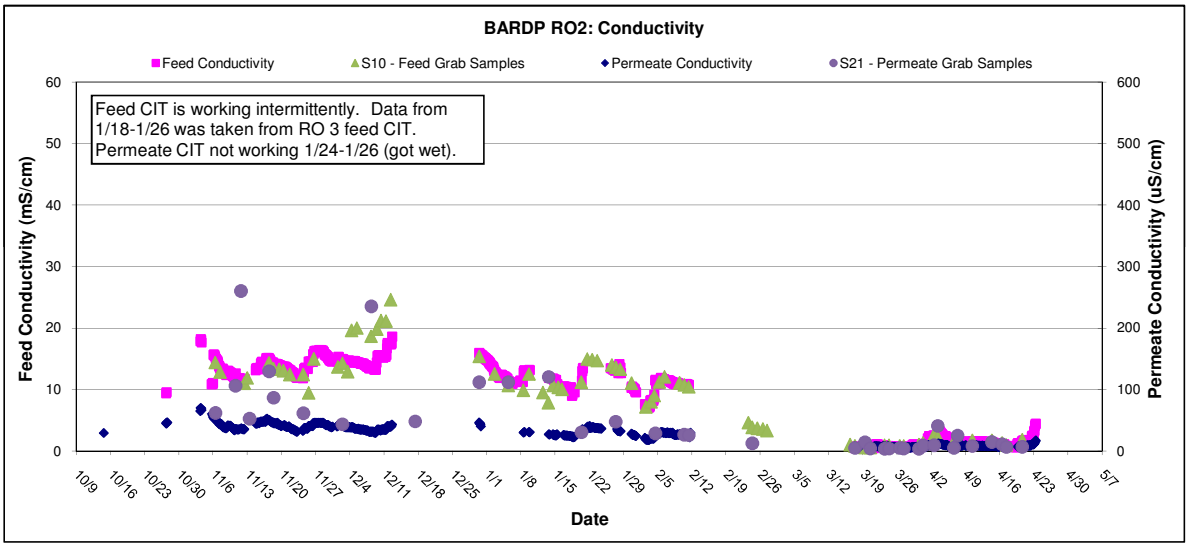

BARDP RO1: First Stage Flux
Flux
Specific Flux at 25oC
Flux (gfd)
Specific Flux (gfd/psi)
Date

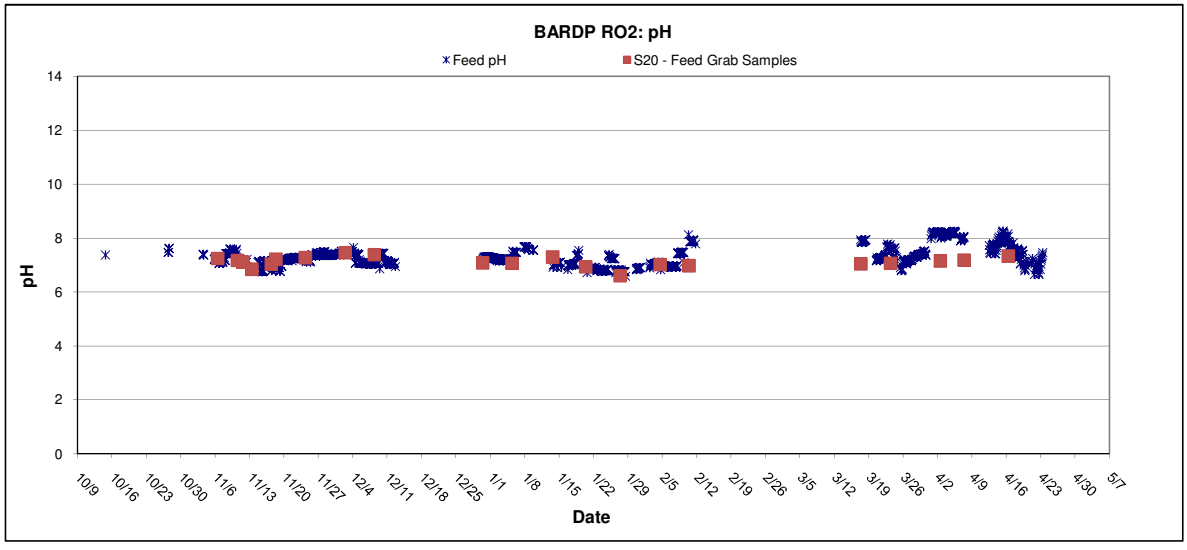

BARDP RO1: Salt Passage
System Salt Passage
System Salt Passage at 25oC
Stage 1 Salt Passage (calc'd from onsite analyses)
Salt Passage (%)
7.0%
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
10/9 10/16 10/23 10/30 11/6 11/13 11/20 11/27 12/4 12/11 12/18 12/25 1/1 1/8 1/15 1/22 1/29 2/5 2/12 2/19 2/26 3/5 3/12 3/19 3/26 4/2 4/9 4/16 4/23 4/30 5/7
Date

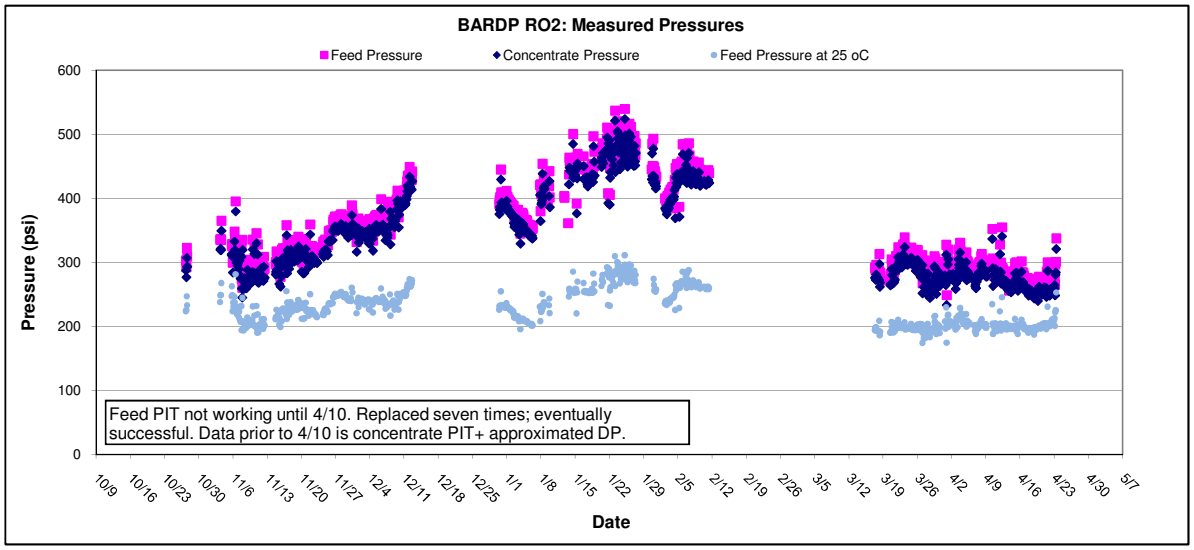

BARDP RO1: Recovery
Overall Recovery
Stage1 Recovery
Stage 2 Recovery
Conductivity sidestream on interstage (Stage 1 concentrate) was open to 2 gpm until 1/21/09. Affects recovery calcs. Switched to 0.5 gpm on 1/21/09.
Recovery (%)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
10/9 10/16 10/23 10/30 11/6 11/13 11/20 11/27 12/4 12/11 12/18 12/25 1/1 1/8 1/15 1/22 1/29 2/5 2/12 2/19 2/26 3/5 3/12 3/19 3/26 4/2 4/9 4/16 4/23 4/30 5/7
Date

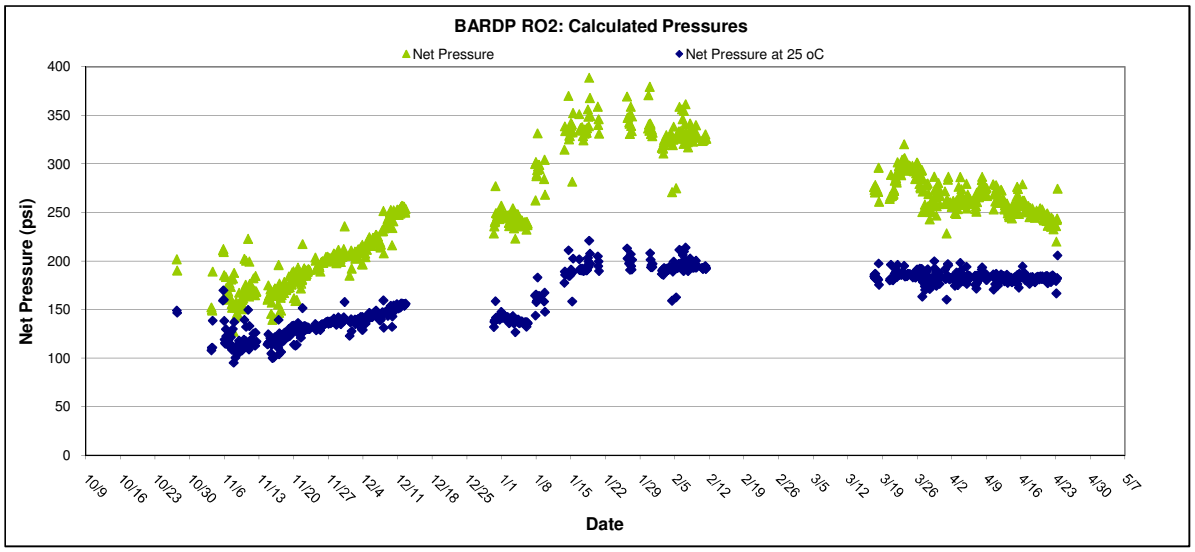
Bay Area Regional Desalination Pilot
RO2 Database

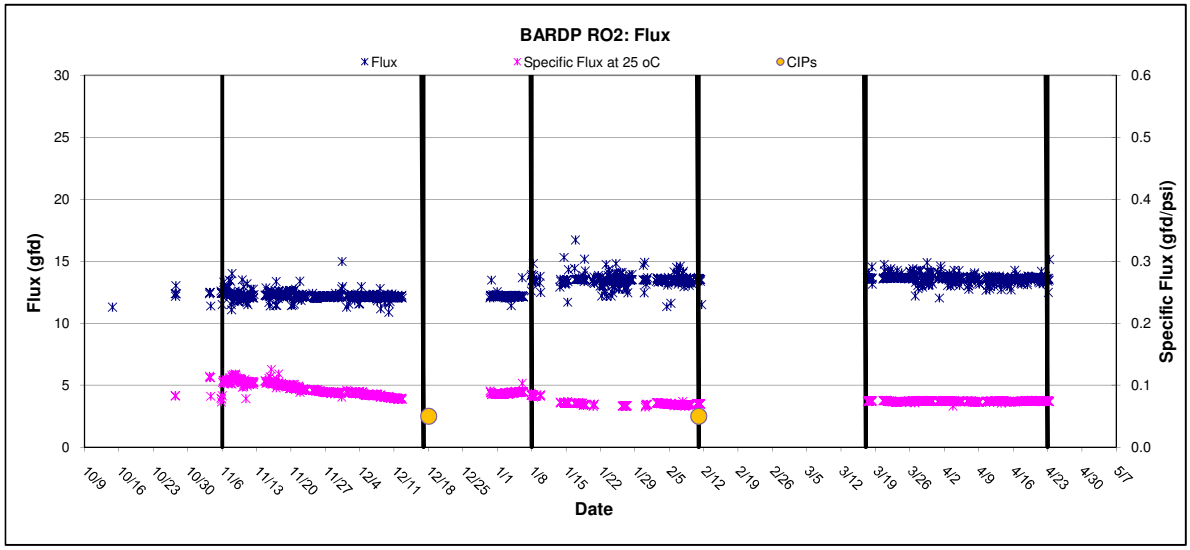


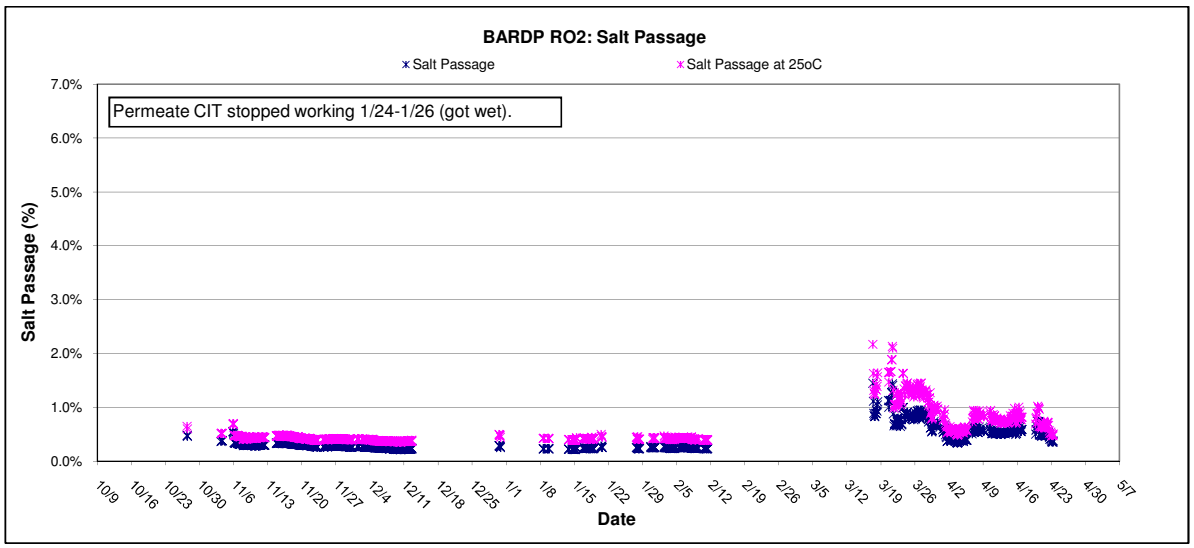


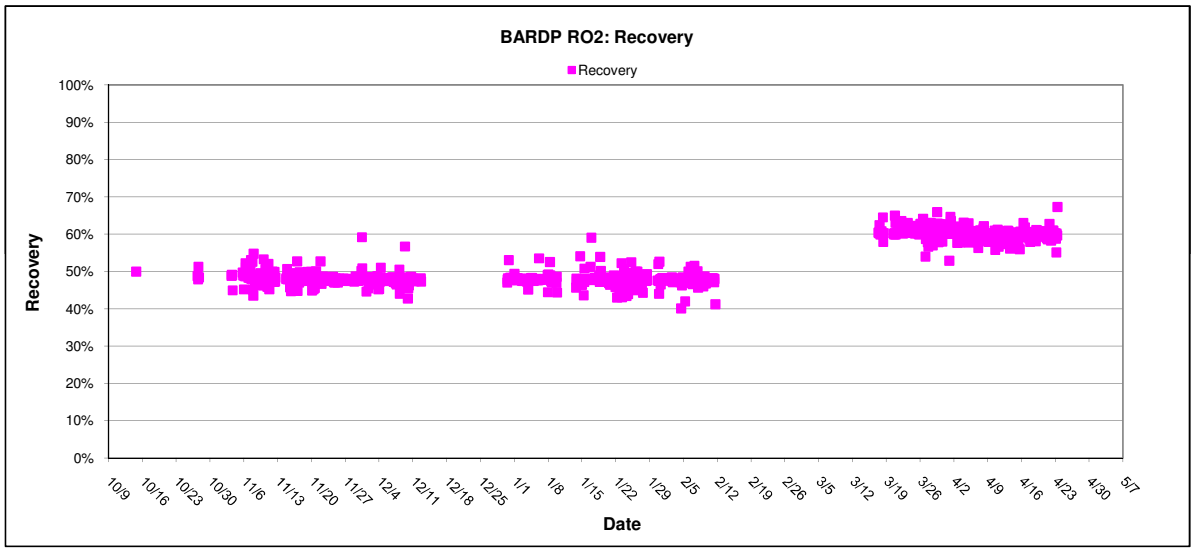



BARDP RO2: Measured Pressures
Feed Pressure
Concentrate Pressure
Feed Pressure at 25 oC
Pressure (psi)
Feed PIT not working until 4/10. Replaced seven times; eventually successful. Data prior to 4/10 is concentrate PIT+ approximated DP.
Date

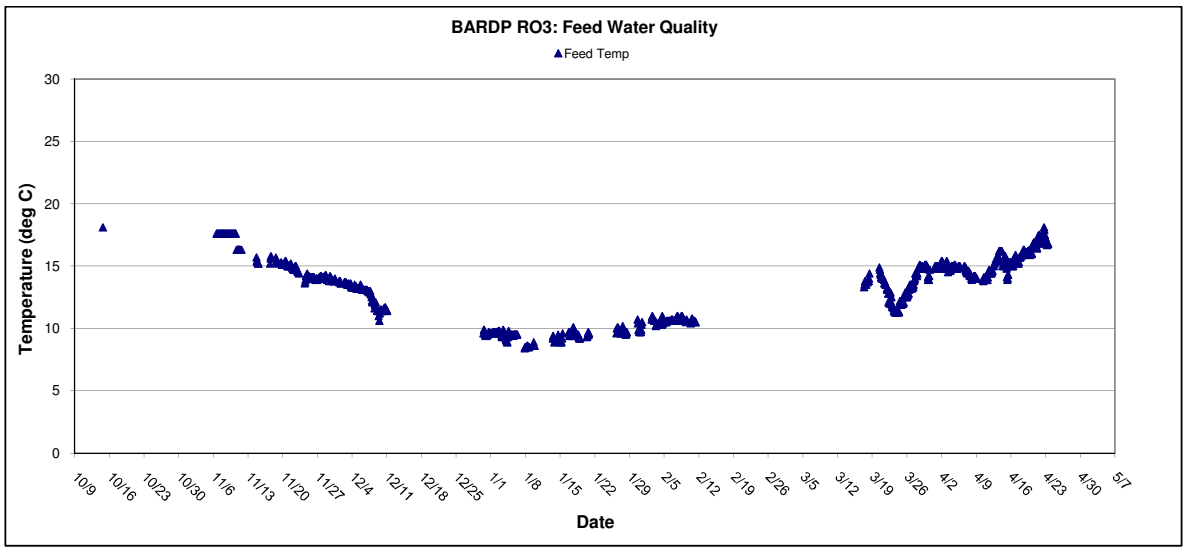

BARDP RO2: Calculated Pressures
Net Pressure
Net Pressure at 25 oC
Net Pressure (psi)
Date

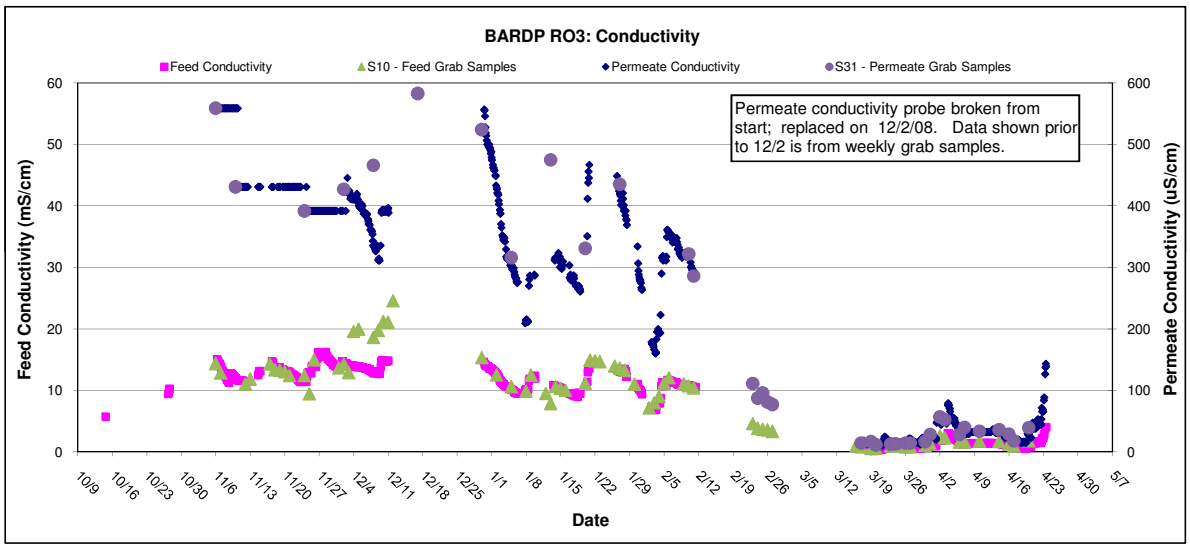

BARDP RO2: Flux
Flux
Specific Flux at 25 oC
CIPs
Flux (gfd)
Specific Flux (gfd/psi)
Date

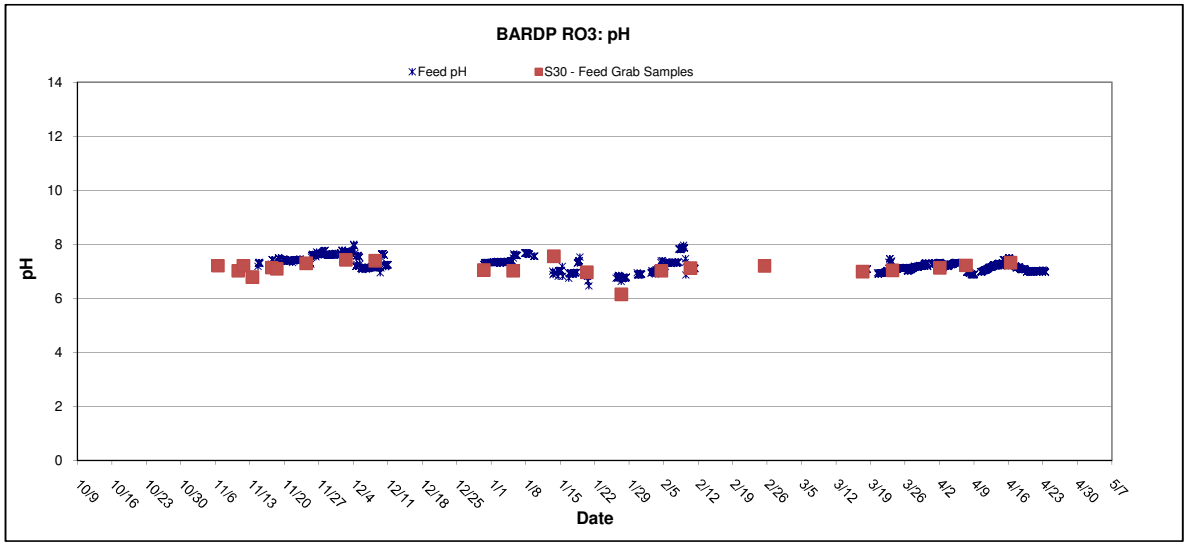

BARDP RO2: Salt Passage
Salt Passage
Salt Passage at 25oC
Permeate CIT stopped working 1/24-1/26 (got wet).
Salt Passage (%)
7.0%
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
10/9 10/16 10/23 10/30 11/6 11/13 11/20 11/27 12/4 12/11 12/18 12/25 1/1 1/8 1/15 1/22 1/29 2/5 2/12 2/19 2/26 3/5 3/12 3/19 3/26 4/2 4/9 4/16 4/23 4/30 5/7
Date

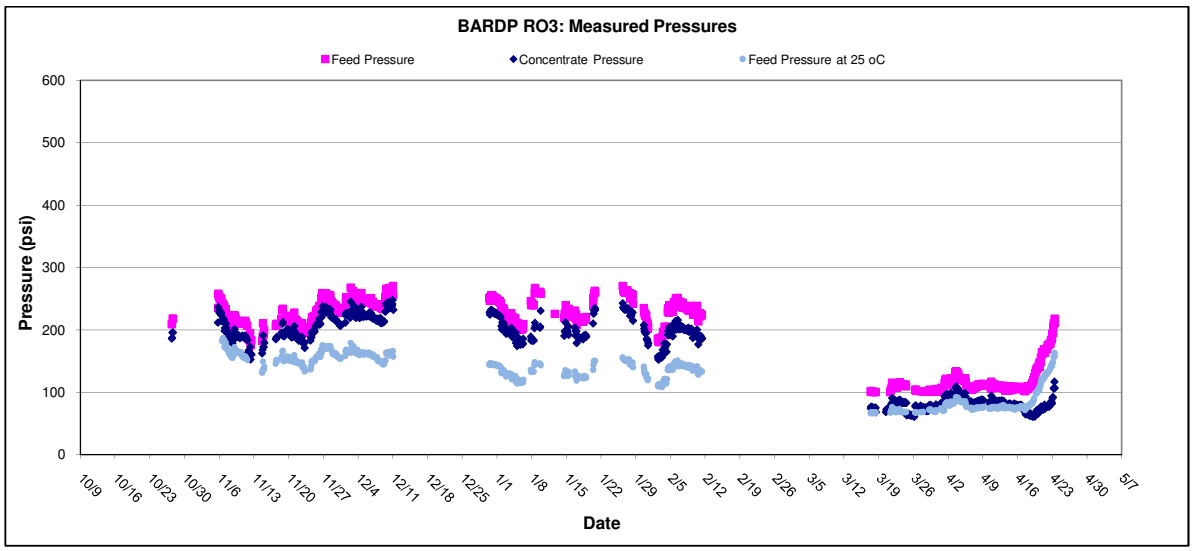

BARDP RO2: Recovery
Recovery
Recovery
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
10/9 10/16 10/23 10/30 11/6 11/13 11/20 11/27 12/4 12/11 12/18 12/25 1/1 1/8 1/15 1/22 1/29 2/5 2/12 2/19 2/26 3/5 3/12 3/19 3/26 4/2 4/9 4/16 4/23 4/30 5/7
Date

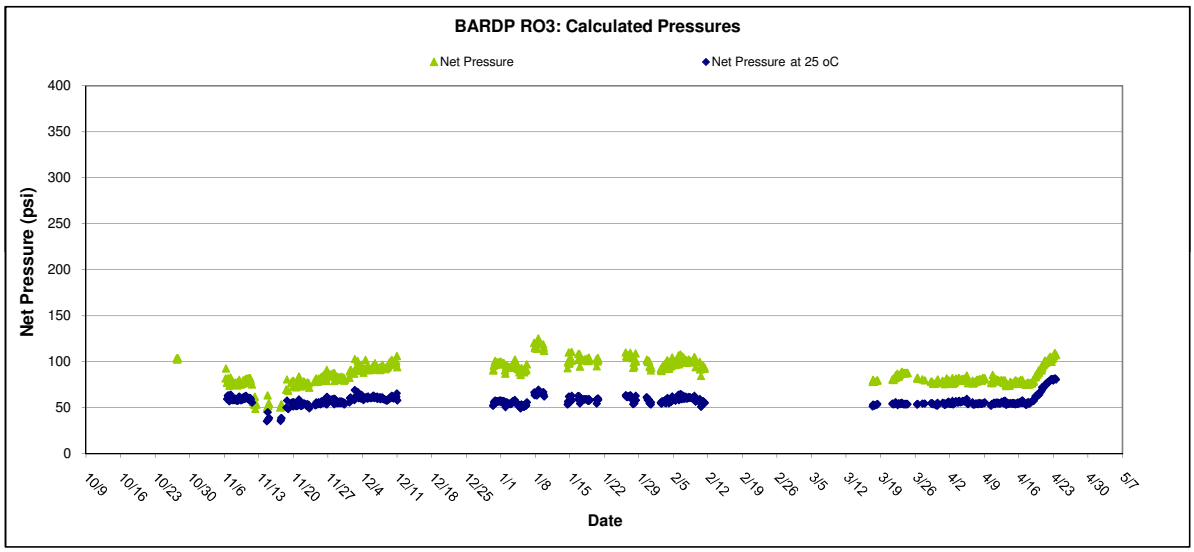
Bay Area Regional Desalination Pilot
RO3 Database

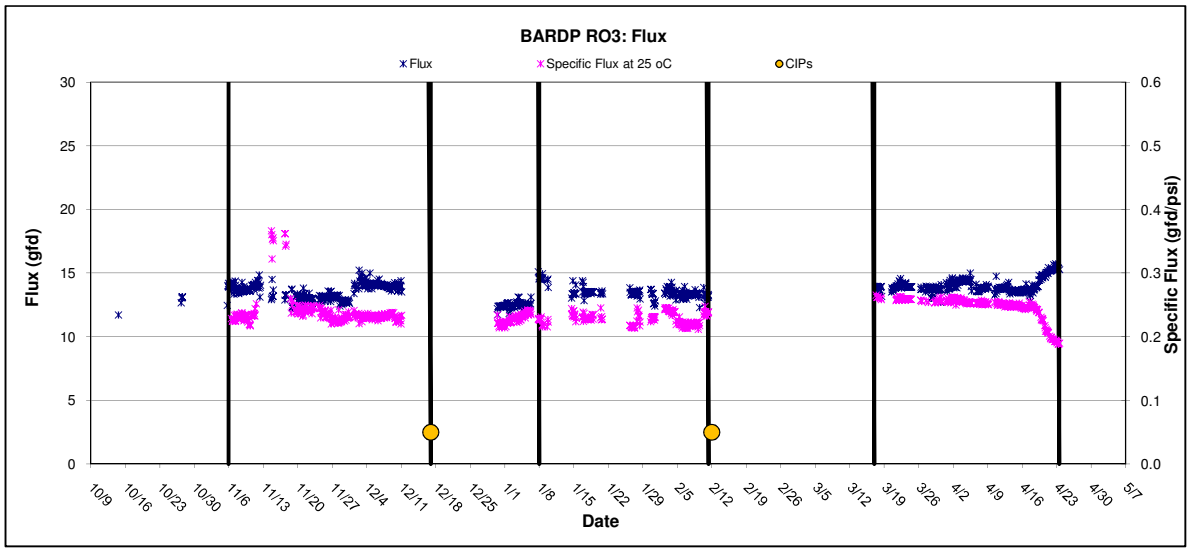




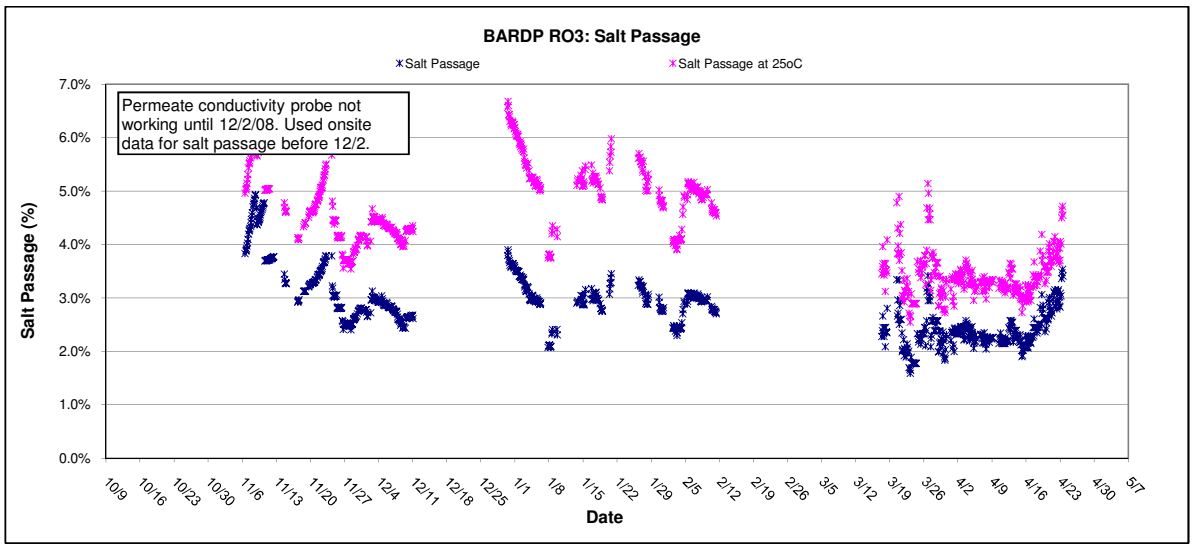


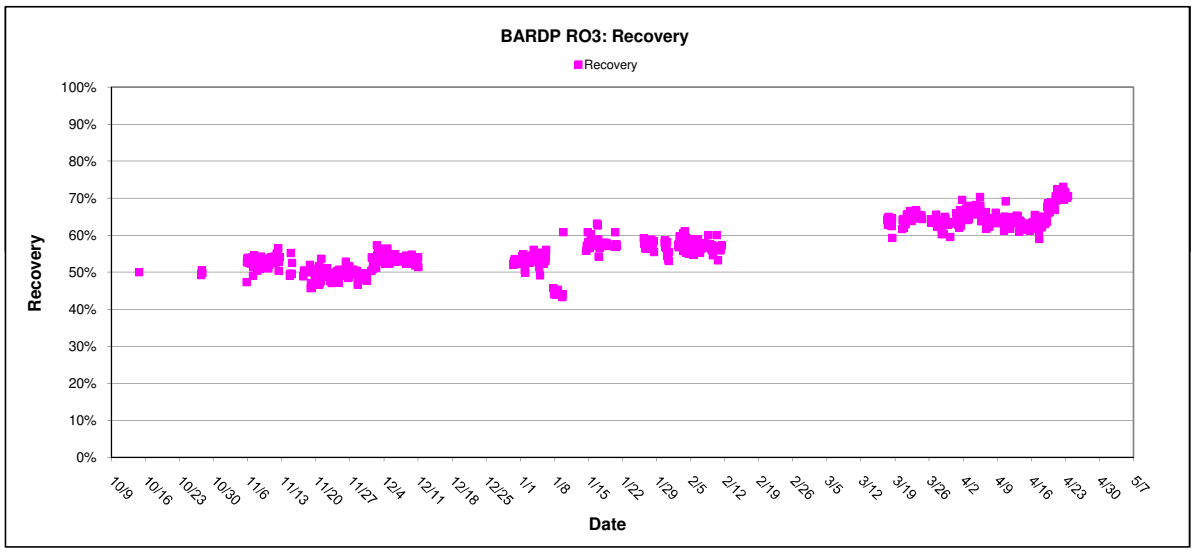

BARDP RO3: Measured Pressures
Feed Pressure
Concentrate Pressure
Feed Pressure at 25 oC
Pressure (psi)
0
100
200
300
400
500
600
10/9 10/16 10/23 10/30 11/6 11/13 11/20 11/27 12/4 12/11 12/18 12/25 1/1 1/8 1/15 1/22 1/29 2/5 2/12 2/19 2/26 3/5 3/12 3/19 3/26 4/2 4/9 4/16 4/23 4/30 5/7
Date


BARDP RO3: Calculated Pressures
Net Pressure
Net Pressure at 25 oC
Net Pressure (psi)
0
50
100
150
200
250
300
350
400
10/9 10/16 10/23 10/30 11/6 11/13 11/20 11/27 12/4 12/11 12/18 12/25 1/1 1/8 1/15 1/22 1/29 2/5 2/12 2/19 2/26 3/5 3/12 3/19 3/26 4/2 4/9 4/16 4/23 4/30 5/7
Date


BARDP RO3: Flux
Flux
Specific Flux at 25 oC
CIPs
Flux (gfd)
Specific Flux (gfd/psi)
0
5
10
15
20
25
30
0.0
0.1
0.2
0.3
0.4
0.5
0.6
10/9 10/16 10/23 10/30 11/6 11/13 11/20 11/27 12/4 12/11 12/18 12/25 1/1 1/8 1/15 1/22 1/29 2/5 2/12 2/19 2/26 3/5 3/12 3/19 3/26 4/2 4/9 4/16 4/23 4/30 5/7
Date

Bay Area Regional Desalination Pilot
RO3 Database





Analyte:					pH	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Bicarbonate Alkalinity	Carbonate Alkalinity	Total Calcium (Ca)	Total Magnesium (Mg)	Total Potassium (K)	Total Sodium (Na)	Total Anions, Sulfate (SO4)	Iron (Fe)		Aluminium (Al)		Antimony (Sb)		Arsenic (As)		Barium (Ba)		Beryllium (Be)		Boron (B)		Cadmium (Cd)		Chromium (Cr)		Cobalt (Co)		Copper (Cu)		Lead (Pb)		Manganese (Mn)		Mercury (Hg)		Molybdenum (Mo)		Nickel (Ni)		Selenium (Se)	
															Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss
Units:						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ng/L	ng/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MCL type					S									S	S		S										Proposed																					
MCL					6.5-8.5									250	300		50-200		6		10		2000		4		1400		5		100				1300		15		50		2						50	
Sample Date	***Sample Time***	***Sample Port***	***Lab***	***Report #***																																											
11/19/2008	9:20:00	S1	CRG	MWH005		84	1288.0	84	84	62.44	274.9	82.2	2365	586	254.3		217.3	<3	0.06	0.16	1.35	1.35	66.1	65.2	<0.005	<0.005	1155	1145	0.033	0.03	0.984	0.085	0.331	0.144	8.77	5.77	0.236	<0.005	35.45	26.4	4.1	1	1.691	2.305	7.175	6.207	0.02	0.02
11/19/2008	8:58:00	S3	CRG	MWH005																																												
11/19/2008	9:07:00	S5A	CRG	MWH005											2.1																																	
11/19/2008	9:09:00	S5B	CRG	MWH005											1.4																																	
11/19/2008	9:10:00	S7	CRG	MWH005		82	1311.4	82	82	62.58	280.5	82	2417	363.58	1.5		4.1		0.13		1.33		65.1		<0.005		1171		0.030		0.076		0.181		6.14		0.005		30.250		1		2.428		6.476		0.02	
11/19/2008	10:07:00	S10	CRG	MWH005																																												
11/19/2008	10:01:00	S13	CRG	MWH005																																											
11/19/2008	**10:06:00**	**S16**	**CRG**	**MWH005**		**262**	**4585.3**	**262**	**262**	**224.4**	**977.4**	**298.7**	**8060**	**2936.74**	**5.2**		**<3**	**<3**	**0.25**	**0.22**	**5.20**	**5.07**	**234.8**	**232.5**	**<0.005**	**<0.005**	**2756**	**2722**	**0.098**	**0.082**	**0.384**	**0.446**	**0.616**	**0.615**	**21.75**	**17.48**	**0.078**	**0.061**	**158.02**	**147.81**	**3.1**	**2.3**	**8.885**	**7.529**	**22.175**	**18.817**	**0.09**	**0.07**
11/19/2008	10:00:00	S17	CRG	MWH005		186	3573.6	186	186	183.7	756.4	241.3	6260	2026.38	3.7		<3		0.25		3.36		169.9		<0.005		2286		0.072		0.326		0.459		15.16		0.048		89.01		1.9		6.439		15.965		0.07	
11/19/2008	10:10:00	S20	CRG	MWH005																																												
11/19/2008	10:02:00	S24	CRG	MWH005		162	2704.5	162	162	131.7	576.9	173.3	4837	1996.84	3.4		<3	<3	0.19	0.18	2.69	2.7	133.1	133.6	<0.005	<0.005	2169	2201	0.06	0.058	0.188	0.195	0.37	0.332	11.45	11.1	0.011	0.009	81.29	81.12	1.8	1.3	5.189	4.989	12.825	12.377	0.04	0.05
11/19/2008	14:44:00	S34	CRG	MWH005		150	2837.9	150	150	137.6	605.7	176.8	5003	2171.43	4.8		<3	<3	0.19	0.24	2.73	2.65	136.4	133.3	<0.005	<0.005	1496	1364	0.066	0.059	0.300	0.252	0.383	0.352	22.32	21.17	0.013	0.008	89.65	84.54	2.1	1.2	5.366	5.186	13.125	12.897	0.05	0.04
11/19/2008	14:40:00	S30	CRG	MWH005																																												
11/19/2008	9:19:00	S4B	CRG	MWH005											327.2																																	
11/19/2008	9:44:00	S18	EBMUD	L148081-1	5.9	<5	16	<5	<0.1	0.51	1.5	1.8	43	2.7	<11		<21						<1.04				478												<0.624									
11/19/2008	9:44:00	S21	EBMUD	L148081-2	6	<5	2	<5	<0.1	0.022	0.075	0.31	7.8	0.1	<11		<21						<1.04				195												<0.624									
11/21/2008	10:48:00	S1	CRG	MWH005b																																												
11/21/2008	11:07:00	S5A	CRG	MWH005b																																											
11/21/2008	11:00:00	S5B	CRG	MWH005b																																											
11/21/2008	11:17:00	S7	CRG	MWH005b																																											
11/21/2008	11:28:00	S13	CRG	MWH005b																																											
11/21/2008	10:17:00	S31	EBMUD	L148158	6	<5	7	<5	<0.1	0.086	0.2	3.1	81	0.36	<11		<21						<1.04				662												<0.624									
11/21/2008	10:43:00	S18	EBMUD	L148159																																											
11/21/2008	10:39:00	S21	EBMUD	L148159																																											
11/21/2008	10:37:00	S31	EBMUD	L148159																																											
11/21/2008	10:48:00	S1	EBMUD	L148160																																											
11/21/2008	11:15:00	S5A	EBMUD	L148160																																											
11/21/2008	11:00:00	S5B	EBMUD	L148160																																											
11/21/2008	11:08:00	S7	EBMUD	L148160																																											
11/25/2008	17:14:00	S1	CRG	MWH005c																																											
11/25/2008	15:36:00	S1	CRG	MWH005c		82	1462.8	82	<1	71.3	311.98	91.7	2648.9	583.11	508.8	1.2	266.6	<3					58.9	59.1			1028	993.1											26.1	9.74								
11/25/2008	15:38:00	S3	CRG	MWH005c																																												
11/25/2008	16:10:00	S5A	CRG	MWH005c											4.1																																	
11/25/2008	17:18:00	S5A	CRG	MWH005c																																											
11/25/2008	16:08:00	S5B	CRG	MWH005c											1.9																																	
11/25/2008	17:20:00	S5B	CRG	MWH005c																																											
11/25/2008	15:40:00	S7	CRG	MWH005c		74	1515.7	74	<1	72.05	324.38	94.1	2771.9	808.98	1.2		<3						56				1037												22.44									
11/25/2008	17:12:00	S7	CRG	MWH005c																																												
11/25/2008	15:53:00	S10	CRG	MWH005c																																											
11/25/2008	17:24:00	S13	CRG	MWH005c																																											
11/25/2008	16:00:00	S16	CRG	MWH005c		254	4661.4	254	<1	240.9	985.88	305.8	8643.9	4050.74	4.4	3.8	<3	<3					195.8	190.5			2616	2484											86.35	87.29								
11/25/2008	16:10:00	S17	CRG	MWH005c		178	3510.3	178	<1	181.5	742.38	234.6	6497.9	2383.02	3.8		<3						141.9				2764												62.11									
11/25/2008	15:46:00	S20	CRG	MWH005c																																												
11/25/2008	15:43:00	S24	CRG	MWH005c		150	2841.1	150	<1	142.4	603.58	181.6	5272.9	1599.88	2.2	5.4	<3	<3					110.9	111.3			2001	1963											47.54	48.52								
11/25/2008	15:48:00	S34	CRG	MWH005c		154	2986.6	154	<1	145.6		184.7		1441.93	3.1	2.8	<3	<3					118.8	113.8			1882	1496											52.35	50.57								
11/25/2008	15:47:00	S30	CRG	MWH005c																																												
11/25/2008	16:21:00	S4B	CRG	MWH005c											1935.7	1.5																																	
11/25/2008	9:15:00	S18	EBMUD	L148226	5.9	<5	6	<5	<0.1	0.32	0.9	1.4	32	1.8	<11		<21						<1.04				413												<0.624									
11/25/2008	9:15:00	S21	EBMUD	L148226	5.8	<5	<2	<5	<0.1	0.027	0.069	0.23	6.3	0.11	<11		<21						<1.04				151												<0.624									
11/25/2008	9:15:00	S31	EBMUD	L148226	5.6	<5	7	<5	<0.1	0.076	0.18	2.8	73	0.34	<11		<21						<1.04				660												<0.624									
11/25/2008	8:45:00	S1	EBMUD	L148227-1																																													
11/25/2008	8:45:00	S5A	EBMUD	L148227-2																																												
11/25/2008	8:45:00	S5B	EBMUD	L148227-3																																												
11/25/2008	8:45:00	S7	EBMUD	L148227-4																																												
11/28/2008	12:22:00	S1	CRG	MWH005e																																												
11/28/2008	12:12:00	S5A	CRG	MWH005e																																											
11/28/2008	12:11:00	S5B	CRG	MWH005e																																											
11/28/2008	12:13:00	S7	CRG	MWH005e																																											
11/28/2008	12:28:00	S13	CRG	MWH005e																																											
11/28/2008	12:04:00	S18	EBMUD	L148312-1																																											
11/28/2008	12:05:00	S21	EBMUD	L148312-2																																											
11/28/2008	12:07:00	S31	EBMUD	L148312-3																																											
12/1/2008	10:09:00	S1	CRG	MWH005d		86	1520.1	86	<1	73.77	324.38	93.9	2768.9	635.51	328.9	1.6	166.5	<3					61.7	61.5			1088	1088											33.59	29.44								
12/1/2008	10:09:00	S1	CRG	MWH005d																																												
12/1/2008	10:06:00	S3	CRG	MWH005d																																											
12/1/2008	11:47:00	S5A	CRG	MWH005d											4.3																																	
12/1/2008	10:17:00	S5A	CRG	MWH005d																																												
12/1/2008	11:37:00	S5B	CRG	MWH005d											3.4																																	
12/1/2008	10:13:00	S5B	CRG	MWH005d																																												
12/1/2008	10:18:00	S7	CRG	MWH005d																																											
12/1/2008	12:07:00	S7	CRG	MWH005d		82	1467.4	82	<1	72.45	312.38	94	2662.9	873.96	1.6		<3						60.1				1104												32.4									
12/1/2008	10:34:00	S10	CRG	MWH005d																																												
12/1/2008	10:38:00	S13	CRG	MWH005d																																											
12/1/2008	11:03:00	S16	CRG	MWH005d		274	4280.8	274	<1	249.1	888.48	327	7800.9	2871.16	16.3	6.5	<3	<3					189	189.5			2449	2406											114.33	113.53								
12/1/2008	10:45:00	S17	CRG	MWH005d		190	3664.2	190	<1	185.7	777.18	238.8	6788.9	2080.45	5		<3						154.3				2185												92.48									
12/1/2008	11:08:00	S20	CRG	MWH005d																																												
12/1/2008	11:12:00	S24	CRG	MWH005d		150	2994.0	150	<1	144.4	639.48	187.1	5541	1488.63	3.3	2.9	<3	<3					119.3	120.1			2068	2077											67.37	63.82								
12/1/2008	11:17:00	S34	CRG	MWH005d		166	3094.4	166		163	652.58	206.6	5584.9	124.19	5.7	4.7	<3	<3					129	129.3			1638	1613											76.27	67								
12/1/2008	11:09:00	S30	CRG	MWH005d																																												
12/1/2008	11:33:00	S4B	CRG	MWH005d											843.7	0.7																																	
12/1/2008	9:17:00	S18	EBMUD	L148310-1	5.7	<5	10	<5	<0.1	0.5	1.4	1.7	40	2.6	<11		25						<1.04				466												<0.624									
12/1/2008	9:11:00	S21	EBMUD	L148310-2	6	<5	<2	<5	<0.1	0.044	0.084	0.33	7	0.12	<11		<21						<1.04				166												<0.624									
12/1/2008	9:05:00	S31	EBMUD	L148310-3	5.6	<5	3	<5	<0.1	0.079	0.18	3.1	80	0.32	<11		<21						<1.04				685												<0.624									

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			Silver (Ag)		Thallium (Tl)		Tin (Sn)		Titanium (Ti)		Vanadium (V)		Zinc (Zn)		Bromide	Chloride	Total Cyanide	Fluoride	Silica	Total Suspended Solids	Conductivity	Total Dissolved Solids	Nitrite as Nitrogen	Nitrate as Nitrogen	Total Phosphate as P SM4500-P/C	Orthophosphate as P SM4500-P/C	Total Phosphorous SM4500-P/C	Reactive Phosphorous SM4500-P/A	TOC	UV254	Alpha particles		Beta particles and photon emitters		Radium 226/228 combined	Radium 226		Radium 228		Uranium (U)		Strontium 90 (Sr90)		Tritium (Tl)		Algae Count	MTBE	Perchlorate	Hydroxide Alkalinity	Specific Conductance
			Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss																	Result	Error	Result	Error		Result	Error	Result	Error	Result	Error	Result	Error	Result	Error					
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L S	mg/L	mg/L	mg/L	mg/L	mS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	abs	pCi/L	pCi/L	pCi/L	pCi/L		pCi/L	pCi/L	pCi/L	pCi/L	ug/L	ug/L	pCi/L	pCi/L	pCi/L	pCi/L	#/mL	ug/L	ug/L	mg/L	umhos/cm
			100		2								5000			250	0.2	4					1	10							15		4		5					30										
Sample Date	***Sample Time***	***Sample Port***																																															
11/19/2008	9:20:00	S1	<0.02	<0.02	<0.005	<0.005					4.63	3.77	2.489	3.662	17.95	3945.26	<0.005	0.82	12.8				0.01	0.41		0.1	0.079		0.9																<1	<0.2		
11/19/2008	8:58:00	S3																		6	14.24	6900																											
11/19/2008	9:07:00	S5A																											1																			
11/19/2008	9:09:00	S5B																											0.8																			
11/19/2008	9:10:00	S7	<0.02		<0.005						3.30		3.997		17.78	4175.78	<0.005	0.86	13.6				0.01	0.44					0.8																			
11/19/2008	10:07:00	S10																		<0.5	14.33	8190																											
11/19/2008	10:01:00	S13																											<0.1																			
11/19/2008	**10:06:00**	**S16**	**<0.02**	**<0.02**	**0.008**	**0.008**					**11.19**	**11.21**	**7.572**	**6.318**	**63.3**	**16236.57**	**<0.005**	**1.74**	**45.4**	**0.5**	**40.8**	**28600**	**0.05**	**1.25**																											
11/19/2008	10:00:00	S17	<0.02		0.005						8.07		7.242		47.41	11092.42	0.008	1.49	31.8	<0.5	31	17140	0.03	0.86																											
11/19/2008	10:10:00	S20																		<0.5	14.31	8790																											
11/19/2008	10:02:00	S24	<0.02	<0.02	<0.005	<0.005					6.38	6.34	4.003	3.259	36.36	9864.82	<0.005	1.36	27.8	<0.5	25.3	16940	0.03	0.93																											
11/19/2008	14:44:00	S34	<0.02	<0.02	<0.005	<0.005					6.34	6.24	10.572	9.038	37.09	9281.41	<0.005	1.33	26	<0.5	25.4	16880	0.03	0.81																											
11/19/2008	14:40:00	S30																		<0.5	14.33	7940																											
11/19/2008	9:19:00	S4B																																															
11/19/2008	9:44:00	S18													0.29	67	<0.01	0.0018	0.14	<1	0.263	120	0.002	0.031	<0.01	<0.0071																									
11/19/2008	9:44:00	S21													0.47	11	<0.01	<0.0016	<0.034	<1	0.0449	21	<0.00093	0.0065	<0.01	<0.0071			0.096																					
11/21/2008	10:48:00	S1																											1.8																			
11/21/2008	11:07:00	S5A																											1.9																			
11/21/2008	11:00:00	S5B																											1.8																			
11/21/2008	11:17:00	S7																											1.8																			
11/21/2008	11:28:00	S13																											<0.1																			
11/21/2008	10:17:00	S31													0.59	110	<0.01	0.0018	0.25	<1	0.446	210	0.0014	0.079	<0.01	<0.0071			0.17																					
11/21/2008	10:43:00	S18																											0.17																			
11/21/2008	10:39:00	S21																											0.16																			
11/21/2008	10:37:00	S31																											0.12																			
11/21/2008	10:48:00	S1																												0.11																		
11/21/2008	11:15:00	S5A																												0.055																		
11/21/2008	11:00:00	S5B																												0.055																		
11/21/2008	11:08:00	S7																												0.057																		
11/25/2008	17:14:00	S1																											2.1																			
11/25/2008	15:36:00	S1													15.39	4393.93	<0.005	0.83	13				0.02	0.56																											
11/25/2008	15:38:00	S3																		9.5	13.44	39830																											
11/25/2008	16:10:00	S5A																																															
11/25/2008	17:18:00	S5A																											2.2																			
11/25/2008	16:08:00	S5B																																															
11/25/2008	17:20:00	S5B																											1.9																			
11/25/2008	15:40:00	S7													15.07	5953.74	<0.005	0.85	13.2				0.02	0.54																											
11/25/2008	17:12:00	S7																											1.9																			
11/25/2008	15:53:00	S10																		<0.5	13.38	39910																											
11/25/2008	17:24:00	S13																											<0.1																			
11/25/2008	16:00:00	S16													54.72	26578.16	<0.005	1.79	36.5	0.8	37.2	267980	0.05	1.39																											
11/25/2008	16:10:00	S17													41.07	15580.05	<0.005	1.6	32.6	<0.5	27.6	193780	0.04	1.16																											
11/25/2008	15:46:00	S20																		<0.5	13.37	40670																											
11/25/2008	15:43:00	S24													31.21	10393.89	<0.005	1.4	25.6	<0.5	23.9	80390	0.03	0.99																											
11/25/2008	15:48:00	S34													31.49	9796.55	<0.005	1.42	26.4	<0.5	23.2	82370	0.03	0.92																											
11/25/2008	15:47:00	S30																		<0.5	13.41	40900																											
11/25/2008	16:21:00	S4B																																															
11/25/2008	9:15:00	S18													0.26	52	<0.01	0.0016	0.096	<1	0.202	99	0.0035	0.029		<0.0033			0.18																					
11/25/2008	9:15:00	S21													0.048	8.9	<0.01	<0.00087	<0.034	<1	0.0397	23	0.0031	0.0057		<0.0033			0.14																					
11/25/2008	9:15:00	S31													0.59	100	<0.01	0.0022	0.2	5.2	0.4	190	0.0022	0.079		<0.0033			0.16																					
11/25/2008	8:45:00	S1																												0.13																		
11/25/2008	8:45:00	S5A																												0.057																		
11/25/2008	8:45:00	S5B																												0.046																		
11/25/2008	8:45:00	S7																												0.052																		
11/28/2008	12:22:00	S1																											2.5																			
11/28/2008	12:12:00	S5A																											2.8																			
11/28/2008	12:11:00	S5B																											2.5																			
11/28/2008	12:13:00	S7																											2.4																			
11/28/2008	12:28:00	S13																											<0.1																			
11/28/2008	12:04:00	S18																											0.089																			
11/28/2008	12:05:00	S21																											0.092																			
11/28/2008	12:07:00	S31																											0.082																			
12/1/2008	10:09:00	S1													15.87	4657.33	<0.005	0.89	13				0.01	0.55		<0.016	0.1																							
12/1/2008	10:09:00	S1																											2.7																			
12/1/2008	10:06:00	S3																		9.8	14.13	7940																											
12/1/2008	11:47:00	S5A																																															
12/1/2008	10:17:00	S5A																											2.7																			
12/1/2008	11:37:00	S5B																																															
12/1/2008	10:13:00	S5B																											2.4																			
12/1/2008	10:18:00	S7																											2.4																			
12/1/2008	12:07:00	S7													15.79	6191.43	<0.005	0.97	13.6				0.01	0.53																											
12/1/2008	10:34:00	S10																		<0.5	14.06	8770																											
12/1/2008	10:38:00	S13																											<0.1																			
12/1/2008	11:03:00	S16													57.84	19995.26	<0.005	1.94	46.5	0.5	42.9	33260	0.05	1.52																											
12/1/2008	10:45:00	S17													41.95	14110.37	<0.005	1.64	33.4	<0.5	31.8	26160	0.04	1.04																											
12/1/2008	11:08:00	S20																		<0.5	43.3	8410																											
12/1/2008	11:12:00	S24													32.22	9773.07	<0.005	1.44	26.2	<0.5	25.6	19600	0.03	0.93																											
12/1/2008	11:17:00	S34													35.85	11070.38	<0.005	1.56	25.8	<0.5	27.6	18060	0.03	0.91																											
12/1/2008	11:09:00	S30																		<0.5	31.8	9440																											
12/1/2008	11:33:00	S4B																																															
12/1/2008	9:17:00	S18													0.29	63	<0.01	0.0018	0.11	<1	0.241	120	0.0035	0.03		<0.0033			0.48																					
12/1/2008	9:11:00	S21													0.048	9.7	<0.01	<0.00087	<0.034	<1.5	0.0416	17	0.0072	0.0056		<0.0033			0.076																					
12/1/2008	9:05:00	S31													0.58	110	<0.01	0.0017	0.2	<1	0.425	210	0.0013	0.077		<0.0033			0.12																					

Bay Area Regional Desalination Project, Pilot Plant at Mallard Slough, External Laboratory Data

Analyte:					pH	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Bicarbonate Alkalinity	Carbonate Alkalinity	Total Calcium (Ca)	Total Magnesium (Mg)	Total Potassium (K)	Total Sodium (Na)	Total Anions, Sulfate (SO4)	Iron (Fe)		Aluminium (Al)		Antimony (Sb)		Arsenic (As)		Barium (Ba)		Beryllium (Be)		Boron (B)		Cadmium (Cd)		Chromium (Cr)		Cobalt (Co)		Copper (Cu)		Lead (Pb)		Manganese (Mn)		Mercury (Hg)		Molybdenum (Mo)		Nickel (Ni)		Selenium (Se)	
															Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss
Units:						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ng/L	ng/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MCL type					S									S	S		S									Proposed																					
MCL					6.5-8.5									250	300		50-200		6		10		2000		4		1400		5		100				1300		15		50		2						50	
Sample Date	***Sample Time***	***Sample Port***	***Lab***	***Report #***																																											
12/1/2008	9:48:00	S1	EBMUD	L148313-1																																											
12/1/2008	9:43:00	S5A	EBMUD	L148313-2																																											
12/1/2008	9:46:00	S5B	EBMUD	L148313-3																																											
12/1/2008	9:51:00	S7	EBMUD	L148313-4																																											
12/3/2008	12:49:00	S3	MWHL	302080																																											
12/3/2008	12:56:00	S1	MWHL	#200812050029																																											
12/3/2008	12:49:00	S3	MWHL	#200812050030																																											
12/5/2008	16:34:00	S1	CRG	MWH005f																																											
12/5/2008	16:21:00	S7	CRG	MWH005f																																											
12/5/2008	16:19:00	S13	CRG	MWH005f																																											
12/5/2008	16:07:00	S18	EBMUD	L148490-1																																											
12/5/2008	16:09:00	S21	EBMUD	L148490-2																																											
12/5/2008	16:11:00	S31	EBMUD	L148490-3																																											
12/8/2008	12:50:00	S1	CRG	MWH005g																																											
12/8/2008	12:57:00	S3	CRG	MWH005g																																											
12/8/2008	14:35:00	S5A	CRG	MWH005g											2.9																																
12/8/2008	13:03:00	S5A	CRG	MWH005g																																											
12/8/2008	14:38:00	S5B	CRG	MWH005g											3.4																																
12/8/2008	12:56:00	S5B	CRG	MWH005g																																											
12/8/2008	13:10:00	S7	CRG	MWH005g		84	1288.6	86	<1	70.61	270.1	84.3	2232.9	681.85	1		<3						57.5				1256.8														27.38									
12/8/2008	13:08:00	S7	CRG	MWH005g																																											
12/8/2008	13:22:00	S10	CRG	MWH005g																																											
12/8/2008	13:20:00	S13	CRG	MWH005g																																											
12/8/2008	13:30:00	S16	CRG	MWH005g		252	4332.9	254	<1	238.1	907.8	282.6	7584.9	2239.51	4.8	4.2	<3	<3					198	195.8			2942.8	2924.8													100.73	100.63								
12/8/2008	13:37:00	S17	CRG	MWH005g		190	3090.4	192	<1	168	648.6	202	5376.9	1625.65	3.7		<3						142.8				2361.8														67.82									
12/8/2008	13:30:00	S20	CRG	MWH005g																																											
12/8/2008	13:20:00	S24	CRG	MWH005g		158	2402.6	160	<1	133	502.8	157.4	4153.9	1402.45	3.3	2.1	<3	<3					109.2	109.3			2121.8	2173.8													52.82	51.22								
12/8/2008	13:34:00	S34	CRG	MWH005g		158	2659.3	160	<1	145.6	557.5	172.7	4600.9	1629.3	2.8	2.5	<3	<3					119.4	120.7			1725.8	1743.8													53.8	52.55								
12/8/2008	13:32:00	S30	CRG	MWH005g																																											
12/8/2008	14:43:00	S4B	CRG	MWH005g											1912.7	2.3																																
12/8/2008	11:35:00	S18	EBMUD	L148489-1	5.7	<5	7	<5	<0.1	0.18	0.5	1.1	24	0.84	<11		<21		<0.2		<0.25		<1.04		<0.041		359		<0.051		<5.2		<3.12		<0.3		<0.2		<0.624		<0.02		<9.36		<0.2		<0.3	
12/8/2008	11:20:00	S21	EBMUD	L148489-2	5.6	<5	<2	<5	<0.1	0.031	0.072	0.21	5.2	0.086	<11		<21		<0.2		<0.25		<1.04		<0.041		127		<0.051		<5.2		<3.12		<0.3		<0.2		<0.624		0.024		<9.36		<0.2		<0.3	
12/8/2008	11:07:00	S31	EBMUD	L148489-3	5.6	<5	4	<5	<0.1	0.068	0.15	2.2	57	0.23	<11		<21		<0.2		<0.25		<1.04		<0.041		588		<0.051		<5.2		<3.12		<0.3		<0.2		<0.624		<0.02		<9.36		<0.2		<0.3	
12/8/2008	11:49:00	S1	EBMUD	L148491-1																																											
12/8/2008	11:52:00	S5A	EBMUD	L148491-2																																											
12/8/2008	11:51:00	S5B	EBMUD	L148491-3																																											
12/8/2008	11:53:00	S7	EBMUD	L148491-4																																											
12/8/2008	11:01:00	S1	MWHL	302080		78	1257.9	80	<1	69.19	263.5	82	2163.9	590.27	310.7	1.5	173.9	<3						58.7			1254.8	1163.8											27.63	21.26								
12/12/2008	12:20:00	S1	CRG	MWH005h																																											
12/12/2008	12:20:00	S1	CRG	MWH005h																																											
12/12/2008	12:20:00	S1	CRG	MWH005h																																											
12/12/2008	12:57:00	S3	CRG	MWH005h																																											
12/12/2008	12:25:00	S5A	CRG	MWH005h																																											
12/12/2008	12:25:00	S5A	CRG	MWH005h																																											
12/12/2008	12:25:00	S5A	CRG	MWH005h																																											
12/12/2008	12:23:00	S5B	CRG	MWH005h																																											
12/12/2008	12:23:00	S5B	CRG	MWH005h																																											
12/12/2008	12:23:00	S5B	CRG	MWH005h																																											
12/12/2008	12:27:00	S7	CRG	MWH005h																																											
12/12/2008	12:27:00	S7	CRG	MWH005h																																											
12/12/2008	12:27:00	S7	CRG	MWH005h																																											
12/12/2008	13:22:00	S10	CRG	MWH005h																																											
12/12/2008	15:28:00	S13	CRG	MWH005h																																											
12/12/2008	15:28:00	S13	CRG	MWH005h																																											
12/12/2008	15:28:00	S13	CRG	MWH005h																																											
12/12/2008	13:30:00	S16	CRG	MWH005h																																											
12/12/2008	13:37:00	S17	CRG	MWH005h																																											
12/12/2008	13:30:00	S20	CRG	MWH005h																																											
12/12/2008	13:22:00	S24	CRG	MWH005h																																											
12/12/2008	13:32:00	S34	CRG	MWH005h																																											
12/12/2008	13:32:00	S30	CRG	MWH005h																																											
12/12/2008	14:43:00	S4B	CRG	MWH005h																																											
12/12/2008	15:41:00	S18	EBMUD	L148657-1																																											
12/12/2008	15:43:00	S21	EBMUD	L148657-2																																											
1/9/2009	18:09:00	S5A	CRG	MWH005-09b																																											
1/9/2009	18:11:00	S5B	CRG	MWH005-09b																																											
1/9/2009	18:05:00	S7	CRG	MWH005-09b																																											
1/9/2009	18:00:00	S13	CRG	MWH005-09b																																											
1/12/2009	15:01:00	S1	CRG	MWH005-09		98	1148.4	98	<1	55.02	245.5	72.5	1986	505.5			194	<3					48.1	47.2			1098	1048							<0.01	<0.01			28.23	20.51								
1/12/2009	14:40:00	S3	CRG	MWH005-09																																											
1/12/2009	14:44:00	S5A	CRG	MWH005-09											1326.6																																
1/12/2009	14:41:00	S5B	CRG	MWH005-09											2.3																																
1/12/2009	14:48:00	S7	CRG	MWH005-09		88	1151.9	88	<1	56.46	245.5	74.5	1989	519			<3						46.7				1122								<0.01				23.14									
1/12/2009	15:45:00	S10	CRG	MWH005-09																																											
1/12/2009	15:49:00	S13	CRG	MWH005-09																																											
1/12/2009	16:06:00	S16	CRG	MWH005-09		228	3152.5	228	<1	155.9	671	205.3	5365	1395.77			<3	<3					127	128.6			2448	2402							<0.01	<0.01			75.96	72.89								
1/12/2009	15:52:00	S17	CRG	MWH005-09		168	2440.4	168	<1	116.3	522.1	151.7	4184	1039.81			<3						95.3				1989								<0.01				49.2									
1/12/2009	16:18:00	S20	CRG	MWH005-09																																											
1/12/2009	16:20:00	S24	CRG	MWH005-09		160	2286.2	160	<1	112.1	487.2	145	3913	993.62			<3	<3					90.8	89.2			2168	2112							<0.01	<0.01			53.56	50.14								
1/12/2009	16:21:00	S34	CRG	MWH005-09		198	2450	198	<1	120.8	521.7	157.3	4132	1153.85			<3	<3					100.7	101			1731	1680							<0.01	<0.01			55.72	54.8								
1/12/2009	16:19:00	S30	CRG	MWH005-09																																											
1/12/2009	15:31:00	S4B	CRG	MWH005-09											2.8	2.1																																
1/13/2009	13:27:00	S1	EBMUD	L149227-1																																											

Bay Area Regional Desalination Project, Pilot Plant at Mallard Slough, External Laboratory Data

			Silver (Ag)		Thallium (Tl)		Tin (Sn)		Titanium (Ti)		Vanadium (V)		Zinc (Zn)		Bromide	Chloride	Total Cyanide	Fluoride	Silica	Total Suspended Solids	Conductivity	Total Dissolved Solids	Nitrite as Nitrogen	Nitrate as Nitrogen	Total Phosphate as P SM4500-P/C	Orthophosphate as P SM4500-P/C	Total Phosphorus SM4500-P/C	Reactive Phosphorous SM4500-P/A	TOC	UV254	Alpha particles		Beta particles and photon emitters		Radium 226/228 combined	Radium 226		Radium 228		Uranium (U)		Strontium 90 (Sr90)		Tritium (Tl)		Algae Count	MTBE	Perchlorate	Hydroxide Alkalinity	Specific Conductance
			Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss																	Result	Error	Result	Error		Result	Error	Result	Error	Result	Error	Result	Error	Result	Error					
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L S	mg/L	mg/L	mg/L	mg/L	mS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	abs	pCi/L	pCi/L	pCi/L	pCi/L		pCi/L	pCi/L	pCi/L	pCi/L	ug/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	#/mL	ug/L	ug/L	mg/L	umhos/cm
			100		2								5000			250	0.2	4					1	10							15		4		5					30										
Sample Date	***Sample Time***	***Sample Port***																																															
12/1/2008	9:48:00	S1																											0.1																				
12/1/2008	9:43:00	S5A																											0.059																				
12/1/2008	9:46:00	S5B																											0.05																				
12/1/2008	9:51:00	S7																											0.055																				
12/3/2008	12:49:00	S3																																															43				
12/3/2008	12:56:00	S1																																																		
12/3/2008	12:49:00	S3																																																		
12/5/2008	16:34:00	S1																											2.5																				
12/5/2008	16:21:00	S7																											2.5																				
12/5/2008	16:19:00	S13																											<0.1																				
12/5/2008	16:07:00	S18																											0.082																				
12/5/2008	16:09:00	S21																											0.12																				
12/5/2008	16:11:00	S31																											0.074																				
12/8/2008	12:50:00	S1																											2.3																				
12/8/2008	12:57:00	S3																		8.3	11.14	7820																												
12/8/2008	14:35:00	S5A																																																	
12/8/2008	13:03:00	S5A																											2.5																				
12/8/2008	14:38:00	S5B																																																
12/8/2008	12:56:00	S5B																											2.2																				
12/8/2008	13:10:00	S7													18.85	5540.72	<0.005	0.77	14.4																														
12/8/2008	13:08:00	S7																											2.3																				
12/8/2008	13:22:00	S10																		<0.5	11.25	8540																												
12/8/2008	13:20:00	S13																											<0.1																				
12/8/2008	13:30:00	S16													72	15267.43	<0.005	1.75	42.7	<0.5	31.4	24660																												
12/8/2008	13:37:00	S17													50.61	11566.31	<0.005	1.52	31.6	0.5	23	19350																												
12/8/2008	13:30:00	S20																		<0.5	11.56	7910																												
12/8/2008	13:20:00	S24													38.25	8999.1	<0.005	1.41	27.6	<0.5	20.1	15460																												
12/8/2008	13:34:00	S34													41.59	8747.04	<0.005	1.34	27.7	<0.5	20.1	15990																												
12/8/2008	13:32:00	S30																		<0.5	11.42	8140																												
12/8/2008	14:43:00	S4B																																																
12/8/2008	11:35:00	S18	<0.1		<0.41						<0.71		<1		0.16	37	<0.01	<0.00087	0.058	<1	0.136	63	0.0072	0.02	<0.01	<0.0033		0.069																				
12/8/2008	11:20:00	S21	<0.1		<0.41						<0.71		<1		0.033	7.3	<0.01	<0.00087	0.034	<1	0.031	14	0.0089	0.004	<0.01	<0.0033		0.06																				
12/8/2008	11:07:00	S31	<0.1		<0.41						<0.71		<1		0.42	84	<0.01	0.0012	0.15	<1	0.32	150	0.0013	0.058	<0.01	<0.0033		0.079																				
12/8/2008	11:49:00	S1																											0.1																				
12/8/2008	11:52:00	S5A																											0.057																				
12/8/2008	11:51:00	S5B																											0.047																				
12/8/2008	11:53:00	S7																											0.052																				
12/8/2008	11:01:00	S1													18.87	4199.3	<0.005	0.81	18.8				0.02	0.57																								73				
12/12/2008	12:20:00	S1																											1.7																				
12/12/2008	12:20:00	S1																											1.7																				
12/12/2008	12:20:00	S1																											1.7																				
12/12/2008	12:57:00	S3																																																	
12/12/2008	12:25:00	S5A																											1.8																				
12/12/2008	12:25:00	S5A																											1.8																				
12/12/2008	12:25:00	S5A																											1.8																				
12/12/2008	12:23:00	S5B																											1.8																				
12/12/2008	12:23:00	S5B																											1.8																				
12/12/2008	12:23:00	S5B																											1.8																				
12/12/2008	12:27:00	S7																											1.8																				
12/12/2008	12:27:00	S7																											1.8																				
12/12/2008	12:27:00	S7																											1.8																				
12/12/2008	13:22:00	S10																																																
12/12/2008	15:28:00	S13																											<0.1																				
12/12/2008	15:28:00	S13																											<0.1																				
12/12/2008	15:28:00	S13																											<0.1																				
12/12/2008	13:30:00	S16																																																
12/12/2008	13:37:00	S17																																																
12/12/2008	13:30:00	S20																																															
12/12/2008	13:22:00	S24																																															
12/12/2008	13:32:00	S34																																															
12/12/2008	13:32:00	S30																																															
12/12/2008	14:43:00	S4B																																															
12/12/2008	15:41:00	S18																											0.26																				
12/12/2008	15:43:00	S21																											0.091																				
1/9/2009	18:09:00	S5A																											5.9																				
1/9/2009	18:11:00	S5B																											4.5																				
1/9/2009	18:05:00	S7																											3.3																				
1/9/2009	18:00:00	S13																											0.3																				
1/12/2009	15:01:00	S1													16.87	3590.13	<0.005	0.63	21.3				0.02	0.59					2.3																				
1/12/2009	14:40:00	S3																		11.3	10.5	6480																												
1/12/2009	14:44:00	S5A																											3																				
1/12/2009	14:41:00	S5B																											1.4																				
1/12/2009	14:48:00	S7													18.14	3596.95	<0.005	0.77	16.2										60.1																				
1/12/2009	15:45:00	S10																		<0.5	10.74	6320																												
1/12/2009	15:49:00	S13																											25.9																				
1/12/2009	16:06:00	S16													62.93	9748.93	<0.005	1.6	40.7	<0.5	25	18150																												
1/12/2009	15:52:00	S17													37.56	7158.58	<0.005	1.26	26.4	<0.5	19.81	12640																												
1/12/2009	16:18:00	S20																		<0.5	10.35	5700																												
1/12/2009	16:20:00	S24													35.52	6861.17	<0.005	1.19	28.2	<0.5	19.19	12310																												
1/12/2009	16:21:00	S34													39.32	7935.12	<0.005	1.35	31.7	<0.5	20.9	14380																												
1/12/2009	16:19:00	S30																		<0.5	10.46	6170																												
1/12/2009	15:31:00	S4B																																															
1/13/2009	13:27:00	S1																											0.11																				

Bay Area Regional Desalination Project, Pilot Plant at Mallard Slough, External Laboratory Data

Analyte:					pH	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Bicarbonate Alkalinity	Carbonate Alkalinity	Total Calcium (Ca)	Total Magnesium (Mg)	Total Potassium (K)	Total Sodium (Na)	Total Anions, Sulfate (SO4)	Iron (Fe)		Aluminium (Al)		Antimony (Sb)		Arsenic (As)		Barium (Ba)		Beryllium (Be)		Boron (B)		Cadmium (Cd)		Chromium (Cr)		Cobalt (Co)		Copper (Cu)		Lead (Pb)		Manganese (Mn)		Mercury (Hg)		Molybdenum (Mo)		Nickel (Ni)		Selenium (Se)	
															Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss
Units:						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ng/L	ng/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MCL type					S									S	S		S										Proposed																					
MCL					6.5-8.5									250	300		50-200		6		10		2000		4		1400		5		100				1300		15		50		2						50	
Sample Date	***Sample Time***	***Sample Port***	***Lab***	***Report #***																																											
1/13/2009	13:29:00	S5A	EBMUD	L149227-2																																											
1/13/2009	13:31:00	S5B	EBMUD	L149227-3																																											
1/13/2009	13:33:00	S7	EBMUD	L149227-4																																											
1/13/2009	13:49:00	S18	EBMUD	L149228-1	5.6	<5		7	<5	<0.1	0.32	0.86	0.84	22	1.7	<11		<21						<1.04				306												<0.624								
1/13/2009	14:11:00	S21	EBMUD	L149228-2	5.4	<5	<2		<5	<0.1	0.035	0.091	0.18	4.6	0.1	<11		<21						<1.04				105												<0.624								
1/13/2009	14:24:00	S31	EBMUD	L149228-3	5.1	<5		2	<5	<0.1	0.077	0.17	2.2	58	0.31	<11		<21						<1.04				504												<0.624								
1/16/2009	17:02:00	S1	CRG	MWH005-09c																																											
1/16/2009	17:08:00	S5A	CRG	MWH005-09c																																										
1/16/2009	17:29:00	S5B	CRG	MWH005-09c																																										
1/16/2009	17:05:00	S7	CRG	MWH005-09c																																										
1/16/2009	17:07:00	S13	CRG	MWH005-09c																																										
1/16/2009	16:52:00	S18	EBMUD	L149358-1																																										
1/16/2009	16:55:00	S21	EBMUD	L149358-2																																										
1/16/2009	16:58:00	S31	EBMUD	L149358-3																																										
1/20/2009	10:28:00	S1	CRG	MWH005-09d		178	1332	178	<1	67.38	282.59	82.4	2394	498.94	342.5	1.8	222.3	<3	0.19	0.43	1.8	1.38	43.7	44.5	0.009	<0.005	1212.8	1151.2	0.031	0.028	0.845	0.129	0.279	0.073	2.9	2.23	0.249	0.007	18.89	9.81	3.7	0.6	2.157	2.639	2.664	1.851	0.02	0.02
1/20/2009	10:20:00	S3	CRG	MWH005-09d																																											
1/20/2009	10:41:00	S5A	CRG	MWH005-09d											3.1																																
1/20/2009	10:25:00	S5B	CRG	MWH005-09d											1.8																																
1/20/2009	10:23:00	S7	CRG	MWH005-09d		162	1236	162	<1	64.23	261.19	78.9	2217	574.99	1.2		<3		0.15		0.72		42.1		<0.005		1130.8		0.025		0.054		0.089		2.57		<0.005		14.41		0.7		2.482		2.156		0.02	
1/20/2009	12:02:00	S10	CRG	MWH005-09d																																											
1/20/2009	12:04:00	S13	CRG	MWH005-09d																																											
1/20/2009	11:41:00	S16	CRG	MWH005-09d		438	3452.2	438	<1	181.8	728.09	225	6114	2296.15	2.2	2.9	<3	<3	0.24	0.33	2.44	2.48	125.4	124.7	<0.005	<0.005	2456.8	2439.2	0.082	0.088	0.512	0.449	0.259	0.262	6.68	7.14	0.009	0.022	45.4	43.83	1.7	1.2	7.148	7.163	5.913	5.988	0.05	0.05
1/20/2009	11:37:00	S17	CRG	MWH005-09d		310	2549.9	310	<1	135.6	536.99	168	4498	1491.7	2.4		<3		0.26		1.71		93.8		<0.005		1968.8		0.054		1.314		0.192		5.42		0.01		31.78		1.2		5.211		4.468		0.04	
1/20/2009	14:22:00	S20	CRG	MWH005-09d																																											
1/20/2009	11:45:00	S24	CRG	MWH005-09d		294	2438.9	294	<1	127.9	514.69	159.7	4295	1317.99	1.6	1.7	<3	<3	0.16	0.25	1.77	1.51	88	86.6	<0.005	<0.005	2146.8	2152.2	0.049	0.052	0.206	0.263	0.181	0.172	4.79	4.91	<0.005	0.011	29.6	29.16	0.9	1.1	4.647	4.742	4.089	4.072	0.04	0.03
1/20/2009	11:48:00	S34	CRG	MWH005-09d		354	2740.4	354	<1	148.7	575.29	182.9	4764	1760.21	5.2	4.8	<3	<3	0.21	0.35	2.12	1.83	98.3	99.1	<0.005	<0.005	1734.8	1755.2	0.068	0.058	0.277	0.36	0.208	0.195	39.53	35.36	<0.005	0.011	33.25	33.32	1.3	1.2	6.278	5.551	5.359	4.636	0.05	0.05
1/20/2009	14:21:00	S30	CRG	MWH005-09d																																											
1/20/2009	11:21:00	S4B	CRG	MWH005-09d											1607.7	0.9																																
1/20/2009	12:59:00	S1	EBMUD	L149356-1																																											
1/20/2009	12:55:00	S5A	EBMUD	L149356-2																																											
1/20/2009	12:56:00	S5B	EBMUD	L149356-3																																											
1/20/2009	12:57:00	S7	EBMUD	L149356-4																																											
1/20/2009	12:12:00	S18	EBMUD	L149357-1	6	<5		7	<5	<0.1	0.4	1.1	1.2	28	2.1	<11		<21						<1.04				380												<0.624								
1/20/2009	12:34:00	S21	EBMUD	L149357-2	5.7	<5	<2		<5	<0.1	0.029	0.067	0.2	5.1	0.1	<11		<21						<1.04				133												<0.624								
1/20/2009	12:25:00	S31	EBMUD	L149357-3	5.7	<5		2	<5	<0.1	0.077	0.17	2.9	73	0.36	<11		<21						<1.04				631												<0.624								
1/23/2009	14:14:00	S1	CRG	MWH005-09e																																											
1/23/2009	14:24:00	S5A	CRG	MWH005-09e																																										
1/23/2009	14:21:00	S5B	CRG	MWH005-09e																																										
1/23/2009	14:29:00	S7	CRG	MWH005-09e																																										
1/23/2009	14:10:00	S13	CRG	MWH005-09e																																										
1/23/2009	14:36:00	S18	EBMUD	L149532-1																																										
1/23/2009	14:39:00	S21	EBMUD	L149532-2																																										
1/23/2009	14:41:00	S31	EBMUD	L149532-3																																										
1/26/2009	15:22:00	S1	CRG	MWH005-09f		98		98	<1					594.33																																	
1/26/2009	15:29:00	S3	CRG	MWH005-09f																																											
1/26/2009	15:32:00	S5A	CRG	MWH005-09f											5.8																																
1/26/2009	15:30:00	S5B	CRG	MWH005-09f											5.2																																
1/26/2009	15:36:00	S7	CRG	MWH005-09f		118		118	<1					673.46																																	
1/26/2009	16:54:00	S10	CRG	MWH005-09f																																											
1/26/2009	16:59:00	S13	CRG	MWH005-09f																																										
1/26/2009	17:06:00	S16	CRG	MWH005-09f		250		250	<1					2727.94																																	
1/26/2009	16:50:00	S17	CRG	MWH005-09f		190		190	<1					1830.14																																	
1/26/2009	17:00:00	S20	CRG	MWH005-09f																																										
1/26/2009	15:57:00	S24	CRG	MWH005-09f		134		134	<1					1639.47																																	
1/26/2009	16:25:00	S34	CRG	MWH005-09f		90		90	<1					2024.89																																	
1/26/2009	17:00:00	S30	CRG	MWH005-09f																																										
1/26/2009	16:38:00	S4B	CRG	MWH005-09f											2440.7	2.8																															
1/26/2009	10:45:00	S18	EBMUD	L149530-1	5.4	<5	6	<5	<0.1	0.28	0.75	1.1	27	1.5	<11		<21		<0.2		<0.25		<1.04		<0.03		379		<0.051		<5.2		<3.12		<0.3		<0.2		<0.624		<0.2		<9.36		<0.1		<0.3	
1/26/2009	10:15:00	S21	EBMUD	L149530-2	5.3	<5	<2	<5	<0.1	0.024	0.064	0.22	5.4	0.085	<11		<21		<0.2		<0.25		<1.04		<0.03		141		<0.051		<5.2		<3.12		<0.3		<0.2		<0.624		0.028		<9.36		<0.1		<0.3	
1/26/2009	11:00:00	S31	EBMUD	L149530-3	5.3	<5	2	<5	<01	0.095	0.2	3.2	82	0.35	<11		<21		<0.2		<0.25		<1.04		<0.03		665		<0.051		<5.2		<3.12		0.65		<0.2		<0.624		0.028		<9.36		<0.1		<0.3	
1/26/2009	13:28:00	S1	EBMUD	L149531-1																																											
1/26/2009	13:23:00	S5A	EBMUD	L149531-2																																										
1/26/2009	13:25:00	S5B	EBMUD	L149531-3																																										
1/26/2009	13:15:00	S7	EBMUD	L149531-4																																										
1/27/2009	17:34:00	S1	MWHL	303079																																										
1/27/2009	17:35:00	S3	MWHL	303079																																										
2/2/2009	12:54:00	S1	CRG	MWH005-09g		98		98	<1					293.37																																	
2/2/2009	13:05:00	S3	CRG	MWH005-09g																																											
2/2/2009	13:29:00	S5A	CRG	MWH005-09g																																										
2/2/2009	13:22:00	S5B	CRG	MWH005-09g																																										
2/2/2009	13:29:00	S7	CRG	MWH005-09g		82		82	<1					393.59																																	
2/2/2009	14:43:00	S10	CRG	MWH005-09g																																											
2/2/2009	14:39:00	S13	CRG	MWH005-09g																																										
2/2/2009	14:13:00	S16	CRG	MWH005-09g		258		258	<1					1248.42																																	
2/2/2009	13:54:00	S17	CRG	MWH005-09g		182		182	<1					803.14																																	
2/2/2009	14:44:00	S20	CRG	MWH005-09g																																										
2/2/2009	14:26:00	S24	CRG	MWH005-09g		166		166	<1					713.83																																	
2/2/2009	14:05:00	S34	CRG	MWH005-09g		182		182	<1					869.08																																	
2/2/2009	14:46:00	S30	CRG	MWH005-09g																																										
2/2/2009	12:54:00	S1	CRG	SP 0901148																																										
2/2/2009	14:15:00	S16	CRG	SP 0901148																																										
2/2/2009	14:30:00	S24	CRG	SP 0901148																																										
2/2/2009	14:06:00	S34	CRG	SP 0901148																																										

Bay Area Regional Desalination Project, Pilot Plant at Mallard Slough, External Laboratory Data

			Silver (Ag)		Thallium (Tl)		Tin (Sn)		Titanium (Ti)		Vanadium (V)		Zinc (Zn)		Bromide	Chloride	Total Cyanide	Fluoride	Silica	Total Suspended Solids	Conductivity	Total Dissolved Solids	Nitrite as Nitrogen	Nitrate as Nitrogen	Total Phosphate as P SM4500-P/C	Orthophosphate as P SM4500-P/C	Total Phosphorous SM4500-P/C	Reactive Phosphorous SM4500-P/A	TOC	UV254	Alpha particles		Beta particles and photon emitters		Radium 226/228 combined	Radium 226		Radium 228		Uranium (U)		Strontium 90 (Sr90)		Tritium (Tl)		Algae Count	MTBE	Perchlorate	Hydroxide Alkalinity	Specific Conductance
			Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss																	Result	Error	Result	Error		Result	Error	Result	Error	Result	Error	Result	Error	Result	Error					
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	abs	pCi/L	pCi/L	pCi/L	pCi/L		pCi/L	pCi/L	pCi/L	pCi/L	ug/L	ug/L	pCi/L	pCi/L	pCi/L	pCi/L	#/mL	ug/L	ug/L	mg/L	umhos/cm
																S																																	
			100		2								5000			250	0.2	4					1	10							15		4		5					30										
Sample Date	***Sample Time***	***Sample Port***																																														
1/13/2009	13:29:00	S5A																											0.063																				
1/13/2009	13:31:00	S5B																											0.052																				
1/13/2009	13:33:00	S7																											0.057																				
1/13/2009	13:49:00	S18													0.15	35	<0.01	0.0028	0.1	<1	0.143	71	0.00094	0.028		<0.0033			0.2																					
1/13/2009	14:11:00	S21													0.03	7.1	<0.01	0.001	0.038	<1	0.0307	<18	<0.00053	0.0065		<0.0033			0.29																					
1/13/2009	14:24:00	S31													0.44	94	<0.01	0.005	0.23	<1	0.35	170	0.0034	0.098		<0.0033			0.19																					
1/16/2009	17:02:00	S1																											1.2																				
1/16/2009	17:08:00	S5A																											1.1																				
1/16/2009	17:29:00	S5B																											1.2																				
1/16/2009	17:05:00	S7																											1																				
1/16/2009	17:07:00	S13																											<0.1																				
1/16/2009	16:52:00	S18																											0.16																				
1/16/2009	16:55:00	S21																											0.22																				
1/16/2009	16:58:00	S31																											0.12																				
1/20/2009	10:28:00	S1	<0.02	<0.02	<0.005	<0.005	0.027	0.013	7.336	<0.035	4.34	3.49	3.525	<0.005	14.12	3551.82	<0.005	0.65	21.1				0.02	0.58		0.11	<0.016		<0.1																				
1/20/2009	10:20:00	S3																		10.5	12.19	5510																												
1/20/2009	10:41:00	S5A																											<0.1																				
1/20/2009	10:25:00	S5B																											<0.1																				
1/20/2009	10:23:00	S7	<0.02		<0.005		<0.005		<0.035		1.93		<0.005		13.47	3581.46	<0.005	0.74	16										<0.1																				
1/20/2009	12:02:00	S10																		<0.5	13.6	8570																												
1/20/2009	12:04:00	S13																											<0.1																				
1/20/2009	11:41:00	S16	<0.02	<0.02	<0.005	<0.005	0.01	0.009	0.154	0.11	5.4	5.49	1.67	3.63	38.89	12850.04	<0.005	1.53	40.3	<0.5	31.4	24060																												
1/20/2009	11:37:00	S17	<0.02		<0.005		0.011		0.083		3.89		2.76		29.47	8329.41	<0.005	1.26	29.3	<0.5	24.5	17000																												
1/20/2009	14:22:00	S20																		<0.5	13.96	8720																												
1/20/2009	11:45:00	S24	<0.02	<0.02	<0.005	<0.005	<0.005	<0.005	0.061	0.046	3.96	3.91	0.392	<0.005	27.95	8921.53	<0.005	1.22	27.4	<0.5	23.6	16210																												
1/20/2009	11:48:00	S34	<0.02	<0.02	<0.005	<0.005	<0.005	<0.005	0.054	0.064	4.22	4.29	5.788	0.382	31.55	9836.62	<0.005	1.48	32.8	<0.5	28.2	20480																												
1/20/2009	14:21:00	S30																		<0.5	13.78	8530																												
1/20/2009	11:21:00	S4B																																															
1/20/2009	12:59:00	S1																											0.085																				
1/20/2009	12:55:00	S5A																											0.062																				
1/20/2009	12:56:00	S5B																											0.052																				
1/20/2009	12:57:00	S7																											0.056																				
1/20/2009	12:12:00	S18													0.21	46	<0.01	0.0024	0.089	<1	0.184	93	0.00086	0.03		<0.0033			0.1																					
1/20/2009	12:34:00	S21													0.039	8.7	<0.01	<0.00087	<0.034	<1	0.0334	27	<0.00053	0.007		<0.0033			0.071																					
1/20/2009	12:25:00	S31													0.55	120	<0.01	0.0026	0.21	<1	0.423	210	0.0025	0.096		<0.0033			0.092																					
1/23/2009	14:14:00	S1																											1.3																				
1/23/2009	14:24:00	S5A																											1.4																				
1/23/2009	14:21:00	S5B																											1																				
1/23/2009	14:29:00	S7																											1.2																				
1/23/2009	14:10:00	S13																											<0.1																				
1/23/2009	14:36:00	S18																											0.12																				
1/23/2009	14:39:00	S21																											0.088																				
1/23/2009	14:41:00	S31																											0.11																				
1/26/2009	15:22:00	S1														4100.49	<0.005	0.71	20.4	5.8	12.47	7940	0.02	0.68		0.1	0.083		1.5																					
1/26/2009	15:29:00	S3																																															
1/26/2009	15:32:00	S5A																											1.4																				
1/26/2009	15:30:00	S5B																											1.1																				
1/26/2009	15:36:00	S7														4540.6	<0.005	0.82	15.1										1.2																				
1/26/2009	16:54:00	S10																		<0.5	12.2	7830																												
1/26/2009	16:59:00	S13																											<0.1																				
1/26/2009	17:06:00	S16														13885.19	<0.005	1.72	45.5	<0.5	34.4	26540																												
1/26/2009	16:50:00	S17														9745.1	<0.005	1.41	33.8	<0.5	24.2	17610																												
1/26/2009	17:00:00	S20																		<0.5	12.15	7800																												
1/26/2009	15:57:00	S24														10966.61	<0.005	1.38	29.1	<0.5	21.7	14970																												
1/26/2009	16:25:00	S34														11696.17	<0.005	1.49	32.6	<0.5	24.9	17750																												
1/26/2009	17:00:00	S30																		<0.5	12.63	7820																												
1/26/2009	16:38:00	S4B																																															
1/26/2009	10:45:00	S18	<0.071		<0.2						<0.71		<1		0.21	48	<0.01	0.0020	0.076	<1	0.172	76	<0.0020	0.033	0.031	<0.0041			0.14																					
1/26/2009	10:15:00	S21	<0.071		<0.2						<0.71		<1		0.038	8.4	<0.01	<0.0011	<0.034	<1	0.034	13	<0.0020	0.0063	0.01	<0.0041			0.062																					
1/26/2009	11:00:00	S31	<0.071		<0.2						<0.71		<1		0.61	130	<0.01	0.0037	0.22	<1	0.472	220	0.0034	0.11	0.01	<0.0041			0.13																					
1/26/2009	13:28:00	S1																											0.13																				
1/26/2009	13:23:00	S5A																											0.066																				
1/26/2009	13:25:00	S5B																											0.057																				
1/26/2009	13:15:00	S7																											0.061																				
1/27/2009	17:34:00	S1																																															
1/27/2009	17:35:00	S3																																															
2/2/2009	12:54:00	S1														2205.87	<0.005	0.48	22.4				0.02	0.6					3.8																					
2/2/2009	13:05:00	S3																		10	6.42	4118																												
2/2/2009	13:29:00	S5A																											2.7																				
2/2/2009	13:22:00	S5B																											1.8																				
2/2/2009	13:29:00	S7														2350.16	<0.005	0.65	16.2										1.8																				
2/2/2009	14:43:00	S10																		<0.5	6.23	4294																												
2/2/2009	14:39:00	S13																											<0.1																				
2/2/2009	14:13:00	S16														7175.35	<0.005	1.37	45.3	<0.5	18.17	13970																												
2/2/2009	13:54:00	S17														4707.65	<0.005	1.12	31.8	<0.5	12.96	9020																												
2/2/2009	14:44:00	S20																		<0.5	6.57	4088																												
2/2/2009	14:26:00	S24														4585.63	<0.005	1.06	28.9	<0.5	11.46	5720																												
2/2/2009	14:05:00	S34														4906.91	<0.005	1.13	32.3	<0.5	14.12	10040																												
2/2/2009	14:46:00	S30																		<0.5	6.45	4092																												
2/2/2009	12:54:00	S1																												0.392	±0.824	17.3	±6.39		<0.373	±0.099	<0.253	±0.609	<0.305	±0.509	<0.596	±0.497	213	±248					
2/2/2009	14:15:00	S16																												0.914	±0.970	121	±33.8		<0.373	±0.099	<0.258	±0.547	2.57	±1.29	<0.596	±0.485	<408	±242					
2/2/2009	14:30:00	S24																												0.263	±0.826	34.6	±33.1		0.05	±0.121	<0.252	±0.885	1.04	±0.881	0.113	±0.576	136	±246					
2/2/2009	14:06:00	S34																												1.18	±1.04	35	±33.5		0.125	±0.147	0.405	±1.10	1.81	±1.11	0.075	±0.570	121	±246					

Analyte:					pH	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Bicarbonate Alkalinity	Carbonate Alkalinity	Total Calcium (Ca)	Total Magnesium (Mg)	Total Potassium (K)	Total Sodium (Na)	Total Anions, Sulfate (SO4)	Iron (Fe)		Aluminium (Al)		Antimony (Sb)		Arsenic (As)		Barium (Ba)		Beryllium (Be)		Boron (B)		Cadmium (Cd)		Chromium (Cr)		Cobalt (Co)		Copper (Cu)		Lead (Pb)		Manganese (Mn)		Mercury (Hg)		Molybdenum (Mo)		Nickel (Ni)		Selenium (Se)	
															Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss
Units:						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ng/L	ng/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MCL type					S									S	S		S										Proposed																				
MCL					6.5-8.5									250	300		50-200		6		10		2000		4		1400		5		100				1300		15		50		2						50	
Sample Date	***Sample Time***	***Sample Port***	***Lab***	***Report #***																																											
2/2/2009	11:00:00	S18	EBMUD	L149673-1	5.6	<5	2	<5	<0.1	0.16	0.33	0.51	12	0.6	<3.1		<9.4						<0.624				210												<0.416									
2/2/2009	11:11:00	S21	EBMUD	L149673-2	5.2	<5	<2	<5	<0.1	0.015	0.028	0.094	2.8	0.045	<3.1		<9.4						<0.624				78.7												<0.416									
2/2/2009	11:25:00	S31	EBMUD	L149673-3	5.3	<5	<2	<5	<0.1	0.038	0.077	1.3	34	0.14	<3.1		<9.4						<0.624				359												<0.416									
2/2/2009	11:55:00	S1	EBMUD	L149674-1																																												
2/2/2009	11:49:00	S5A	EBMUD	L149674-2																																											
2/2/2009	11:57:00	S5B	EBMUD	L149674-3																																											
2/2/2009	11:44:00	S7	EBMUD	L149674-4																																											
2/2/2009	9:40:00	S1	EBMUD	L149859-1																																											
2/2/2009	9:55:00	S5A	EBMUD	L149859-2																																											
2/2/2009	9:53:00	S5B	EBMUD	L149859-3																																											
2/2/2009	10:02:00	S7	EBMUD	L149859-4																																											
2/6/2009	12:51:00	S1	CRG	MWH005-09h			1232.2			61.07	262.18	83.7	2077		318.7	1.6	225.9	<3					45.6	46.6			1255.1	1157.9											25.13	17.49								
2/6/2009	13:21:00	S5A	CRG	MWH005-09h											3																																
2/6/2009	10:12:00	S5B	CRG	MWH005-09h											1.8																																
2/6/2009	13:01:00	S7	CRG	MWH005-09h			1221.3			60.66	259.78	79.5	2045		1.1		<3						44.3				1292.1																						
2/6/2009	10:15:00	S13	CRG	MWH005-09h																																											
2/6/2009	13:05:00	S16	CRG	MWH005-09h			4163			212	882.38	271.2	6759		6.5	6.1	<3	<3					156.9	155.7			3029.1	2984.9											76.34	75.66								
2/6/2009	13:12:00	S17	CRG	MWH005-09h			2903.8			143.9	617.88	188.5	4733		3.1		<3						111.2				2401.1												53.07									
2/6/2009	13:07:00	S24	CRG	MWH005-09h			2293.5			117.5	485.68	149.6	3736		3	2.8	<3	<3					85.5	85.8			2251.1	2268.9											41.52	42.84								
2/6/2009	13:10:00	S34	CRG	MWH005-09h			2718.4			139.4	575.58	173.8	4331		4.3	4.2	<3	<3					110.3	104.7			1872.1	1871.9											50.42	49.86								
2/6/2009	12:57:00	S4B	CRG	MWH005-09h											1314.6	1.1																																
2/6/2009	10:28:00	S18	EBMUD	L149860-1																																											
2/6/2009	10:22:00	S21	EBMUD	L149860-2																																											
2/6/2009	10:26:00	S31	EBMUD	L149860-3																																											
2/9/2009	9:34:00	S1	CRG	MWH005-09i		94	1201.8	94	<1	58.52	256.19	85.3	2050	494.88	412.5	2.2	276.3	<3					45.8	46.3			1135.1	1044.9											28.74	5.38								
2/9/2009	9:53:00	S3	CRG	MWH005-09i																																											
2/9/2009	9:56:00	S5A	CRG	MWH005-09i											3.3																																
2/9/2009	9:54:00	S5B	CRG	MWH005-09i											2.5																																
2/9/2009	10:00:00	S7	CRG	MWH005-09i		86	1172.5	86	<1	58.64	249.19	82	1993	517.17	1.3		<3						44.4				1151.1												23.01									
2/9/2009	10:48:00	S10	CRG	MWH005-09i																																											
2/9/2009	10:13:00	S13	CRG	MWH005-09i																																											
2/9/2009	10:45:00	S16	CRG	MWH005-09i		282	3847.8	282	<1	198.4	819.09	253	6395	2070.26	5	4.8	<3	<3					156.2	155.1			2774.1	2756.9											84.45	84.23								
2/9/2009	10:30:00	S17	CRG	MWH005-09i		198	2680.8	198	<1	140.2	565.99	174.1	4491	1411.04	3.4		<3						108				2157.1												58.5									
2/9/2009	10:40:00	S20	CRG	MWH005-09i																																											
2/9/2009	10:18:00	S24	CRG	MWH005-09i		164	2175.7	164	<1	115.2	458.49	142.7	3616	1029.1	2.3	2.2	3.2	<3					88.8	88.5			2082.1	2069.9											45.5	48.39								
2/9/2009	10:23:00	S34	CRG	MWH005-09i		192	2565.7	192	<1	134.7	541.39	165	4207	1346.02	5.2	5	<3	<3					105.2	105.3			1690.1	1695.9											55.09	53.73								
2/9/2009	10:39:00	S30	CRG	MWH005-09i																																											
2/9/2009	10:58:00	S4B	CRG	MWH005-09i											1747.6	2.3																																
2/9/2009	9:12:00	S18	EBMUD	L149858-1	5.4	<5	2.6	<5	<0.1	0.2	0.53	0.95	21	0.96	<3.1		<9.4						<0.624				311												<0.416									
2/9/2009	9:23:00	S21	EBMUD	L149858-2	5.3	<5	<2	<5	<0.1	<0.014	0.03	0.15	4	0.062	<3.1		<9.4						<0.624				108												<0.416									
2/9/2009	9:00:00	S31	EBMUD	L149858-3	5.3	<5	<2	<5	<0.1	0.054	0.11	2.1	56	0.2	<3.1		<9.4						<0.624				528												<0.416									
2/9/2009	9:40:00	S1	EBMUD	L149859-1																																											
2/9/2009	9:55:00	S5A	EBMUD	L149859-2																																											
2/9/2009	9:53:00	S5B	EBMUD	L149859-3																																											
2/9/2009	10:02:00	S7	EBMUD	L149859-4																																											
2/25/2009	10:36:00	S1	CRG	MWH005-09j		102	403.9	102	<1	26.25	82.16	27.2	620.3	166.78	477.5	12.8	298.1	<3					36.7	34.1			393.1	400																					
2/25/2009	10:41:00	S3	CRG	MWH005-09j																																											
2/25/2009	10:56:00	S5A	CRG	MWH005-09j											6.2																																
2/25/2009	10:28:00	S7	CRG	MWH005-09j		94	399	94	<1	26.45	80.86	26.5	620.4	190.43	2.9		13.1						32				294.9												46.14									
2/25/2009	10:12:00	S10	CRG	MWH005-09j																																											
2/25/2009	10:19:00	S13	CRG	MWH005-09j																																											
2/25/2009	10:08:00	S16	CRG	MWH005-09j		354	1742.9	354	<1	117.8	351.8	115.1	2644	764.51	25.2	24.8	<3	<3					146.7	144.6			1244	1225											248.2	241.2								
2/25/2009	10:15:00	S17	CRG	MWH005-09j		226	1015.4	226	<1	67.76	205.5	67.9	1550	473.96	11.9		5						79				687.3												129.1									
2/25/2009	11:10:00	S34	CRG	MWH005-09j		222	1069.1	222	<1	71.43	216.3	71	1595	472.61	12.3	15.4	<3	<3					90.2	89.8			561.7	558											145.8	132.7								
2/25/2009	11:24:00	S30	CRG	MWH005-09j																																											
2/25/2009	10:55:00	S4A	CRG	MWH005-09j											749.9	11																																
2/25/2009	10:42:00	S1	EBMUD	L150237-1																																											
2/25/2009	10:42:00	S1	EBMUD	L150237-1																																											
2/25/2009	10:25:00	S5A	EBMUD	L150237-2																																											
2/25/2009	10:25:00	S5A	EBMUD	L150237-2																																											
2/25/2009	10:30:00	S7	EBMUD	L150237-4																																											
2/25/2009	10:30:00	S7	EBMUD	L150237-4																																											
2/25/2009	9:55:00	S18	EBMUD	L150238-1	5.3		2	5	<0.1	0.07	0.14	0.19	5.7	0.31	<3.1		<9.4		<0.2		<0.2		<0.624		<0.03		135		<0.051		<2.08		<0.936		<0.3		<0.2		<0.416		0.041		<2.08		<0.1		<0.3	
2/25/2009	9:25:00	S31	EBMUD	L150238-3	5.3	<5	<2	<5	<0.1	0.018	0.032	0.55	13	0.086	<3.1		<9.4		<0.2		<0.2		<0.624		<0.03		217		<0.051		<2.08		<0.936		<0.3		<0.2		<0.416		0.07		<2.08		<0.1		<0.3	
2/27/2009	4:07:00	S1	CRG	MWH005-09k																																											
2/27/2009	4:09:00	S5A	CRG	MWH005-09k																																											
2/27/2009	4:07:00	S7	CRG	MWH005-09k																																											
2/27/2009	4:05:00	S13	CRG	MWH005-09k																																											
3/2/2009	9:10:00	S1	CRG	MWH005-09l		94	241.2	94	<1	19.77	46.59	14.8	366.5	90.43	704.2	19.6	444.5	18.2					29.8	27.5			244.2	249.5											103.02	85.85								
3/2/2009	12:58:00	S1	MWH Lab	200903100394																																											
3/20/2009	10:00:00	S1	CCWD																																													
3/20/2009	10:00:00	S5A	CCWD																																												
3/20/2009	10:00:00	S5B	CCWD																																												
3/20/2009	10:00:00	S7	CCWD																																												
3/20/2009	9:47:00	S18	CCWD			4	<1	4	<1	<2	<1	<1	<2	2.6																																		
3/20/2009	9:55:00	S21	CCWD			1	<1	1	<1	<2	<1	<2	<1	<0.5																																		
3/20/2009	9:51:00	S31	CCWD			2	<1	2	<1	<2	<1	<1	<2	2.5																																		
3/20/2009	3:49:00	S1	CRG	MWH005-09m		76	92.2	76	<1	10.65	15.92	<5	90.3	26.51	1212.6	57.3	572.1	8.3					27.2	20.9			131.2	133.2																					
3/20/2009	4:28:00	S3	CRG	MWH005-09m																																											
3/20/2009	3:40:00	S5A	CRG	MWH005-09m											14.1																																
3/20/2009	3:54:00	S5B	CRG	MWH005-09m											7.4																																
3/20/2009	3:37:00	S7	CRG	MWH005-09m		62	92.5	62	<1	10.87	15.87	<5	91.4	40.81	6.1		<3						20.1				134.1												32.98									
3/20/2009	4:22:00	S10	CRG	MWH005-09m																																											

Bay Area Regional Desalination Project, Pilot Plant at Mallard Slough, External Laboratory Data

			Silver (Ag)		Thallium (Tl)		Tin (Sn)		Titanium (Ti)		Vanadium (V)		Zinc (Zn)		Bromide	Chloride	Total Cyanide	Fluoride	Silica	Total Suspended Solids	Conductivity	Total Dissolved Solids	Nitrite as Nitrogen	Nitrate as Nitrogen	Total Phosphate as P SM4500-P/C	Orthophosphate as P SM4500-P/C	Total Phosphorous SM4500-P/C	Reactive Phosphorous SM4500-P/A	TOC	UV254	Alpha particles		Beta particles and photon emitters		Radium 226/228 combined	Radium 226		Radium 228		Uranium (U)		Strontium 90 (Sr90)		Tritium (Tl)		Algae Count	MTBE	Perchlorate	Hydroxide Alkalinity	Specific Conductance
			Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss																	Result	Error	Result	Error		Result	Error	Result	Error	Result	Error	Result	Error	Result	Error					
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L S	mg/L	mg/L	mg/L	mg/L	mS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	abs	pCi/L	pCi/L	pCi/L	pCi/L		pCi/L	pCi/L	pCi/L	pCi/L	ug/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	#/mL	ug/L	ug/L	mg/L	umhos/cm
			100		2								5000			250	0.2	4					1	10					15		4		5					30										
Sample Date	***Sample Time***	***Sample Port***																																														
2/2/2009	11:00:00	S18													0.084	10	<0.01	0.0015	0.077	17	0.0726	37	<0.002	0.026		<0.0041			0.098																					
2/2/2009	11:11:00	S21													0.017	3.9	<0.01	<0.0011	<0.034	1.2	0.0173	9.5	<0.002	0.0066		<0.0041			0.071																					
2/2/2009	11:25:00	S31													0.23	29	<0.01	0.002	0.22	5.4	0.183	89	0.0022	0.084		<0.0041			0.13																					
2/2/2009	11:55:00	S1																												0.12																		
2/2/2009	11:49:00	S5A																												0.62																		
2/2/2009	11:57:00	S5B																												0.055																		
2/2/2009	11:44:00	S7																												0.059																		
2/2/2009	9:40:00	S1																												0.15																		
2/2/2009	9:55:00	S5A																												0.078																		
2/2/2009	9:53:00	S5B																												0.067																		
2/2/2009	10:02:00	S7																												0.072																		
2/6/2009	12:51:00	S1													16.75														1.3																		
2/6/2009	13:21:00	S5A																											1.5																		
2/6/2009	10:12:00	S5B																											0.5																		
2/6/2009	13:01:00	S7													17.06														0.3																		
2/6/2009	10:15:00	S13																											<0.1																		
2/6/2009	13:05:00	S16													65.16																																	
2/6/2009	13:12:00	S17													45.04																																	
2/6/2009	13:07:00	S24													35.69																																	
2/6/2009	13:10:00	S34													43.01																																	
2/6/2009	12:57:00	S4B																																														
2/6/2009	10:28:00	S18																											0.11																		
2/6/2009	10:22:00	S21																											0.077																		
2/6/2009	10:26:00	S31																											0.19																		
2/9/2009	9:34:00	S1													13.84	3478.25	<0.005	0.72	22.2				0.02	0.57	0.109	0.11			1.1																					
2/9/2009	9:53:00	S3																		10	12.53	6970																													
2/9/2009	9:56:00	S5A																											1.3																		
2/9/2009	9:54:00	S5B																											0.5																		
2/9/2009	10:00:00	S7														3624.91	<0.005	0.74	15.6										0.3																					
2/9/2009	10:48:00	S10																		<0.5	14.79	6730																													
2/9/2009	10:13:00	S13																											<0.1																		
2/9/2009	10:45:00	S16													61.64	15368.49	<0.005	1.63	49.5	0.8	34.4	22220																													
2/9/2009	10:30:00	S17													42.16	10320.8	<0.005	1.36	34.3	<0.5	41.1	16700																													
2/9/2009	10:40:00	S20																		<0.5	10.15	130																													
2/9/2009	10:18:00	S24													33.57	7257.49	<0.005	1.21	30.1	<0.5	34.3	12200																													
2/9/2009	10:23:00	S34														10368.89	<0.005	1.33	34.8	<0.5	43.2	14500																													
2/9/2009	10:39:00	S30																		<0.5	11.84	6460																													
2/9/2009	10:58:00	S4B																																														
2/9/2009	9:12:00	S18													0.14	19	<0.01	0.0017	0.068	<1	0.129	44	<0.002	0.027	0.011	<0.0041			0.093																					
2/9/2009	9:23:00	S21													0.028	6.5	<0.01	<0.0011	<0.034	<1	0.0265	<9	<0.002	0.0055	0.012	<0.0041			0.086																					
2/9/2009	9:00:00	S31													0.43	56	<0.01	0.0022	0.21	<1	0.334	150	0.0025	0.092	0.011	<0.0041			0.11																					
2/9/2009	9:40:00	S1																												0.12																		
2/9/2009	9:55:00	S5A																												0.062																		
2/9/2009	9:53:00	S5B																												0.055																		
2/9/2009	10:02:00	S7																												0.059																		
2/25/2009	10:36:00	S1													4.022	1050.08		0.3	24				0.02	0.52					1.5																					
2/25/2009	10:41:00	S3																		8.8	3.08	1968																													
2/25/2009	10:56:00	S5A																											<0.1																		
2/25/2009	10:28:00	S7													4.094	1071.82		0.42	16.3										0.2																					
2/25/2009	10:12:00	S10																		0.8	3.04	1896																													
2/25/2009	10:19:00	S13																											<0.1																		
2/25/2009	10:08:00	S16													22	4545.73		1.3	66.8	<0.5	11.11	8424																													
2/25/2009	10:15:00	S17													11.42	2694.93		0.92	39.9	<0.5	6.98	4938																													
2/25/2009	11:10:00	S34													11.83	2813.77		0.99	42.1	<0.5	7.35	5222																													
2/25/2009	11:24:00	S30																		<0.5	3.01	1962																													
2/25/2009	10:55:00	S4A																																														
2/25/2009	10:42:00	S1																												0.11																		
2/25/2009	10:42:00	S1																												0.11																		
2/25/2009	10:25:00	S5A																												0.094																		
2/25/2009	10:25:00	S5A																												0.094																		
2/25/2009	10:30:00	S7																												0.094																		
2/25/2009	10:30:00	S7																												0.094																		
2/25/2009	9:55:00	S18	<0.071		<0.2						<0.71		<1		0.036	8.8	<0.010	<0.0011	0.095	<1	0.0363	23	<0.002	0.018	<0.01	<0.0041			0.13																					
2/25/2009	9:25:00	S31	<0.071		<0.2						<0.71		<1		0.085	17	<0.010	0.0013	0.23	<1	0.0757	44	<0.002	0.05	<0.01	<0.0041			0.09																					
2/27/2009	4:07:00	S1																											2.9																		
2/27/2009	4:09:00	S5A																											2.5																		
2/27/2009	4:07:00	S7																											1.4																		
2/27/2009	4:05:00	S13																											<0.1																		
3/2/2009	9:10:00	S1														674.54		0.38	11.3	14.3	2.16	1394	0.01	0.51	0.152	0.14			1.3																					
3/2/2009	12:58:00	S1																																													
3/20/2009	10:00:00	S1																												0.222																		
3/20/2009	10:00:00	S5A																												0.146																		
3/20/2009	10:00:00	S5B																												0.099																		
3/20/2009	10:00:00	S7																												0.117																		
3/20/2009	9:47:00	S18													<0.1	<4		<0.1		<10		<10	<0.04	<2		<0.2			<0.5																					<1	7
3/20/2009	9:55:00	S21													<0.1	<4		<0.1		<10		<10	<0.04	<2		<0.2			<0.5																					<1	3
3/20/2009	9:51:00	S31													<0.1	67	<0.1			<10		<10	<0.04	<2		<0.2			<0.5																					<1	10
3/20/2009	3:49:00	S1													0.599	124.87		0.1	35.2										4.4																					
3/20/2009	4:28:00	S3																		23.3	0.599	358																													
3/20/2009	3:40:00	S5A																											3.4																		
3/20/2009	3:54:00	S5B																											1.8																		
3/20/2009	3:37:00	S7													0.605	131.86		0.32	17.4										1.7																					
3/20/2009	4:22:00	S10																		<0.5	0.619	376																													

Analyte:					pH	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Bicarbonate Alkalinity	Carbonate Alkalinity	Total Calcium (Ca)	Total Magnesium (Mg)	Total Potassium (K)	Total Sodium (Na)	Total Anions, Sulfate (SO4)	Iron (Fe)		Aluminium (Al)		Antimony (Sb)		Arsenic (As)		Barium (Ba)		Beryllium (Be)		Boron (B)		Cadmium (Cd)		Chromium (Cr)		Cobalt (Co)		Copper (Cu)		Lead (Pb)		Manganese (Mn)		Mercury (Hg)		Molybdenum (Mo)		Nickel (Ni)		Selenium (Se)	
															Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss
Units:						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ng/L	ng/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MCL type					S									S	S		S																															
MCL					6.5-8.5									250	300		50-200		6		10		2000		4		1400		5		100				1300		15		50		2						50	
Sample Date	***Sample Time***	***Sample Port***	***Lab***	***Report #***																																											
3/20/2009	5:01:00	S13	CRG	MWH005-09m																																												
3/20/2009	4:13:00	S16	CRG	MWH005-09m		330	512.7	330	<1	60.77	87.65	24.9	471.9	229.17	49.5	41.9	<3	<3							107.1	112.2			424	448.1											175.29	172.79									
3/20/2009	3:20:00	S17	CRG	MWH005-09m		170	265.3	170	<1	32.87	44.49	12.9	231.6	110.87	17.4		<3						51.7				259.4													79.07										
3/20/2009	4:18:00	S20	CRG	MWH005-09m																																												
3/20/2009	4:05:00	S24	CRG	MWH005-09m		154	244.5	154	<1	28.59	42.04	11.7	230.4	111.41	22.2	21.1	<3	<3					51.6	52.7			304.7	311.6											81.35	80.93									
3/20/2009	4:08:00	S34	CRG	MWH005-09m		154	246.1	154	<1	28.8	42.29	11.6	227.5	111.25	23.4	16.1	<3	<3					50.9	53.1			197.2	208.9											73.72	73.28									
3/20/2009	4:26:00	S30	CRG	MWH005-09m																																											
3/20/2009	3:55:00	S4B	CRG	MWH005-09m											4557.6	129																																
3/20/2009	5:15:00	S18	MWH Lab	200903230001											<20		<20						<2				62												<2									
3/20/2009	5:16:00	S21	MWH Lab	200903230003											<20		<20						<2				<50												<2									
3/20/2009	5:17:00	S31	MWH Lab	200903230004											<20		<20						<2				77												<2									
3/24/2009	9:47:00	S18	CCWD																																												
3/24/2009	9:55:00	S21	CCWD																																												
3/24/2009	9:51:00	S31	CCWD																																												
3/24/2009	9:52:00	S1	CRG	MWH005-09n																																											
3/24/2009	9:53:00	S5A	CRG	MWH005-09n																																											
3/24/2009	9:51:00	S5B	CRG	MWH005-09n																																											
3/24/2009	9:50:00	S7	CRG	MWH005-09n																																											
3/24/2009	9:50:00	S13	CRG	MWH005-09n																																											
3/26/2009	15:39:00	S1	CCWD																																												
3/26/2009	15:45:00	S5A	CCWD																																												
3/26/2009	15:45:00	S5B	CCWD																																												
3/26/2009	15:45:00	S7	CCWD																																												
3/26/2009	15:43:00	S18	CCWD			1	<1	1	<1	<2	<1	<1	<2	2.7																																		
3/26/2009	15:30:00	S21	CCWD			1	<1	1	<1	<2	<1	<1	<2	2.6																																		
3/26/2009	15:57:00	S31	CCWD			2	<1	2	<1	<2	<1	<1	3.9	2.5													110																						
3/26/2009	15:11:00	S1	CRG	MWH005-09o		80	111.2	80	<1	12.36	19.52	5.4	108.5	32.33	684.9	66.6	359.5	<3					28.8	22.5			156.2	150.3											32.47	14.6									
3/26/2009	15:19:00	S3	CRG	MWH005-09o																																											
3/26/2009	15:13:00	S5A	CRG	MWH005-09o											10.8																																	
3/26/2009	15:16:00	S5B	CRG	MWH005-09o											5.5																																	
3/26/2009	15:18:00	S7	CRG	MWH005-09o		76	110.3	76	<1	12.27	19.34	5.3	117.3	44.94	6.4		<3						22				156.2												21.31										
3/26/2009	15:30:00	S10	CRG	MWH005-09o																																											
3/26/2009	15:51:00	S13	CRG	MWH005-09o																																											
3/26/2009	15:32:00	S16	CRG	MWH005-09o		310	539.1	310	<1	60.56	94.18	26.2	535.6	218.6	29.7	29.4	<3	<3					109.2	106.8			469.9	460.9											95.75	95.02									
3/26/2009	15:33:00	S17	CRG	MWH005-09o		166	288.8	166	<1	32.05	50.69	13.9	321.8	112.2	14.9		<3						55				289.4												50.25										
3/26/2009	15:35:00	S20	CRG	MWH005-09o																																											
3/26/2009	15:40:00	S24	CRG	MWH005-09o		182	292	182	<1	32.42	51.24	14.1	303.7	120.8	14.7	14.6	<3	<3					56.7	55.1			352	340											52.82	52.72									
3/26/2009	15:42:00	S34	CRG	MWH005-09o		114	187.3	114	<1	20.97	32.76	8.8	191.4	81.59	10.8	8.6	<3	<3					37.1	36			179.7	174.2											34.35	34.52									
3/26/2009	15:37:00	S30	CRG	MWH005-09o																																											
3/26/2009	16:05:00	S4B	CRG	MWH005-09o											3168	322.2																																
3/26/2009	17:15:00	S18	MWH Lab	200903300029											<20		<20						<2				63												<2									
3/26/2009	17:16:00	S21	MWH Lab	200903300030											<20		<20						<2				<50												<2									
3/26/2009	17:17:00	S31	MWH Lab	200903300031											<20		<20						<2				110												<2									
3/31/2009	15:44:00	S18	CCWD																																												
3/31/2009	15:50:00	S21	CCWD																																												
3/31/2009	15:47:00	S31	CCWD																																												
3/31/2009	15:55:00	S1	CRG	MWH005-09p																																											
3/31/2009	15:49:00	S5A	CRG	MWH005-09p																																											
3/31/2009	15:53:00	S5B	CRG	MWH005-09p																																											
3/31/2009	15:50:00	S7	CRG	MWH005-09p																																											
3/31/2009	15:52:00	S13	CRG	MWH005-09p																																											
4/2/2009	11:39:00	S1	CCWD																																												
4/2/2009	11:43:00	S5A	CCWD																																												
4/2/2009	11:41:00	S5B	CCWD																																												
4/2/2009	11:44:00	S7	CCWD																																												
4/2/2009	11:09:00	S18	CCWD			3	<1	3	<1	<2	<1	<1	3.5	3.1																																		
4/2/2009	11:23:00	S21	CCWD			2	<1	2	<1	<2	<1	<1	<2	3																																		
4/2/2009	11:15:00	S31	CCWD			2	<1	2	<1	<2	<1	<1	7.2	3																																		
4/2/2009	10:06:00	S1	CRG	MWH005-09q		80	273.5	80	<1	20.82	53.78	16.2	381.9	89.68	1007.7	12.5	516.2	<3					39.1	36.1			296.7	306.1											34.91	14.2									
4/2/2009	10:07:00	S3	CRG	MWH005-09q																																											
4/2/2009	10:10:00	S5A	CRG	MWH005-09q											3.6																																	
4/2/2009	10:08:00	S5B	CRG	MWH005-09q											4.3																																	
4/2/2009	10:11:00	S7	CRG	MWH005-09q		66	268.5	66	<1	20.62	52.71	15.8	375.6	121.02	2.3		<3						34.2				304												18.7										
4/2/2009	10:21:00	S10	CRG	MWH005-09q																																											
4/2/2009	10:13:00	S13	CRG	MWH005-09q																																											
4/2/2009	10:24:00	S16	CRG	MWH005-09q		386	1459.9	386	<1	116.3	284	92.9	2071	701.79	15.2	14.7	<3	<3					178.7	177.5			810.7	808.3											107.92	108.82									
4/2/2009	10:15:00	S17	CRG	MWH005-09q		186	748.1	186	<1	58.16	146.4	44.8	1032	357.54	5.3		<3						88.3				526.2												52.24										
4/2/2009	10:32:00	S20	CRG	MWH005-09q																																											
4/2/2009	10:39:00	S24	CRG	MWH005-09q		186	689.5	186	<1	53.48	135	41.3	950.3	350.4	6.5	5.8	<3	<3					79.5	80.4			580.9	589											47.89	47.67									
4/2/2009	10:36:00	S34	CRG	MWH005-09q		186	736	186	<1	56.96	144.2	43.5	1012	326.7	5.6	5.8	<3	<3					86.5	84.8			396	390.8											49.59	48.83									
4/2/2009	10:34:00	S30	CRG	MWH005-09q																																											
4/2/2009	12:14:00	S4B	CRG	MWH005-09q											2711.7	9.9																																
4/2/2009	11:14:00	S31	MWH Lab	200904030070											<20		<20						<2				170												<2									
4/2/2009	11:27:00	S21	MWH Lab	200904030071											<20		<20						<2				50												<2									
4/2/2009	11:10:00	S18	MWH Lab	200904030072											<20		<100						<2				120												<2									
4/8/2009	10:24:00	S1	CCWD																																												
4/8/2009	10:18:00	S5A	CCWD																																												
4/8/2009	10:13:00	S5B	CCWD																																												
4/8/2009	10:20:00	S7	CCWD																																												
4/8/2009	9:46:00	S18	CCWD			3	<1	3	<1	<2	<1	<1	<2	3																																		
4/8/2009	9:51:00	S21	CCWD			2	<1	2	<1	<2	<1	<1	<2	2.9																																		
4/8/2009	9:56:00	S31	CCWD			3	<1	3	<1	<2	<1	<1	4.6	3																																		
4/8/2009	7:50:00	S1	CRG	MWH005-09r		108	188.3	108	<1	16.68	35.62	10.5	234.9	60.72	967.1	33.1	399.2	8.6					34.3	27.5			228.6	219.6											60.26	31.01									

Bay Area Regional Desalination Project, Pilot Plant at Mallard Slough, External Laboratory Data

			Silver (Ag)		Thallium (Tl)		Tin (Sn)		Titanium (Ti)		Vanadium (V)		Zinc (Zn)		Bromide	Chloride	Total Cyanide	Fluoride	Silica	Total Suspended Solids	Conductivity	Total Dissolved Solids	Nitrite as Nitrogen	Nitrate as Nitrogen	Total Phosphate as P SM4500-P/C	Orthophosphate as P SM4500-P/C	Total Phosphorus SM4500-P/C	Reactive Phosphorous SM4500-P/A	TOC	UV254	Alpha particles		Beta particles and photon emitters		Radium 226/228 combined	Radium 226		Radium 228		Uranium (U)		Strontium 90 (Sr90)		Tritium (Tl)		Algae Count	MTBE	Perchlorate	Hydroxide Alkalinity	Specific Conductance
			Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss																	Result	Error	Result	Error		Result	Error	Result	Error	Result	Error	Result	Error	Result	Error					
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L S	mg/L	mg/L	mg/L	mg/L	mS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	abs	pCi/L	pCi/L	pCi/L	pCi/L		pCi/L	pCi/L	pCi/L	pCi/L	ug/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	#/mL	ug/L	ug/L	mg/L	umhos/cm
			100		2								5000			250	0.2	4						1	10					15		4		5					30										
Sample Date	***Sample Time***	***Sample Port***																																														
3/20/2009	5:01:00	S13																											<0.1																				
3/20/2009	4:13:00	S16													2.246	751.87		1.23	96.3	<0.5	3.11	2108																												
3/20/2009	3:20:00	S17													1.299	329.65		0.64	44.6	<0.5	1.53	974																												
3/20/2009	4:18:00	S20																		<0.5	0.623	414																												
3/20/2009	4:05:00	S24													1.294	330.2			44.3	<0.5	1.549	1008																												
3/20/2009	4:08:00	S34													1.279	327.79		0.78	46	<0.5	1.537	962																												
3/20/2009	4:26:00	S30																		<0.5	0.628	382																												
3/20/2009	3:55:00	S4B																																															
3/20/2009	5:15:00	S18																	<0.5																															
3/20/2009	5:16:00	S21																	<0.5																															
3/20/2009	5:17:00	S31																	<0.5																															
3/24/2009	9:47:00	S18																											<0.5																				
3/24/2009	9:55:00	S21																											<0.5																				
3/24/2009	9:51:00	S31																											<0.5																				
3/24/2009	9:52:00	S1																											4.1																				
3/24/2009	9:53:00	S5A																											5.1																				
3/24/2009	9:51:00	S5B																											2.8																				
3/24/2009	9:50:00	S7																											2.4																				
3/24/2009	9:50:00	S13																											<0.1																				
3/26/2009	15:39:00	S1																												0.2																				
3/26/2009	15:45:00	S5A																												0.135																				
3/26/2009	15:45:00	S5B																												0.104																				
3/26/2009	15:45:00	S7																												0.118																				
3/26/2009	15:43:00	S18													<0.1	<4		<0.1		<10		12	<0.04	<2		<0.2			<0.5																			<1	8
3/26/2009	15:30:00	S21													<0.1	<4		<0.1		<10		<10	<0.04	<2		<0.2			<0.5																			<1	4
3/26/2009	15:57:00	S31													<0.1	4.8		<0.1		<10		17	<0.04	<2		<0.2			<0.5																			<1	20
3/26/2009	15:11:00	S1													0.786	167		0.12	32.7				0.02	0.4		0.1			2.2																				
3/26/2009	15:19:00	S3																		14.5	0.736	458																												
3/26/2009	15:13:00	S5A																											3.3																				
3/26/2009	15:16:00	S5B																											1.3																				
3/26/2009	15:18:00	S7													0.784	165.1		0.32	19.3										1.1																				
3/26/2009	15:30:00	S10																		<0.5	0.759	388																												
3/26/2009	15:51:00	S13																											<0.1																				
3/26/2009	15:32:00	S16													2.593	746.6		0.92	80.5	<0.5	3.06	2062																												
3/26/2009	15:33:00	S17													1.565	497.1		0.58	45.5	<0.5	1.728	1066																												
3/26/2009	15:35:00	S20																		<0.5	0.755	480																												
3/26/2009	15:40:00	S24													1.603	578		0.56	49.2	<0.5	1.868	1218																												
3/26/2009	15:42:00	S34													1.167	294.5		0.38	33.3	<0.5	1.176	740																												
3/26/2009	15:37:00	S30																		<0.5	0.754	460																												
3/26/2009	16:05:00	S4B																																															
3/26/2009	17:15:00	S18																	<0.5						<0.02																								
3/26/2009	17:16:00	S21																	<0.5						<0.02																								
3/26/2009	17:17:00	S31																	0.59						<0.02																								
3/31/2009	15:44:00	S18																											<0.5																				
3/31/2009	15:50:00	S21																											<0.5																				
3/31/2009	15:47:00	S31																											<0.5																				
3/31/2009	15:55:00	S1																											1.6																				
3/31/2009	15:49:00	S5A																											2																				
3/31/2009	15:53:00	S5B																											1																				
3/31/2009	15:50:00	S7																											0.8																				
3/31/2009	15:52:00	S13																											<0.1																				
4/2/2009	11:39:00	S1																												0.155																				
4/2/2009	11:43:00	S5A																												0.114																				
4/2/2009	11:41:00	S5B																												0.097																				
4/2/2009	11:44:00	S7																												0.105																				
4/2/2009	11:09:00	S18													<0.1	7.1		<0.1		<10		20	<0.04	<2		<0.2			<0.5																			<1	27
4/2/2009	11:23:00	S21													<0.1	<4		<0.1		<10		<10	<0.04	<2		<0.2			<0.5																			<1	7
4/2/2009	11:15:00	S31													<0.1	14		<0.1		<10		29	<0.04	<2		<0.2			<0.5																			<1	53
4/2/2009	10:06:00	S1													2.254	626.04			33.3										1.5																				
4/2/2009	10:07:00	S3																		23.8	2.37	1348																												
4/2/2009	10:10:00	S5A																											1.9																				
4/2/2009	10:08:00	S5B																											0.7																				
4/2/2009	10:11:00	S7													2.332														0.5																				
4/2/2009	10:21:00	S10																		<0.5	2.33	1314																												
4/2/2009	10:13:00	S13																											<0.1																				
4/2/2009	10:24:00	S16													6.09	3379.81			88	<0.5	11.32	7570																												
4/2/2009	10:15:00	S17													4.15	1697.05			44	<0.5	5.64	3392																												
4/2/2009	10:32:00	S20																		<0.5	2.27	1310																												
4/2/2009	10:39:00	S24													3.908	1615.07			41.4	<0.5	5.58	3476																												
4/2/2009	10:36:00	S34													4.078	1673.58			42	<0.5	5.67	3552																												
4/2/2009	10:34:00	S30																		<0.5	2.31	1328																												
4/2/2009	12:14:00	S4B																																															
4/2/2009	11:14:00	S31																	<0.5																															
4/2/2009	11:27:00	S21																	<0.5																															
4/2/2009	11:10:00	S18																	<0.5																															
4/8/2009	10:24:00	S1																												0.201																				
4/8/2009	10:18:00	S5A																												0.147																				
4/8/2009	10:13:00	S5B																												0.197																				
4/8/2009	10:20:00	S7																												0.115																				
4/8/2009	9:46:00	S18													<0.1	4.3		<0.1		<10		<10	<0.04	<2		<0.2			<0.5																			<1	16
4/8/2009	9:51:00	S21													<0.1	<4		<0.1		<10		<10	<0.04	<2		<0.2			<0.5																			<1	5
4/8/2009	9:56:00	S31													<0.1	7.9		<0.1		<10		12	<0.04	<2		<0.2			<0.5																			<1	29
4/8/2009	7:50:00	S1													1.54	355.51			37.9										2.2																				

Bay Area Regional Desalination Project, Pilot Plant at Mallard Slough, External Laboratory Data

Analyte:					pH	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Bicarbonate Alkalinity	Carbonate Alkalinity	Total Calcium (Ca)	Total Magnesium (Mg)	Total Potassium (K)	Total Sodium (Na)	Total Anions, Sulfate (SO4)	Iron (Fe)		Aluminium (Al)		Antimony (Sb)		Arsenic (As)		Barium (Ba)		Beryllium (Be)		Boron (B)		Cadmium (Cd)		Chromium (Cr)		Cobalt (Co)		Copper (Cu)		Lead (Pb)		Manganese (Mn)		Mercury (Hg)		Molybdenum (Mo)		Nickel (Ni)		Selenium (Se)	
															Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss
Units:						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ng/L	ng/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MCL type					S									S	S		S									Proposed																						
MCL					6.5-8.5									250	300		50-200		6		10		2000		4		1400		5		100				1300		15		50		2						50	
Sample Date	***Sample Time***	***Sample Port***	***Lab***	***Report #***																																											
4/8/2009	7:57:00	S3	CRG	MWH005-09r																																											
4/8/2009	8:01:00	S5A	CRG	MWH005-09r											13.1																																	
4/8/2009	8:00:00	S5B	CRG	MWH005-09r											4.9																																	
4/8/2009	8:02:00	S7	CRG	MWH005-09r		76	201.9	76	<1	17.86	38.19	11.2	245.5	75.71	7.8		7.1						27.1				225.6												49.8										
4/8/2009	8:05:00	S10	CRG	MWH005-09r																																											
4/8/2009	8:07:00	S13	CRG	MWH005-09r																																											
4/8/2009	8:11:00	S16	CRG	MWH005-09r		178	828.9	178	<1	74.52	156.1	46.9	1108	337.66	36.5	38.8	4.9	5.1					127.4	124.9			599.4	590.4											256.72	255.45									
4/8/2009	8:17:00	S17	CRG	MWH005-09r		170	469.5	170	<1	41.89	88.6	26.4	593.4	198.3	19.2		3						68.8				396.1												123.92										
4/8/2009	8:20:00	S20	CRG	MWH005-09r																																											
4/8/2009	8:30:00	S24	CRG	MWH005-09r		188	500.4	188	<1	44.29	94.66	28.5	619	205.44	20	19	3.1	<3					75.2	73.4			505.6	491.6											136.72	134.15									
4/8/2009	8:27:00	S34	CRG	MWH005-09r		192	492.4	192	<1	43.94	92.94	27.6	535.9	237	20.5	20.5	4.3	4					76	74.1			329.1	325.5											134.42	129.95									
4/8/2009	8:22:00	S30	CRG	MWH005-09r																																											
4/8/2009	8:44:00	S4B	CRG	MWH005-09r											4711.6	27.5																																
4/8/2009	9:46:00	S18	MWH Lab	200904090253											<20		<100						<10				88												<2										
4/8/2009	9:51:00	S21	MWH Lab	200904090254											<20		<100						<10				<50												<2										
4/8/2009	9:56:00	S31	MWH Lab	200904090255											<20		<100						<10				140												<2										
4/10/2009	9:32:00	S18	CCWD																																												
4/10/2009	9:33:00	S21	CCWD																																												
4/10/2009	11:40:00	S31	CCWD																																												
4/10/2009	9:46:00	S1	CRG	MWH005-09t																																											
4/10/2009	9:47:00	S5A	CRG	MWH005-09t																																											
4/10/2009	9:41:00	S5B	CRG	MWH005-09t																																											
4/10/2009	9:48:00	S7	CRG	MWH005-09t																																											
4/10/2009	9:40:00	S13	CRG	MWH005-09t																																											
4/14/2009	12:10:00	S1	CRG	MWH005-09u																																											
4/14/2009	12:12:00	S5A	CRG	MWH005-09u																																											
4/14/2009	12:11:00	S5B	CRG	MWH005-09u																																											
4/14/2009	12:10:00	S7	CRG	MWH005-09u																																											
4/14/2009	12:12:00	S13	CRG	MWH005-09u																																											
4/15/2009	11:25:00	E-14 Lab	CRG	MWH003-09c															<0.01		2.83				<0.005				0.089		0.129				0.42		<0.005				1.4				0.343		0.02	
4/15/2009	11:25:00	Field Blank	CRG	MWH003-09c															<0.01		<0.01				<0.005				<0.005		<0.025				<0.01		0.026				<0.5				<0.005		<0.01	
4/15/2009		Travel Blank	CRG	MWH003-09c															<0.01		<0.01				<0.005				<0.005		<0.025				<0.01		<0.005				<0.5				<0.005		<0.01	
4/16/2009	13:13:00	S1	CCWD																																												
4/16/2009	13:33:00	S5A	CCWD																																												
4/16/2009	13:14:00	S5B	CCWD																																												
4/16/2009	13:16:00	S7	CCWD																																												
4/16/2009	12:41:00	S18	CCWD			3	<1	3	<1	<2	<1	<1	<2	2.7																																	
4/16/2009	12:58:00	S21	CCWD			2	<1	2	<1	<2	<1	<1	<2	<0.5																																	
4/16/2009	12:47:00	S31	CCWD			3	<1	3	<1	<2	<1	<1	3.8	2.6																																	
4/16/2009	9:26:00	S1	CRG	MWH005-09s		84	154.9	84	<1	14.66	28.72	8.2	175.4	52.17	1327.7	18.2	616	<3					27.9	21.5			191.5	190											44.87	2.26									
4/16/2009	9:30:00	S3	CRG	MWH005-09s																																											
4/16/2009	9:39:00	S5A	CRG	MWH005-09s											3.5																																	
4/16/2009	9:33:00	S5B	CRG	MWH005-09s											1.6																																	
4/16/2009	9:36:00	S7	CRG	MWH005-09s		74	153.8	74	<1	14.31	27.89	8	184.3	60.54	1.7		<3						21.8				197.4												17.57										
4/16/2009	9:43:00	S10	CRG	MWH005-09s																																											
4/16/2009	9:43:00	S13	CRG	MWH005-09s																																											
4/16/2009	9:49:00	S16	CRG	MWH005-09s		362	825.1	362	<1	80.6	151.5	45	997.7	293.32	10.6	9.6	<3	<3					119.1	122			589.7	599.2											94.71	90.21									
4/16/2009	9:53:00	S17	CRG	MWH005-09s		194	407.2	194	<1	39.23	74.99	22	474.7	147.69	4.6		<3						59.5				367												43.21										
4/16/2009	10:02:00	S20	CRG	MWH005-09s																																											
4/16/2009	10:03:00	S24	CRG	MWH005-09s		178	378.7	178	<1	36.23	69.99	20.6	450.3	141.71	4.7	3.9	<3	<3					55.6	56.6			415	426.5											43.21	40.71									
4/16/2009	9:57:00	S34	CRG	MWH005-09s		182	394.7	182	<1	37.93	72.86	21.2	491.2	147.21	4.7	4.4	9.6	<3					57.8	58			270.8	275.3											43.35	40.1									
4/16/2009	10:00:00	S30	CRG	MWH005-09s																																											
4/16/2009	10:19:00	S4B	CRG	MWH005-09s											4059.7	157.8																																
4/16/2009	12:41:00	S18	MWH Lab	305223(200904170217)											<20		<20						<2				84												3.4										
4/16/2009	12:58:00	S21	MWH Lab	305223(200904170218)											<20		<20						<2				<50												<2										
4/16/2009	12:47:00	S31	MWH Lab	305223(200904170219)											<20		<20						<2				120												<2										

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			Silver (Ag)		Thallium (Tl)		Tin (Sn)		Titanium (Ti)		Vanadium (V)		Zinc (Zn)		Bromide	Chloride	Total Cyanide	Fluoride	Silica	Total Suspended Solids	Conductivity	Total Dissolved Solids	Nitrite as Nitrogen	Nitrate as Nitrogen	Total Phosphate as P SM4500-P/C	Orthophosphate as P SM4500-P/C	Total Phosphorus SM4500-P/C	Reactive Phosphorous SM4500-P/A	TOC	UV254	Alpha particles		Beta particles and photon emitters		Radium 226/228 combined	Radium 226		Radium 228		Uranium (U)		Strontium 90 (Sr90)		Tritium (Tl)		Algae Count	MTBE	Perchlorate	Hydroxide Alkalinity	Specific Conductance
			Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss																	Result	Error	Result	Error		Result	Error	Result	Error	Result	Error	Result	Error	Result	Error					
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L S	mg/L	mg/L	mg/L	mg/L	mS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	abs	pCi/L	pCi/L	pCi/L	pCi/L		pCi/L	pCi/L	pCi/L	pCi/L	ug/L	ug/L	pCi/L	pCi/L	pCi/L	pCi/L	#/mL	ug/L	ug/L	mg/L	umhos/cm
			100		2								5000			250	0.2	4					1	10							15		4		5					30										
Sample Date	***Sample Time***	***Sample Port***																																															
4/8/2009	7:57:00	S3																		21.3	1.638	860																													
4/8/2009	8:01:00	S5A																											2.7																					
4/8/2009	8:00:00	S5B																											1.1																					
4/8/2009	8:02:00	S7													1.496	427.9				19.6									1.2																					
4/8/2009	8:05:00	S10																		<0.5	1.653	866																													
4/8/2009	8:07:00	S13																											<0.1																					
4/8/2009	8:11:00	S16													4.117	1944.3				81.3	<0.5	6.17	3928																													
4/8/2009	8:17:00	S17													2.886	1158.9				46.1	<0.5	3.79	2080																													
4/8/2009	8:20:00	S20																			<0.5	1.654	860																													
4/8/2009	8:30:00	S24													3.029	1208.9				50	<0.5	4.03	2354																													
4/8/2009	8:27:00	S34													3.03	1349.5				50.3	<0.5	4.01	2354																													
4/8/2009	8:22:00	S30																			<0.5	1.644	864																													
4/8/2009	8:44:00	S4B																																																
4/8/2009	9:46:00	S18																	<0.5																																
4/8/2009	9:51:00	S21																	<0.5																																
4/8/2009	9:56:00	S31																	<0.5																																
4/10/2009	9:32:00	S18																											<0.5																					
4/10/2009	9:33:00	S21																											<0.5																					
4/10/2009	11:40:00	S31																											<0.5																					
4/10/2009	9:46:00	S1																											1.7																					
4/10/2009	9:47:00	S5A																											2.5																					
4/10/2009	9:41:00	S5B																											1.4																					
4/10/2009	9:48:00	S7																											0.9																					
4/10/2009	9:40:00	S13																											<0.1																					
4/14/2009	12:10:00	S1																											0.7																					
4/14/2009	12:12:00	S5A																											1.2																					
4/14/2009	12:11:00	S5B																											0.1																					
4/14/2009	12:10:00	S7																											<0.1																					
4/14/2009	12:12:00	S13																											<0.1																					
4/15/2009	11:25:00	E-14 Lab	<0.02		<0.005								15.08																																					
4/15/2009	11:25:00	Field Blank	<0.02		<0.005								12.5																																					
4/15/2009		Travel Blank	0.67		<0.005								2.16																																					
4/16/2009	13:13:00	S1																												0.163																					
4/16/2009	13:33:00	S5A																												0.108																					
4/16/2009	13:14:00	S5B																												0.086																					
4/16/2009	13:16:00	S7																												0.089																					
4/16/2009	12:41:00	S18													<0.1	<4		<0.1		<10		<10	<0.04	<2	<0.2				<0.5																				<1	13
4/16/2009	12:58:00	S21													<0.1	<4		<0.1		<10		<10	<0.04	<2	<0.2				<0.5																				<1	5
4/16/2009	12:47:00	S31													<0.1	5.8		<0.1		<10		<10	<0.04	<2	<0.2				<0.5																				<1	22
4/16/2009	9:26:00	S1													1.217	280.69			41.4										3.4																					
4/16/2009	9:30:00	S3																		22	1.218	768																													
4/16/2009	9:39:00	S5A																											1.5																					
4/16/2009	9:33:00	S5B																											0.5																					
4/16/2009	9:36:00	S7													1.239	290.1			17.3										0.8																					
4/16/2009	9:43:00	S10																		<0.5	1.234	708																													
4/16/2009	9:43:00	S13																											<0.1																					
4/16/2009	9:49:00	S16													3.828	1519.9			82.5	<0.5	5.93	3706																													
4/16/2009	9:53:00	S17													2.544	783.45			44.9	<0.5	2.98	1760																													
4/16/2009	10:02:00	S20																		<0.5	1.246	746																													
4/16/2009	10:03:00	S24													2.448	758.98			42	<0.5	2.99	1678																													
4/16/2009	9:57:00	S34													2.488	733.65			21.9	<0.5	3.03	1778																													
4/16/2009	10:00:00	S30																		<0.5	1.246	726																													
4/16/2009	10:19:00	S4B																																																
4/16/2009	12:41:00	S18																	<0.5																																
4/16/2009	12:58:00	S21																	<0.5																																
4/16/2009	12:47:00	S31																	<0.5																																

System Status - to be filled out daily to document major issues
Note TIME INTERVAL of downtime/change and REASON

Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
11/6/2008	Started ferric addition	backwash failure alarm in morning				Run 1 start. Permeate pump (P4) running constantly. Little pressure at spigot. Found plastic bag inside pump. Now working.
11/7/2008		10:50 am failed to drain cell alarm during backwash.	9:15 shutdown due to low suction pressure. Low suction pressure because of S7 open to sample. 9:45 operator shutdown b/c T3 is low. Siemens and Layne had backwashed close together. 10:50 operator shutdown bc Siemens off to check alarm. On at 11:11 am. No way to calibrate pH/cond meters. Mike Dickenson to make program changes.	9:15 am shutdown due to low suction pressure. Low suction pressure because of S7 open to sample. 9:45 am operator shut down b/c T3 is low. Siemens and Layne had backwashed close together. On at 10:20 am.	9:15 am shutdown due to low suction pressure. Low suction pressure because of S7 open to sample. 9:45 am operator shut down b/c T3 is low. Siemens and Layne had backwashed close together. On at 10:20 am.	T1 low due to Tenera testing leads to all systems down to refill tank. Calibrations being done in meantime.
11/10/2008	Plan to run overnight	System off at 11/7/08 at 20:36 due to alarm: backwash failure to drain. Leaking out of drain for turbidimeters.	System had an emergency shutdown due to low suction pressure 11/7/08 21:39. Antiscalent pump not plugged in. Flush valve (Bray) not working, unresolved.	Plan to run overnight	Antiscalent pump not being controlled through HMI, unplug control to make it pump. Plan to run overnight.	SBS tank empty on arrival, ORP = 246 Performing chlorine dosing test today.
11/11/2008					CIP tank overflowing because RO3 CIP fill valve was left open.	
11/12/2008	Ferric pump not on. Fixed at 11am.	Investigating BW fail to drain alarms. Not enough head to drain? System off from 12-3 pm due to alarm: backwash fail to drain.	Stage 1 perm gauge doesn't match HMI. Called Enaqua, sending new PIT. Running with flush valve in manual closed.			
11/13/2008	System off at 4:08 am due to P1 shutting off and draining T1. New feed and filtrate turbidimeters installed.	System off at 5:00 am due to P1 shutting off and draining T1.	System had an emergency shutdown at 4:04 am due to low suction pressure. Feed pressure gauge reading zero but PIT reading 41.		Perm conductivity was previously reading max. Replaced with new CIT (0-1000 uS).	All RO systems shutdown in order to fill up the filtrate tank
11/14/2008	System started at 10:20 am. System shutdown at 10:50 am because P1 was not function. Sucked air for a few seconds.			System started at 10:20 am. At 10:35 am RO2/3/ computer shutdown and will not reboot. At 10:50 am E-stop button pressed because P1 shut off and the computer is still not suctioning.	System started at 10:20 am. At 10:35 am RO2/3/ computer shutdown and will not reboot. At 10:50 am E-stop button pressed because P1 shut off and the computer is still not suctioning.	All systems off upon arrival due to failure of P1. Power off onsite at 9:15. Restored by CCWD O&M at 10:05am.

System Status - to be filled out daily to document major issues
Note TIME INTERVAL of downtime/change and REASON

Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
11/17/2008		System off at 11/15/08 @ 3:48am due to alarm: backwash fail to drain. Ran PDT to ensure no damage to membranes: 0.07 psi/min, good. Installed air release into drain line near RO trailer. Lots of air out.	System had an emergency shutdown at 3:28 am due to low suction pressure.		System had an emergency shutdown at 3:30 am due to low suction pressure. Discovered very high permeate conductivity today. Shut down the system and ran a permeate flush for overnight storage.	Ferric in hypo tank. Hypo did not run over the weekend.
11/18/2008	Replaced and calibrated turbidimeters.				A breach in the end cap of the membrane is the cause of the high permeate conductivity. System to remain off until end cap issue is resolved.	
11/19/2008	High filtrate turbidity alarm shut the unit down on 11/18 at 4:48pm	Currently running. Last MW at 1:49am.	System had an emergency shutdown at 1:46 am due to low suction pressure.	Currently running. Fixed time stamp. Learned how to calibrate conductivity meters on RO's 2/3.	System had an emergency shutdown at 1:47 am due to low suction pressure. System was down most of the day while Eric Bruce was onsite fixing the issue with the end cap. Fixed time stamp. Found that cond probe is not working, off by a factor ~2.5. Replaced a second time.	T2 overflow due to lack of RO's
11/20/2008		11:00 AM MW soak interval changed from 20 mins to 15 mins	3:00 AM failed due to low feed pressure. 8:00 AM restarted.	3:00 AM failed due to low feed pressure. 8:00 AM restarted.	3:00 AM failed due to low feed pressure. 8:00 AM restarted. Initial permeate conductivity high, lowered w/in 30 mins.	
11/21/2008	CEB at approx 2:19 am.	MW at approx 3:57 am - 4:09 am. Broken fiber visible. Ran PDT = 0.07 psi/min. MW tests at 2:37 pm - 3:18 pm	System had an emergency shutdown at 3:59 am due to low suction pressure. Restarted at 9:30 am. System had an emergency shutdown at 1:01 pm am due to low suction pressure. Alarm at 3:31 pm: 2nd stage permeate flow low (perm flow 1-2 gpm)	System had an emergency shutdown at 4:00 am due to low suction pressure. Restarted at 9:30 am. System had an emergency shutdown at 1:02 am due to low suction pressure. Restarted at 1:30 am.	System had an emergency shutdown at 4:00 am due to low suction pressure. Restarted at 9:30 am. System had an emergency shutdown at 1:02 am due to low suction pressure. Restarted at 1:30 am.	
11/24/2008		MW at approx 11/23, 7:04 am - 7:24 am. MW tests at 9:30 am - 10:05 am and 2:32 pm - 3:07 pm.	System had an emergency shutdown at 11/12/08 7:25 am due to low suction pressure. Operator shut down during 2nd MW test b/c filtrate tank was getting low.	System had an emergency shutdown at 11/23/08 7:28 am due to low suction pressure.	System had an emergency shutdown at 11/23/08 7:28 am due to low suction pressure.	All RO systems shutdown due to low level in filtrate tank during second Siemens MW test. Off at 2:57 pm and back on at ~3:15 pm.
11/25/2008	Turned up to 26 gpm during Siemens MW (approx 10 am).	Forced MW around 10 am. Shut down at 12:30 to calibrate pH meter.	Shut down briefly around noon in order to calibrate pH meters.	Shut down briefly around noon in order to calibrate pH meters.	Shut down briefly around noon in order to calibrate pH meters.	Jar testing on ferric chloride. Did not get CRG samples to Fed Ex in time to ship next day. Lost some parameters.

System Status - to be filled out daily to document major issues
Note TIME INTERVAL of downtime/change and REASON

Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
11/26/2008		Forced MW at 9:33 - 10:04. Forced MW in the afternoon as well.	System had an emergency shutdown at 11:35 am due to low suction pressure. Unknown cause. System had an emergency shutdown at 12:15 am due to low suction pressure, T2 drain valve left open.	System had an emergency shutdown at 11:35 am due to low suction pressure. Unknown cause. System had an emergency shutdown at 12:15 am due to low suction pressure, T2 drain valve left open.	System had an emergency shutdown at 11:35 am due to low suction pressure. Unknown cause. System had an emergency shutdown at 12:15 am due to low suction pressure, T2 drain valve left open.	Lost the following for offsite: conductivity, turbidity, dissolved metals, nitrate, nitrite.
11/28/2008			System was shut down at 9 am in order to replace Bray valve. Back on at 11:15 am.	System had an emergency shutdown at 10:30 am due to low suction pressure because the T2 drain valve was cracked and Layne went into a backwash.	System had an emergency shutdown at 10:30 am due to low suction pressure because the T2 drain valve was cracked and Layne went into a backwash.	
12/1/2008	Down for calibrations at 2:30 pm. Filtrate turbidimeter not reading 800 mNTU solution correctly. See log book for steps taken. Conductivity cannot be read on HMI.	Down at 2:50 - 3 pm while Siemens works on MW issues.	System had an emergency shutdown at 11/30/08 7:53 am due to low suction pressure. System had an emergency shutdown at 12/1/08 11:45 am due to low suction pressure because Layne and Siemens had simultaneous cleanings. System on at 12 pm. System turned off at 2:30 pm because Layne was down for calibrations.	System had an emergency shutdown at 11/30/08 12:09 am due to low suction pressure. System off 2:50 - 3 pm because Siemens was down.	System had an emergency shutdown at 11/30/08 12:09 am due to low suction pressure. System off 2:50 - 3 pm because Siemens was down.	All RO systems down from 4:45 to 5:07 pm while we checked the cartridge filters.
12/2/2008	System off at 4:00 pm while Jordan retrieved item from T1. Read conductivity from GF screen below HMI.	Back to back MWs at 8 am. More MW from 10:11 until 11:35 am. System off at 4:00 pm while Jordan retrieved item from T1.	System had an emergency shutdown at 12/1/08 6:09 pm due to low suction pressure. T2 drain valve was left cracked. On at 8:30 am. Off from 8:30-8:45 am to change filters on the cartridge filters. Off from 10:11 - 11:35 am while Siemens was performing MWs. All RO systems off at 4:30 pm while Jordan retrieved item from T1.	System had an emergency shutdown at 12/1/08 6:07 pm due to low suction pressure. T2 drain valve was left cracked. On at 8:30 am. All RO systems off from 8:30-8:45 am to change filters on the cartridge filters. All RO systems off at 4:30 pm while Jordan retrieved item from T1.	System had an emergency shutdown at 12/1/08 6:07 pm due to low suction pressure. T2 drain valve was left cracked. On at 8:30 am. All RO systems off from 8:30-8:45 am to change filters on the cartridge filters. All RO systems off at 4:30 pm while Jordan retrieved item from T1.	Item retrieved from T1.
12/3/2008					System off 11-12 pm to install new end cap adaptors.	
12/4/2008						SBS pump not primed, ORP was 437 at 7:40 am.
12/5/2009	Changed clock to match real time.	Changed clock to match real time.	System shut down 9:00 - 9:22 am to replace stage 1 permeate pressure transmitter. Did not fix discrepancy between PIT and gauge. The problem might be with the gauge.			SBS pump not primed, need to change to bottom suction.

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Note TIME INTERVAL of downtime/change and REASON

Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
12/8/2008			System had an emergency shutdown at 3:30 pm due to low suction pressure when Layne's BW valve was left in manual open. System on ~3:40 pm.	System had an emergency shutdown at 3:30 pm due to low suction pressure when Layne's BW valve was left in manual open. System on ~3:40 pm.	System had an emergency shutdown at 3:30 pm due to low suction pressure when Layne's BW valve was left in manual open. System on ~3:40 pm.	
12/9/2008		CIP halt alarm at 8:30 am. Back on at 3:30 pm after Siemens resolved the issue. Fixed by Siemens programmer.		Shut down from 8 am - 3:30 pm because antiscalent pumps were not working.	Shut down from 8 am - 3:30 pm because antiscalent pumps were not working.	
12/10/2008		Timing Siemens MW: 32 mins. CIP return flow low and TMP high alarms. (13:47 and 13:49)	System had an emergency shutdown at 12:30 pm due to low suction pressure. This occurred when the feed valves on RO 2/3 were opened after pH meters were calibrated. Opening the valves cause P3 to shutdown. Noticed problems with pH meter. Rewired, now working correctly.	System down until 12:30 pm in order to calibrate pH meters.	System down until 12:30 pm in order to calibrate pH meters.	ORP at 450 on arrival because SBS was not primed. Changed pump to flooded suction.
12/11/2008		System turned off from 8:00 - 10:10 am for pH calibration. Bulb was fractured, probe replaced with spare. Can only read pH or ORP, not both. Switched from SBS to muriatic at Russ' request. (8am)	System had an emergency shutdown at 9:50 am due to low suction pressure from Siemens being shut down. System on at 11 am. System had an emergency shutdown at 11:19 am due to low suction pressure. System on at 11:50 am.	System on at arrival. Manually turned off at 9 am. System had an emergency shutdown at 9:50 am due to low suction pressure from Siemens being shut down. System on at 11 am.	System had an emergency shutdown at 3:42am. System back on at 9:45am. System had an emergency shutdown at 9:50 am due to low suction pressure from Siemens being shut down. System on at 11 am. In addition emergency stops occurred at 9:45 and 12:45 pm.	
12/12/2008	Down for PDT at 11:30 am. On again 30-60 mins later.		System down from 12:30 - 3:30 pm due to high permeate conductivity from broken o-ring in stage 2. Replaced pressure gauges (feed and stage 1 permeate)	On all day except for 5 mins due to surge from RO3 e-stopping.	Continued estopping issues. Took level switch wires out, no effect. Tried removing e-stop control in PLC, no effect. Tried forcing various estops, no effect.	
12/15/2008	12:25 pm filtrate turbidity high. Off due to broken compressor at 12:30 pm. New compressor set to 50 psi.	CIP halt alarm at 12/14/08 14:46.	System had an emergency shutdown at 12/13/08 at 5:34 pm due to low suction pressure. Not working due to broken o-rings. Waiting on more o-rings being ordered.	Off because UF systems off.	Determined that estops are due to high pressure alarms. Geno to change programming.	P5 not working due to air issues. Air released, pump working again.
12/16/2008	Air compressor running constantly because AV-06 is sticking. Toggled AV-06 and changed air compressor outlet pressure from 35 psi to 55 psi.	Started at 9:30 after CIP halt cleared. 10:32 am - AV02 stuck open, causing filtrate tank to continuously drain. Russ talking to programmers. Turned off because only RO 2 is running. Siemens membranes exposed, used permeate to fill tank.	Off (waiting on o-rings)	Running at 10 am	Off (waiting on pressure issues)	P1 not working in auto at 11:45. All systems off. CCWD came onsite to open pump station but couldn't get it to run. P2 also not running in auto. Drained T3 into T4 because of high salinity, can't use for CIPs.

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Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
12/17/2008	Mostly off due to issues with AV-06 leaking. Cannot run because AV-5 and AV-09 are stuck closed.	Running on and off as filtrate required	Replaced o-ring. Ran.		CIP, stored with SBS. System off	End of Run 1 Scott onsite to look at P1/P2 issues but they are now working. Not clear what the problem was. P5 issue with air blocking pipe. Lead to estop on Layne and RO2. Performed air release. Cleaned Amiad filter.
12/18/2008	Cleared water from AV-06 air lines and replaced actuator with spare, ran. Estop because P5 was off to balance pH.	Halt issue resolved. Flow set point was 25 gpm, couldn't reach it. Estop does not affect Siemens, Russ to talk to programmer. Russ onsite for CIP. Heater not working, shipping and should arrive tomorrow.	Off on arrival due to E-STOP. Related to P5 issue.	CIP, stored with SBS. System off	System off.	P5 issue with air blocking pipe.
12/19/2008			Stage 1 high pH CIP. Got some air into pump but was able to use permeate pump to flush. When end cap on stage 2 was reassembled, couldn't get in with all 3 shims, took one out.	System off.	System off.	Valves on P4 closed all night caused leak at pump suction (no soft set)
12/21/2008			Stage 2 high pH CIP Shutdown due to high permeate conductivity. Putting 3rd shim back. Another o-ring gone. Trying more lube. Another o-ring lost. Preserving in bisulfite.	System off.	System off.	
12/22/2009	CIP	Added 1000 mL to membrane tank (450 mg/L) for storage.	System off.	System off.	System off.	Pulling up pump 1.
12/29/2008	Running to flush T1 and T2	free Cl = 0.46 ppm, total = 1.34 ppm pH calibrated.	Permeate flush. Noticed that interstage PIT is corroded, Mike D sending replacement. Also looking at programming since high P alarm (shutdown alarm) at 57 psi. Concentrate P gauge cloudy (cap missing). Replaced with original feed gauge. Programming updated so pH and cond can be calibrated and to include decimal points on flow data. Could not get RSS program loaded.	Started at 5:10 pm. Calibrated pH meter.	Started at 5:10 pm. Calibrated pH meter.	P5 not working again, drained air. P3 leaking a lot. Installed union to soft set pump connections.

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Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
12/30/2009		pH meter broken.				Jordan and Adam onsite but no information recorded.
1/2/2009	On temporarily at 8:15am for daily walk through. On again at 9am during Siemens calibrations.	Alarms: 12/31/08 CIP recirculation flow low and failed to fill BW tank. Off at 9am for calibrations.	Off due to pressure/end cap issues. Stef to restart on Tuesday. Continuing to try to programming updates. Opened concentrate cond line to 2 gpm.	Running	Running	Valve on hypo tank closed. No hypo in system from 12/30 - 1/2.
1/5/2009	On at 8:00 am	Off at 8:10 am		Off at 8:00 am	Off at 8:00 am	
1/6/2009	On at 9:00 am. Off at 9:45 am.		Completed program updates. Soak.	Off at 9:15 am	Off at 9:15 am	Waste drain line broken. Site down for the night.
1/7/2009	Started systems at 7:30. Shut off at 9:30 when plant permeate tank full. Changed flow to 28 gpm so P2 can provide enough flow to pretreatments.	Started systems at 7:30. Shut off at 9:30 when plant permeate tank full.	Started systems at 7:30. Continuing o-ring issues. Stage 1 low pH CIP in morning. Stage 2 low pH CIP in afternoon.	Started systems at 7:30. Shut off at 9:30 when plant permeate tank full.	Started systems at 7:30. Shut off at 9:30 when plant permeate tank full.	Amiad: were using throttling valve to provide 12 psi back pressure. Cuts flow down, not enough for pretreatments. Leave valve open and perform Amiad backwash manually.
1/8/2009		CIP alarm @ 5:55pm. Failed to fill BW tank alarm @ 6:17 pm	Off due to Siemens extended MW. Approximate date that new stage 1 permeate pressure gauge installed.	Off due to Siemens extended MW	Off due to Siemens extended MW	Run 2 Start All systems running on arrival. Set Amiad flush interval to 99 days. Perform manual backwashes at
1/9/2009	Layne air compressor broke ~12pm. New compressor on at	Off on arrival (see 1/8/09). Various alarms, see log book. Russ thinks not enough flow from P2 to make MW efficient. On around 12pm but failed to start properly.	Down on arrival. Turned on at 8:00 am. Off 11-12 due to maintenance. Off at 12:50 because Siemens did not start properly. Cannot perform interstage conductivity calibration, not onscreen. Mike D to update programming. Also adding decimals to concentrate flow. Shutdown at 6pm (flow balance issues). Changed to 19 gpm feed, 12 gpm AV-02, 4 gpm AV-04.	Down on arrival. Turned on at 8:00 am. Off because Layne down. RO2 PIT not working, talked to Eric B on conference call. Checked for blockage and nothing. Ordering new PIT. Shutdown at 6pm (flow balance issues).	Down on arrival. Turned on at 8:00 am. Off because Layne down. Shutdown at 6pm (flow balance issues). Changed to 8 gpm feed, 3.6 gpm conc.	All systems off 11-12 for various maintenance. Layne Moved S11 and S13 sample ports to more representative areas. S12 no longer existing. S11 is now all stage 1 permeate.

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Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
1/12/2009	Turned off on arrival because RO systems were down. All systems back on ~1:45 pm.	Turned off on arrival because RO systems were down. All systems back on ~1:45 pm. Replaced pH meter.	Off upon arrival. All systems back on at 1:45 pm.	Off upon arrival. All systems back on at 1:45 pm. Installed first feed PIT replacement.	Off upon arrival. All systems back on at 1:45 pm.	In morning, performed RO1 flow calcs, P2 pump test, Siemens pH meter replacement.
1/13/2009		Off at 8:30 pm with alarms: TMP high, TMP high high. Set TMP high high alarm to 14 psi, up from 12.5. Set delay to 60 sec (from 30)	Shutdown at 10:15 pm on 1/21 due to Siemens shutdown. Received new interstage PIT.	Shutdown at 10:15 pm on 1/21 due to Siemens shutdown. pH meter not working. Installed new PIT. Working properly.	Shutdown at 10:15 pm on 1/21 due to Siemens shutdown.	
1/14/2009	Systems off because P1 not working. Compressor broken, pressure switch not working. Got new compressor from home depot. Drained and flushed BW tank, brown and murky.	Systems off because P1 not working.	Systems off because P1 not working.	Systems off because P1 not working.	Systems off because P1 not working.	P1 breaker reset.
1/15/2009	6:29 am, off due on high TMP alarm. Probably need CIP as multiple CEBs has not decreased TMP. Normally 3-5, now 12-14 psi.	Running but with alarms: TMP high (6:27 am), failed to fill BW tank (3:21 am), CIP recirculation low (2:59 am)	Systems down most of the day. New interstage PIT installed.	Systems down most of the day.	Systems down most of the day.	P1 flow test. Flow meter is reading incorrectly, flow approx 85 gpm with throttling valve fully open. Closed valve to provide 12 psi backpressure for Amiad system.
1/16/2009	CIP today. Systems down, Discovered that hypo in CEB tank was degraded. Replaced with fresh.	Systems down	Shutdown at 8:00 pm on 1/15/09. Off for Layne CIP	Off most of the day for Layne CIP. On startup, noticed feed PIT reading 1000. Need another replacement.	Off for Layne CIP.	
1/20/2009	All systems off on arrival (7:45am) due to waste tank estop. Shutdown occurred 1/19/09 @ 7:20 am. Systems back on at 8am. Down at 4:30 pm for PDT and conductivity calibration.	All systems off on arrival (7:45am) due to waste tank estop. Shutdown occurred 1/19/09 @ 7:20 am. Systems back on at 8am. Down at 4:30 for heater replacement. Unsuccessful. On again at 5:15 pm.	All systems off on arrival (7:45am) due to waste tank estop. Shutdown occurred 1/19/09 @ 7:20 am. Systems back on at 8am. Down 3pm - 4pm for instrument calibrations. Off at 4:30pm because filtrate tank was low. On again at 5:30 pm.	All systems off on arrival (7:45am) due to waste tank estop. Shutdown occurred 1/19/09 @ 7:20 am. Systems back on at 8am. Off at 4:30pm because filtrate tank was low. On again at 5:30 pm. RO2 feed PIT sheared at hex. Ordered a new one from Eric B.	All systems off on arrival (7:45am) due to waste tank estop. Shutdown occurred 1/19/09 @ 7:20 am. Systems back on at 8am. Off at 4:30pm because filtrate tank was low. On again at 5:30 pm.	All systems off on arrival (7:45am) due to waste tank estop. Shutdown occurred 1/19/09 @ 7:20 am.
1/21/2009	Off on arrival (estop around 6 pm on 1/20). On again at 8 am. Off to work on conductivity probe (morning)	Off on arrival (estop overnight), on again at 11:20 am. Off to work on heater until 10am	Continuing to calibrate interstage PIT. Off intermittently due to flow verifications (afternoon)	Off intermittently due to flow verifications (afternoon)	Off intermittently due to flow verifications (afternoon). During flow verifications, shut downs occurred frequently. Seeing high pressures similar to December.	All systems off on arrival due to waste tank estop. Shutdown occurred 1/20/09 @ 6:00 pm. **Valve on waste line closed.** Systems on at 8am.
1/22/2009		Off at 9am to work on heater.	Conductivity feed/concentrate of by 2 decimal places. (32767 from 0)			

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Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
1/26/2009	Off due to AV-01 not working (11-12:30pm). Replaced valve with spare.	Alarm at 12:30 pm because manual valve was not open enough. New pH meter installed.	Off while Layne was down. 11 am - 12:20 pm	Off 9-9:30 am to replace PIT (second). Off at 4pm because permeate conductivity probe not working and new feed PIT not working. On at 5:30 pm.	Off on arrival. (pressure issue?) On at 8:20 am.	P1 on over H alarm. See log book.
1/27/2009		Off most of the day due to CIP/heater issues. Tried to do CIP today but heater is still not operational. Also installed new circuit breaker, did not fix. Russ will be onsite tomorrow.	Off in morning due to Siemens being down.	Switched feed PIT to concentrate stream to test wiring. Now concentrate PIT reading max. Looks like it's the transmitter, not the wiring. Off in afternoon when we turned RO1 on and Siemens was still down.	Off in afternoon when we turned RO1 on and Siemens was still down.	
1/28/2009,	All systems off due to replacement of P2 impeller (beginning at noon)	All systems off due to replacement of P2 impeller (beginning at noon). Acid/Hypo CIPs. Having problems with Siemens Filter Trak 660sc. Too late to call Hach, call tomorrow.	All systems off due to replacement of P2 impeller (beginning at noon)	All systems off due to replacement of P2 impeller (beginning at noon) Perm CIT working again. Dried out? Installed 3rd PIT replacement.	All systems off due to replacement of P2 impeller (beginning at noon)	
1/29/2009	All systems off due to replacement of P2 impeller.	All systems off due to replacement of P2 impeller.	All systems off due to replacement of P2 impeller.	All systems off due to replacement of P2 impeller.	All systems off due to replacement of P2 impeller.	
1/30/2009	P2 fixed in the afternoon. All systems on.	P2 fixed in the afternoon. All systems on. Acid CIP.	P2 fixed in the afternoon. All systems on.	P2 fixed in the afternoon. All systems on.	P2 fixed in the afternoon. All systems on.	During the night, T1 overflow due to low level alarm for P1 fell back into the tank. Flooded Layne trailer. No damage so far. P2 cleaned with DI water. P4 discharge separated from PVC b/c downstream valve was closed. New parts purchased and P4 fixed.
1/31/2009	All systems operating on arrival. Layne feed valve remaining open during top feed BWs, causing feed tank to overflow.	All systems operating on arrival.	All systems operating on arrival.	All systems operating on arrival.	All systems operating on arrival.	Onsite for Malcolm Pirnie. P4 still leaking but cannot leave site for parts. To be fixed Monday.
2/2/2009	All systems off 8:30 - 9:45 am to repair P4 suction. Down 3:45 - 4 pm due to issues with the air compressor and solenoids. Lots of air from vent and air compressor was on frequently.	Alarm: BW tank fail to drain on 1/31/09 @ 2pm. All systems off 8:30 - 9:45 am to repair P4 suction.	All RO systems down on arrival (1/31/09 @ 2pm). All systems off 8:30 - 9:45 am to repair P4 suction.	All RO systems down on arrival (1/31/09 @ 2pm). All systems off 8:30 - 9:45 am to repair P4 suction. Feed PIT not working.	All RO systems down on arrival (1/31/09 @ 2pm). All systems off 8:30 - 9:45 am to repair P4 suction.	
2/3/2009	Down due to broken air compressor (morning). AV-08 still sluggish even with new compressor. Alex suspects actuator issues. BW issue from 1/31: Alex updated programming to bypass this issue.	Down in afternoon b/c of Layne flow test				

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Note TIME INTERVAL of downtime/change and REASON

Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
2/4/2009	Valve on feed turbidimeter was shut. Unclear as to how long that was happening. Took new air compressor back to home depot, making odd noises. Got another Husky.	Changed BW interval back to 30 mins (changed to 25 on 2/2 in order to induce a backwash)	Systems down @2:45-3 pm because Layne in BW and Siemens in MW.	Down in morning for pH calibrations. Were not responding to calibrations but worked once cleaned with muriatic. On at 10:45 am.	Down in morning for new PITs/gauges and pH calibrations. pH meters were not responding to calibrations but worked once cleaned with muriatic. On at 10:45 am but still need to adjust PIT reading.	
2/5/2009	Off at 7:49 pm on 2/4/09. Continuing issues with air system.		Down on arrival because Layne shut off the night before.	Down on arrival because Layne shut off the night before.	Down on arrival because Layne shut off the night before.	
2/6/2009	Off for PDT and not turned back on until 9am. Down about an hour.	Feed turbidimeter recalibrated (was reading 20 NTU as 27 NTU)	Off because Layne not turned back on. Also off ~8:15 - 8:30 to drain CIP tank. Continuing issues with interstage PIT. Replaced with same model as RO2/3 PITs.	Off because Layne not turned back on. New feed PIT installed (fourth).	Off because Layne not turned back on.	
2/9/2009			down at noon for pH calibrations	Down at noon for pH calibrations. pH probe would not calibrate again. Use data from RO3.	down at noon for pH calibrations	ORP at 400 on arrival because SBS tank was empty.
2/10/2009			Off on arrival. Not displaying history. Issues with feed pH meter. The polarity was reversed, rewiring fixed problem.	Off on arrival. Feed pH meter not working. Used data from RO3.	Off on arrival.	Run 2 end.
2/11/2009	System on	System off	System on	CIP today.	Down for CIPs.	
2/12/2009	System on	System off	System on	System off.	CIP today.	
2/13/2009	System off	CIP today	CIP today (high pH)	Preserved in SBS.	Preserved in SBS.	
2/16/2009	On for RO 1 seawater run in the morning.	On for RO 1 seawater run in the afternoon.	CIP today (low pH). Preserved in SBS.	Preserved in SBS.	Preserved in SBS.	Amiad filter cleaned with hypo. Reinstalled without rinsing but did not put too much Cl into system.

System Status - to be filled out daily to document major issues
Note TIME INTERVAL of downtime/change and REASON

Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
2/17/2009	CIP today.	System off	Preserved in SBS.	Preserved in SBS.	Preserved in SBS.	
2/18/2009	System off	System off	Preserved in SBS.	Preserved in SBS.	Preserved in SBS.	Lifted P1 so that CCWD could run their pumps.
2/19/2009	System off	System off	Preserved in SBS.	Preserved in SBS.	Preserved in SBS.	Started to reinstall P1 when CCWD came back to say they hadn't finished running their pumps.
2/23/2009	On at 8:45 am but did not run because of issues with AV-08, AV-09.	Acid MW in the morning (10:15 am). Running after MW complete.	Started system and pump was having a hard time matching flow set points. Turned off then back on and seems to be ok.	Turned on and feed PIT is still not working.	Not running b/c of Layne.	Run 3 original start. Reinstalled P1 at 8:45 am.
2/24/2009	System off.	Running all day and overnight	Running all day and overnight	Off and preserved.	Ran during the day (8 am - 2 pm)	
2/25/2009	System off.	Running all day and overnight. Changed Siemens MW from 23 hrs to 12 hrs.	Running all day and overnight	Off and preserved.	Ran during the day (8 am 9 am, 11 am - 1 pm)	Changed set points at 12:25 pm.
2/26/2009	System off.	All systems off on arrival (7:30am). High high TMP at 12:56 pm. Hypo CIP at 8 am. TMP still too high, soaking in hypo overnight (500 ppm)	All systems off on arrival (7:30am). On at 12:34 pm when Siemens completed CIP. Off for Siemens to soak (1:34 pm)	Off and preserved.	All systems off on arrival (7:30am). On at 12:34 pm when Siemens completed CIP. Off for Siemens to soak (1:34 pm)	
2/27/2009	New AV-08 and AV-009 installed. System on at 9am. Shutdown at 10 am, low filtrate level. Layne hypo CEB hose found to not be attached to system. System froze in CEB, filtrate tank level low. Air compressor running constantly with lots of air leakage. Both likely due to problems with AV-08 sticking.	Acid CIP at 10 am. System on at 3:00 pm.	On at 9 am. On and off as UF systems allowed.	Off and preserved.	On at 9 am. On and off as UF systems allowed.	Run 3 hiatus.

System Status - to be filled out daily to document major issues
Note TIME INTERVAL of downtime/change and REASON

Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
3/2/2009	New actuators arriving tomorrow. Tried to empty air system of all water, not a lot in actuators but a lot in air lines.	Off on arrival due to high high alarm. (3/1/09 at 9:30 am) Getting new membranes for Siemens.	Down because Siemens is off.	Off and preserved.	System off.	Pulled up pump 1. CCWD running pumps. Could be for up to a month (April 1st). Perhaps tee in to CCWD pumps.
3/3/09 - 3/8/09	identified pneumatic system as water source, salt crystals in actuators.	System off.	System off.	Off and preserved.	System off.	CCWD running pumps. Will repipe pilot to take water from the hydrant.
3/6/2009	System off.	System off.	Preserving in SBS	Off and preserved.	Preserving in SBS	
3/11/2009	Changed all actuators except AV-05. Checked AV-08 and AV-09 for salt damage, look good. Unsuccessful at fixing steel air piping.	System off.	Off and preserved.	Off and preserved.	Off and preserved.	Acquired most parts for hydrant piping.
3/12/2009	Installed new AV-05. Cut air line piping and installed plugs. AV-09 not closing. Replaced air line, still not working. Solenoids? Started up Layne to fill the filtrate tank. Cannot leave overnight because AV-09 is not functional.	Installed new membranes, soaking in permeate (2 dummies, 2 modules). Sending two membranes for autopsy.	Off and preserved.	Off and preserved.	Off and preserved.	Reinstalled P1 as CCWD won't be running their pumps until May 1st.
3/13/2009	Started Layne	Set to 17 gpm. Performed clean water flux testing. Set to run over the weekend.	Started system, pump having a hard time with PID loop. Similar issue as 2/23/09. Disregard feed conductivity because its from RO2 or RO3, neither of which is running. Set to run over the weekend. Flows modified to run with just Siemens operating.	Off and preserved.	Off and preserved.	
3/16/2009	Installed 9 new solenoids today. Checked operation of actuators from HMI, all worked fairly easily. AV-08 makes a buzzing noise but appears to work fine. Installed some of the new pneumatic piping but could not switch out pressure switch or solenoid valve. Layne now running at 33gpm.	Ran over the weekend. Fail to fill BW tank alarm at 3/14 at 8 am. Doesn't connect with RO1. Probably just MW. TMP was high (10.5 range). Soak membranes overnight in permeate and hypo.	Off at 3/13 at 19:45. On at 3:30 pm.	Off and preserved.	On at 3:30 pm.	

System Status - to be filled out daily to document major issues
Note TIME INTERVAL of downtime/change and REASON

Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
3/17/2009	Operator shutdown on arrival. Restarted at 10 am. Installed remaining pneumatic piping.	Flushed with raw water and then operating.	Off on arrival. Restarted at 7:30 am.	Started system at 7:30 am.	Off on arrival. Restarted at 7:30 am.	Run 3 Restart
3/19/2009	Cannot perform PDT.		Operating on arrival.	Off on arrival, restarted.	Off on arrival, restarted.	
3/20/2009	Changed out coil on AV-08 solenoid with original to stop buzzing. PDT fix: switch relay for SV-10 to unused relay port 10. Old relay was burned out.	Stuck in hypo MW on arrival. Spoke with programmers and issue should be resolved.	Shut down at 4:30 pm 3/19. Restarted in the morning.	Shut down at 4:30 pm 3/19.	Shut down at 4:30 pm 3/19. Restarted in the morning.	
3/23/2009	Operating on arrival.	Operating on arrival.	Operating on arrival.	Operating on arrival. Changed time to daylight savings.	Operating on arrival. Changed time to daylight savings.	SBS tank empty on arrival. Adam sprained his ankle walking in the yard area.
3/24/2009	Operating on arrival.	Operating on arrival.	Operating on arrival.	Operating on arrival.	Operating on arrival.	
3/26/2009	Operating on arrival.	Operating on arrival.	Off on arrival (6:40 am 3/26/09). Restarted at 8:30 am.	Off on arrival (6:40 am 3/26/09). Restarted at 8:30 am.	Off on arrival (6:40 am 3/26/09). Restarted at 8:30 am.	
3/27/2009					Off on arrival. Restarted.	
3/30/2009	Operating on arrival.	Operating on arrival. Hypo tube on Layne came out during a MW.	Operating on arrival.	Operating on arrival.	Operating on arrival.	SHC tube leaking in Layne trailer. Repaired.
3/31/2009	CIP	Running intermittently.	Running intermittently. Calibrating pH meters.	Running intermittently. Calibrating pH meters.	Running intermittently. Calibrating pH meters.	

System Status - to be filled out daily to document major issues
Note TIME INTERVAL of downtime/change and REASON

Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
4/2/2009	Normal operations.	Normal operations.	Normal operations.	Normal operations.	Normal operations.	
4/3/2009	Normal operations.	Normal operations.	Normal operations.	Normal operations.	Normal operations.	
4/6/2009	PDT jumped to 0.33 psi/min	Failed to fill BW tank 4/5 at 2:30 pm.	Off at 4/5 at 6pm. On at 2:30 pm.	Off at 4/5 at 6pm. On at 2:30 pm. Permeate cond reading max. Went to fix and now reading normally.	Off at 4/5 at 6pm. On at 2:30 pm.	
4/7/2009	Normal operations. Changed clocks to daylight savings time.	Normal operations. Changed clocks to daylight savings time.	Normal operations. Calibrated pH meters.	Normal operations. Permeate cond still reading normally. Calibrated pH meters.	Normal operations. Calibrated pH meters.	
4/8/2009	Normal operations.	Normal operations.	Normal operations.	Normal operations. New feed PIT and dampener installed. Still not working.	Normal operations.	
4/10/2009	Normal operations.	TMP high alarm on 4/10 at 2:00 am. Changed MW interval from 40 hours to 30 hours.	Off on arrival. Valve on filtrate tank too open?	Off on arrival. Valve on filtrate tank too open? Removed dampener and now feed PIT is working.	Off on arrival. Valve on filtrate tank too open?	
4/13/2009	Normal operations.	Normal operations.	Normal operations.	Normal operations.	Normal operations.	SHC and AA were completely empty upon arrival at 8:30 am.
4/14/2009	Normal operations.	Normal operations.	Normal operations.	Normal operations.	Normal operations.	SHC pump wasn't primed.
4/16/2009	Normal operations.	Normal operations.	Normal operations.	Normal operations.	Normal operations.	Valve on AA tank was closed.

System Status - to be filled out daily to document major issues
Note TIME INTERVAL of downtime/change and REASON

Date	Layne/Norit	Siemens/Memcor	RO1	RO2	RO3	Other
4/17/2009	Normal operations.	Normal operations.	Off on arrival, back on 8:40 am.	Off on arrival, back on 8:40 am. Permeate cond not working again. Seems to be a start up issue?	Off on arrival, back on 8:40 am.	
4/20/2009	Normal operations.	Normal operations.	Normal operations.	Normal operations. Permeate cond back to normal.	Normal operations.	
4/23/2009	CIP. Ran overnight. Discovered that filtrate turbidity was not being properly transmitted to the HMI. Downloaded directly from SC100.	CIP	Systems off after solids sampling complete.	Systems off after solids sampling complete.	Systems off after solids sampling complete.	Solids sampling and performed settleability tests on Layne and Siemens. End of Run 3.
4/24/2009	System off.	Ran over the weekend.	System off.	System off.	System off.	

Daily Walk-Through - Layne-Norit Trailer

				When P-1 is operating					Layne Unit									
Date	**Time**	**Operator Initials**	**Cumulative Plant Flow**	**F-1 Flush Count**	**Pre-F-1 Pressure**	**Post-F-1 Pressure**	**P-2 discharge pressure**	**P-2 discharge pressure**	**Drain turb reservoirs**	**Feed temperature**	**Feed turbidity**	**Feed conductivity**	**TMP**	**Filtrate flow**	**Filtrate turbidity**	**Reset computer**	**Air**	**PDT**
			gal x 1000	**#**	**psi**	**psi**	**psi**	**psi**	**X**	**deg C**	**NTU**	**mS/cm**	**psi**	**gpm**	**mNTU**	**x**	**level**	**psi/min**
11/6/2008	10:30	JR/AM	109.2	26	15	11	10		X		0.00		4.75	24.0	0.37			
11/7/2008	8:30	JR	141.4	29	16	12	7		X		0.01		5.25	24.0	0.37	x		
11/10/2008	11:06	AM	226.9	39	18	14	10		X		0.07		4.94	24.0	0.37	x		
11/11/2008	15:00	AM	252.7	42	18	13	10		X		0.02		4.83	24.0	0.73	x		
11/12/2008	8:15	JG	271.2	42	17	13	6.5		X		0.02		4.85	24.0	0.73	x		
11/13/2008	8:17	AM	290.9	42	16	12	12		X		0.02		3.31	24.1	0.37	x		
11/14/2008	15:27	JG	297.8	50	15	12	6		X		0.10		2.65	24.1	0.37	x		
11/17/2008	8:35	JG	378.6	58	18	13	10		Y		0.18		2.64	24.0	0.73			
11/18/2008	7:34	AM	408.9	58	18	14	9		X	Instrument not	0.00	Instrument not	2.50	20.0	0.37	x		
11/19/2008	11:55	JG	446.4	66	18	12	7.5		X	working	10.55	working	2.80	24.0	50.00	x		
11/20/2008	9:00	JR	473	68	17	13	8		XY		14.19		2.75	24.0	N/A	x		
11/21/2008	9:35	JR	509.4	71	17	12	9		XY		42.01		2.40	24.0	N/A	x		
11/24/2008	8:35	JG	614.7	80	17	13	7		X		12.60		2.51	24.0		x		
11/25/2008	10:05	AM	652.6	83	16	12	6		XX		22.08		2.79	26.0	17.95	x		
11/26/2008	8:08	JG	685.1	86	16	12	7		X		12.09		2.51	23.9	15.75	x		
11/28/2008	9:00	JG	755	93	17	12	7		X		12.09		2.74	24.1	17.95	x	little	
12/1/2008	8:24	AM	859.2	102	18	14	7		X		11.30		2.51	24.0	16.48	x		
12/2/2008	8:52	AM	893.1	105	16	13	7		X		5.95		2.48	24.0	6.59	x	little	
12/3/2008	8:24	JG	925.8	108	18	13	8		X	12.9	9.11	13.95	2.87	24.0	10.26	x	little	
12/4/2008	7:48	AM	959.7	111	18	13	7		X	12.7	13.68	14.16	2.88	24.0	11.67	x	little	
12/5/2008	8:00	JG	994.8	114	19	12	11		X	12.7	12.77	14.08	2.96	24.1	10.66	x	little	
12/8/2008	8:46	NP	1100	123	19	14	7.5		X	11.1	12.68	13.70	3.01	24.1	10.30		little	
12/9/2008	8:18	AM	1134	126	18	14	10		X	10.4	11.20	13.76	2.92	24.0	10.11	x	lot CBW-T	
12/10/2008	8:17	AM	1165	129	18	14	9		X	11.1	27.84	14.83	3.44	24.0	21.39	x	med	
12/11/2008	8:00	AM	1200	132	18	14	12		X		29.01	14.89	3.88	24.0	16.06	x	med	0.090
12/12/2008	8:15	JG	1233.44	135	18	14	8		X	10.9	10.64	16.24	3.55	24.0	10.79	x	some	0.070
12/18/2008	9:00	JR	1276.295	151	18	12	10		X	10.3	9.75	17.10	3.77	24.0	22.12			
12/30/2008	9:57	AM	1307.648	190	14	11	10		X	9.0	8.67	14.46	2.92	24.1	14.77	x	low	0.160
1/2/2009	8:09	AM	1350.473	199	16	10	14		X	9.2	7.02	12.99	4.52	24.0	11.61	X	some low	0.108
1/5/2009	7:57	AM	1397.7	208	14	10	16			9.1	7.22	11.02	3.21	24.0	11.43	X	low	0.106
1/6/2009	7:45	JR	1414.727	211	15	11	11		X	9.1	4.03	10.45	3.29	23.9	14.89	X	x	
1/7/2009	9:55	AM																
1/8/2009	8:14	JR	1442.737	218	14	0	7		X	8.1	8.21	10.99	3.37	28.0	13.18	X		
1/9/2009	8:23	JG	1477.323	219	10	0	7		X	8.1	7.78	12.63	3.51	26.0	13.42	X	very little	0.092
1/12/2009	13:54	KL	1575.68	221	10	0	9		X	8.6	7.30		3.36	25.9	12.23	X	no	0.090
1/13/2009	8:58	KL	1598.03	222	16	12	10		X	8.3	7.43	11.54	3.35	26.0	11.95	X	low	0.100
1/14/2009	9:49	AM	1615	223	16	12	8			8.4	7.26	11.19	4.15	26.1	50.00		no	
1/15/2009	12:12	AM	1650	224	6	0	10											
1/16/2009	7:42	AM	1660.1	227	18	14	12			8.8	7.11	11.01	13.26	26.1	13.39		no	
1/20/2009	8:19	JG	1746.8	239	18	14	10		X	8.6	8.90		3.11	26.1	12.23	X	no	0.084
1/21/2009	8:20	AM	1760.3	242	20	16	10			8.7	7.40	13.67	3.26	26.0	50.00	X	no	0.098
1/22/2009	14:45	JR	1800.729	246	20	16	13		X	8.9	6.50	14.46	2.95	26.0	13.97	X		
1/23/2009	14:47	JR	1834.66	249	19	16	6			9.1	5.89	14.28	3.04	26.0	11.97	X		
1/26/2009	10:57	JR	2000.61	258	18	16	9		X	9.1	7.94	13.80	3.01	26.0	12.50	X	x	
1/27/2009	9:02	AM	2033.475	261	20	16	8			9.3	5.37	13.33	3.07	25.9	12.41	X	no	
1/28/2009	7:53	AM	2065.44	263	20	18	12		X	9.2	6.95	12.81	2.86	26.0	12.81	X	no	0.080
1/30/2009	14:56	AM	2110.47	271	16	14	12		X	8.9	10.19	11.80	3.53	25.9	12.96			0.080
2/2/2009	9:51	AM	2212.66	279	18	16	7		X	10.1	12.34	8.28	8.66	26.1	11.64	X	med	0.134
2/3/2009	11:01	JR	2249.53	282	18	14	14			9.5	10.86	8.93	4.73	26.0	11.83	X		
2/4/2009	7:58	AM	2280.42	285	19	16	14		X	9.6	7.14	9.83	4.77	26.0	11.28	X	no	0.136
2/5/2009	9:15	JR	2305.128	288	19	16	7			9.8	9.94	11.51	3.82	26.2	48.34			
2/6/2009	8:09	AM	2340.68	291	18	16	7			9.9	8.16	12.19	4.13	26.2	11.09			0.106
2/9/2009	7:49	JG	2452	300	19	15	11		X	10.0	9.09	11.53	4.26	26.0	12.01	X	little	0.124
2/10/2009	8:07	JR	2490	303	19	16	11			9.9	8.33	11.15	3.90	26.0	12.87	X	little	
2/11/2009	7:43	AM	2527	306	14	10	12			9.9	9.73	10.92	4.25	26.0	11.15		little	0.120
2/23/2009	12:03	JG	2580	343	15	12	12	14	X							X	lot + water	
2/24/2009	7:50	AM	2496.5	345	16	14		14										
2/25/2009	8:13	AM	2614.8	348			11.5	14										
2/26/2009	12:30	AM	2618.97	352	14	12	12	15										
2/27/2009	9:00	JR	2620.62	354	16	13	7	11	X	10.8	10.62	4.19	4.07	33.0	50.00	X	lot	0.104
3/13/2009	8:00	JR	2663.851	397				10.5		11.1	20.38	0.06	3.75	28.0	51.35			
3/16/2009	9:10	AM	2698.965	406	16	14	9.5											
3/16/2009	15:50	JG	2701.839	407				14	X	12.2	23.00	1.17	5.46	33.1	16.52	X	no	
3/17/2009	8:30	JR	2716.407	409	16	14	6	10		12.6	22.08	1.05	5.25	33.0	16.30	X	little	0.102
3/19/2009	8:20	JR	2785.626	415	16	14	7	12		13.3		0.71	4.40	33.0	13.24	X	little	
3/20/2009	12:39	AM	2821.54	419	15	14	6	10	X	13.3	25.72	0.80	4.00	32.9	17.46	X	no	0.100

Daily Walk-Through - Layne-Norit Trailer

				When P-1 is operating					Layne Unit									
Date	**Time**	**Operator Initials**	**Cumulative Plant Flow**	**F-1 Flush Count**	**Pre-F-1 Pressure**	**Post-F-1 Pressure**	**P-2 discharge pressure**	**P-2 discharge pressure**	**Drain turb reservoirs**	**Feed temperature**	**Feed turbidity**	**Feed conductivity**	**TMP**	**Filtrate flow**	**Filtrate turbidity**	**Reset computer**	**Air**	**PDT**
			gal x 1000	**#**	**psi**	**psi**	**psi**	**psi**	**X**	**deg C**	**NTU**	**mS/cm**	**psi**	**gpm**	**mNTU**	**x**	**level**	**psi/min**
3/23/2009	9:15	JG	2932.8	428	17	14	7	12	X	11.0	24.65	1.25	5.11	33.0	13.70	X	no	0.110
3/24/2009	8:10	JG	2969.7	431	17	15	7	12		11.5	20.70	1.16	3.96	33.0	19.28	X	no	0.120
3/26/2009	8:35	JR	3047.5	437	15	14	7	10		12.1	16.78	1.05	4.25	33.0	13.70	X	no	0.114
3/27/2009	8:12	JR	3086	440	14	13	6	10		12.7	17.34	1.04	4.45	33.0	13.70	X	no	0.110
3/30/2009	9:42	AM	3205	449	16	14	7		X	13.2	26.01	1.33	3.81	32.8	22.68	X	no	0.114
3/31/2009	8:06	AM	3240	452	18	15		10	X	13.7	21.00	1.65	3.99	33.1	10.79	X	no	0.118
4/2/2009	11:09	AM	3320	458	16	14	7	10	X	13.7	21.04	3.09	3.94	33.1	11.52	X	no	0.128
4/3/2009	9:23	JR	3356	461	18	15	7	11		13.5	29.60	3.93	4.10	32.8	11.89	X	no	0.142
4/6/2009	15:10	JR	3483	470	14	10	6	10		13.7	21.17	1.99	4.15	33.1	10.79	X	no	0.330
4/7/2009	9:56	JG	3512.1	473	16	13	7.5	10	X	13.7	18.05	1.94	3.85	33.1	10.79	X	no	0.136
4/8/2009	7:46	AM	3546.9	475	18	15	8	12	X	13.4	20.64	2.10	13.76	33.1	23.04	X	no	0.385
4/10/2009	7:57	JR	3620	482	18	16	8	11		13.3	19.19	2.16	4.14	33.0	10.43	X	X	0.132
4/13/2009	9:07	JG	3731.8	491	18	13	7.5	11		14.8	2.45	2.01	4.13	33.2	11.16	X	no	0.132
4/14/2009	9:02	JG	3768.2	494	18	15	8	12	X	14.2	24.35	2.09	3.81	33.0	20.50	X	no	0.132
4/16/2009	8:45	JG	3840.6	500	18	13	8	12	X	14.3	28.62	1.57	5.58	33.2	11.89	X	no	0.134
4/17/2009	10:10	JR	3878.9	503	14	12	8	12		14.5	28.20	1.20	5.17	33.1	10.79	X	no	0.160
4/20/2009	13:49	JG	3993.6	512	15	13	7	11	X	15.2	16.77	2.26	4.08	33.1	10.79	X	little	0.328
4/23/2009	7:56	JR	4043.9	521	20	17	8	12		16.1	17.20	4.99	4.51	32.9	10.43	X	no	

Daily Walk-Through - Yard Area

Date	Time	Operator Initials	FC tube full	FC tank level ok	SHC tube full	SHC tank level ok	AA tube full	AA tank level ok	T-1 tank level ok	T-2 tank level ok	A/R Valve ok	Check for general leaks	ORP	Raw Conductivity	Raw Temp
			Y/N/fix	Y/N/fill	Y/N/fix	Y/N/fill	Y/N/fix	Y/N/fill	Y/N/fix	Y/N/fix	Y/N/fix	Location	mV	mS/cm	deg C
11/6/2008	10:30	JR/AM	Y	Y	Y	Y	Y	N	Y	Y	Y	F2/P4	205	14.22	17.6
11/7/2008	8:30	JR	Y	Y	Y	Y	Y	N	Y	N	Y		207	12.71	17.4
11/10/2008	11:25	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		182	11.19	15.5
11/11/2008	15:16	AM	Y	Y	FIX	Y	Y	Y	Y	Y	Y	Pr. Drain Layne?	184	10.99	16.7
11/12/2008	8:20	JG	Y	Y	Y	FIX	Y	Y	Y	Y	Y	Layne	183	10.93	16.7
11/13/2008	8:53	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y	Layne filt. P-4	193	10.92	16.9
11/14/2008	15:33	JG	Y	Y	Y	FILL	Y	Y	Y	Y	Y	good	192	12.13	17.5
11/17/2008	8:38	JG	Y	Y	FIX	Particulates	Y	Y	Y	Y	Y	good	217	14.17	17.6
11/18/2008	9:07	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y	Layne	212	13.35	17.6
11/19/2008	11:59	JG	Y	Y	Y	Y	Y	Y	Y	FIX	Y	T2 overflow	208	13.12	17.7
11/20/2008	9:10	JR	Y	Y	Y	Y	Y	Y	Y	Y	Y	Union by A1 tank	201	12.90	17.5
11/21/2008	9:40	JR	Y	Y	Y	FILL	Y	Y	Y	Y	Y		196	12.49	17.3
11/24/2008	8:36	JG	Y	Y	Y	Y	Y	Y	Y	Y	Y		203	10.40	16.0
11/25/2008	10:15	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y	Layne	201	13.30	10.2
11/26/2008	8:11	JG	Y	Y	Y	FILL	Y	FILL	Y	Y	Y		199	13.60	16.3
11/28/2008	9:11	JG	Y	FILL	Y	Y	Y	Y	Y	Y	Y		190	15.30	16.3
12/1/2008	9:11	AM	Y	FILL	Y	FILL	Y	FILL	Y	Y	Y		192	13.74	16.0
12/2/2008	8:52	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y	waste to RO3	189	14.14	15.9
12/3/2008	8:26	JG	Y	Y	Y	Y	Y	Y	Y	Y	Y		195	13.64	15.7
12/4/2008	7:58	AM	Y	Y	Y	DIRTY	Y	FILL	Y	Y	Y	Layne, RO3/waste	242	13.61	15.6
12/5/2008	8:03	JG	Y	FILL	Y	Y	Y	FILL	Y	Y	Y		349	13.57	15.5
12/8/2008	8:52	NP	Y	Y	Y	FILL	Y	Y	Y	Y	Y		205	12.74	13.8
12/9/2008	8:30	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		191	12.91	12.8
12/10/2008	8:20	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y	RO3,RO1-AS	290	14.38	13.7
12/11/2008	8:20	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		197	14.32	13.7
12/12/2008	8:16	JG	Y	Y	Y		Y		Y	Y	Y		192	16.26	13.5
12/18/2009	9:03	JR	Y	Y	Y	Y	Y	Y	Y	Y	Y		177	17.34	12.9
12/30/2008	10:00	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y				
1/2/2009	8:40	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		225	14.86	11.8
1/5/2009	8:06	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		193	12.45	11.6
1/6/2009	7:48	JR	Y	Y	Y	Y	Y	Y	Y	Y	Y		192	11.67	11.6
1/8/2009	8:18	JR	Y	Y	Y	Y	Y	Y	Y	Y	Y		212	12.14	10.6
1/9/2009	8:29	JG	Y	Y	Y		Y		Y	FIX	Y		232	14.68	10.6
1/12/2009	14:00	KL	Y	N	Y		Y		Y	Y	Y			11.89	
1/13/2009	9:07	KL	Y	N	Y	Y	Y	Y	Y	Y	Y		258	12.95	10.8
1/14/2009	10:00	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		259	12.58	10.9
1/15/2009	15:00	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		206	12.08	11.5
1/16/2009	7:45	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		197	11.85	11.4
1/20/2009	8:21	JG	Y	Y	Y	8 GAL	Y	4 GAL	Y	Y	Y			13.32	11.1
1/21/2009	8:40	AM	Y	Y	Y	Y	Y	4 GAL	Y	Y	Y		201	16.65	11.3
1/22/2009	14:50	JR	Y	Y	Y	Y	Y	Y	Y	Y	Y		199	17.02	11.6
1/23/2009	14:51	JR	Y	Y	Y	Y	Y	Y	Y	Y	Y		199	16.80	11.8
1/26/2009	11:00	JR	Y	Y	Y	Y	Y	FILL	FIX	Y	Y		215	15.95	11.9
1/27/2009	9:10	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		202	15.45	11.9
1/28/2009	8:00	AM	Y/FILL	Y	Y	Y	Y	Y	Y	Y	Y		202	14.62	11.7
1/29/009		JG							FIX		Y				
1/30/2009	15:04	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		286	12.55	12.1
2/2/2009	10:06	AM	Y	Y	Y	Y	Y	FILL	Y	Y	Y		222	8.44	12.7
2/3/2009	11:05	JR	Y	FILL	Y	Y	Y	Y	Y	Y	Y		224	9.27	12.2
2/4/2009	8:03	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		215	10.38	12.3
2/5/2009	9:18	JR	Y	Y	Y	FILL	Y	Y	Y	Y	Y		206	12.81	12.4
2/6/2009	8:14	AM	Y		Y	Y	Y	Y	Y	Y	Y		206	13.76	12.6
2/9/2009	7:55	JG	Y	Y	Y	Y	Y	FILL	Y	Y	Y		275	12.82	12.7
2/10/2009	8:16	JR	FIX		Y	Y	Y	Y	Y	Y	Y		226	12.26	12.5
2/11/2009	7:54	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		216	11.91	12.5
2/23/2009	12:07	JG		Y	Y	Y	Y	Y	Y	Y	Y		204	5.39	13.4
2/24/2009	7:50	AM		Y	Y	Y	Y	Y	Y	Y	Y		204	4.46	13.0

Daily Walk-Through - Yard Area

Date	Time	Operator Initials	FC tube full	FC tank level ok	SHC tube full	SHC tank level ok	AA tube full	AA tank level ok	T-1 tank level ok	T-2 tank level ok	A/R Valve ok	Check for general leaks	ORP	Raw Conductivity	Raw Temp
			Y/N/fix	Y/N/fill	Y/N/fix	Y/N/fill	Y/N/fix	Y/N/fill	Y/N/fix	Y/N/fix	Y/N/fix	Location	mV	mS/cm	deg C
2/25/2009	8:15	AM		Y	Y	Y	Y	Y	Y	Y	Y		213	4.24	13.1
2/26/2009	12:30	AM		Y	Y	Y	Y	Y	Y	Y	Y			4.09	13.8
2/27/2009	12:06	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		217	3.95	13.5
3/16/2009	9:12	AM	Y	Y	Y	Y	N	N	Y	Y	Y		186	1.20	15.1
3/16/2009	15:54	JG	Y	Y					Y	Y	Y		168	1.07	15.2
3/17/2009	8:50	JR	Y	Y	Y	Y	Y	FIX	Y	Y	Y		176	0.98	15.3
3/19/2009	8:30	JR	Y	FILL	Y	Y	Y	Y	Y	Y	Y		164	0.67	16.1
3/20/2009	12:53	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		157	0.75	16.2
3/23/2009	9:20	JG	Y	Y	Y	FILL	Y	FILL	Y	little overflow	Y		213	1.16	13.5
3/24/2009	8:15	JG	Y	Y	Y	Y	Y	Y	Y	Y	Y		169	1.08	14.2
3/26/2009	8:50	JR	Y	FILL	Y	FILL	Y	FILL	Y	Y	Y		172	0.98	15.0
3/27/2009	8:50	JR	Y	N	Y	Y	Y	Y	Y	Y	Y		164	0.97	15.5
3/30/2009	9:54	AM	Y	FILL	FIX	FILL	Y	Y	Y	Y	Y		171	1.24	16.0
3/31/2009	8:13	AM	Y	Y	Y	Y	Y	Y	Y	Y	Y		178	1.53	16.5
4/2/2009	11:17	AM	Y	Y	Y	Y	Y	FILL	Y	Y	Y		171	2.89	16.7
4/3/2009	9:30	JR	Y	Y	Y	FILL	Y	Y	Y	Y	Y		169	3.73	16.3
4/6/2009		JR	Y	N	Y	Y	Y	Y	Y	Y	Y		180	1.82	16.8
4/7/2009	8:59	JG		Y	Y	FILL	Y	OK	Y	Y	Y		167	1.79	16.7
4/8/2009	8:00	AM	Y	Y	Y	Y	Y		Y	Y	Y		166	1.93	16.3
4/10/2009	8:01	JR	Y	Y	Y	Y	Y	Y	Y	Y	Y		161	2.00	16.1
4/13/2009	9:10	JG	Y	Y	Y	FILL	Y	FILL	Y	Y	Y		166	1.86	17.8
4/14/2009	9:10	JG	Y	Y	FIX	Y	Y	Y	Y	Y	Y		164	1.94	17.2
4/16/2009	8:48	JG	Y	FILL	Y	FILL	FIX	Y	Y	Y	Y		193	1.46	17.2
4/17/2009	10:19	JR	Y	Y	Y	Y	Y	Y	Y	Y	Y		173	1.12	17.5
4/20/2009	13:51	JG	Y	Y	Y	FILL	Y	FILL	Y	Y	Y		172	2.07	18.6
4/23/2009	8:00	JR	Y	Y	Y	N	Y	N	Y	Y	Y		166	4.85	19.2

Through - Siemens Trailer

					When P-3 is operating		Siemens Unit										
Date	Time	Operator Initials	SBS tube full	SBS tank level ok	Pre-F-2 Pressure	Post-F-2 Pressure	Drain turb reservoirs	TMP	Filtrate temperature	Feed turbidity	Filtrate turbidity	Feed yesterday	Filtrate yesterday	PDT time since last	PDT last test results	State	ORP
			Y/N/fix	Y/N/fill	psi	psi	X	psi	deg C	NTU	mNTU	gal	gal	hh:mm	psi/min		mv
11/6/2008	10:30	JR/AM	Y	FILL	22	34	X	3.44	15.30	0.91	45.00			15:03	0.08		
11/7/2008	8:30	JR	Y	Y	33	34	X	3.54	15.10	12.81	29.00			7:48	0.08		
11/10/2008	11:30	AM	Y	FILL	44	48	X	3.97	15.00	0.38	50.30			15:19	0.08		
11/11/2008	15:22	AM	Y		48	51	X	2.20	15.00	0.35	110.60			17:38	0.08		
11/12/2008	8:30	JG	Y	FILLED	48	52	X	3.76	14.40	0.34	52.00			19:22	0.08		
11/13/2008	9:13	AM	Y	Y	40	42	X	X									
11/14/2008	15:38	JG	Y	Y	32	35	X	2.88	15.30	0.33	66.00			22:33	0.08		
11/17/2008	8:25	JG	Y	FILL	52	56		6.23	15.30	3.40	177.00			12:47	0.07		
11/18/2008	9:10	AM	Y	FILL	42	45	X	3.13	15.30	2.08	34.70			18:42	0.07		
11/19/2008	12:01	JG	Y	Y	41	43	X	4.05	15.40	9.78	26.10	23551	21316	15:14	0.07		
11/20/2008	10:20	JR	Y	Y	34	37	X	4.22	15.20	0.48	47.70	24416	22112	7:52	0.07		
11/21/2008	9:45	JR	Y		34	37	X	4.50	15.00	0.44	11.70	24394	22132	1:28	0.08		
11/24/2008	8:38	JG	Y	Y	37	40	X	4.64	13.70	10.61	26.50	24899	22629	2:05	0.08		
11/25/2008	10:20	AM	Y	Y	33	36	XX	4.61	13.87	1.56	15.56	24526	22121	21:09	0.08		
11/26/2008	8:14	JG	Y	FILL	35	37	X	4.81	14.00	10.79	26.70	24503	22099	14:05	0.08		
11/28/2008	9:16	JG	Y	FILL	48	52	X	4.56	14.00	10.92	27.75	25026	22736	3:22	0.08		
12/1/2008	9:13	AM	Y	Y	36	38	X	5.39	13.73	3.00	54.13	24805	22564	10:36	0.09		
12/2/2008	9:00	AM	Y	Y	36	38	X	5.61	13.61	0.72	13.88	25014	22715	4:28	0.09		
12/3/2008	8:28	JG	Y	FILL	36	38	X	5.79	13.40	8.91	27.50	24719	22293	22:16	0.09		
12/4/2008	8:16	AM	FIX	Y	37	38	X	6.08	13.23	0.66	17.88	24617	22465	17:04	0.10		
12/5/2008	8:08	JG	FIXED	FILL	38	39	X	5.94	13.10	10.42	28.90	24995	22780	11:19	0.10	normal filtration	
12/8/2008	8:58	NP	Y	FILL	36	37	X	6.78	13.00	13.61	28.00	25539	23285	20:33	0.10	normal filtration	
12/9/2008	8:30	AM	Y	N	49	51	X	6.64	11.30	8.71	30.20			15:20	0.11	CIP Halt	
12/10/2008	8:20	AM	Y	Y	38	40	X	6.44	11.35	8.20	30.75			5:06	0.10	normal filtration	
12/11/2008	12:08	AM	Y	Y			X	7.43	10.92	10.88	27.63	24893	22740	23:26	0.10	normal filtration	
12/12/2008	8:17	JG	Y	Y	38	40		7.39	11.20	8.26	29.50	22379	20429	16:28	0.10	normal filtration	337
12/18/2008	9:06	JR	Y	Y	50	52	X	7.02	10.30	7.20	29.40	595	503	12:46	0.10	normal filtration	206
12/30/2008	10:10	AM	Y	Y	52	54	X	5.35	9.27	13.86	31.00	0	0	21:36	0.10	normal filtration	565
1/2/2009	10:17	AM	Y	FILL	38	39	X	5.61	9.50	4.43	27.50	25989	23517	6:33	0.10	normal filtration	707
1/5/2009	8:00	AM	Y	FILL	50	52	X	6.90	9.30	10.99	32.70			12:18	0.10	normal filtration	863
1/6/2009	7:50	JR	Y	Y	51	53	X	7.30	9.30	11.54	26.80	21126	18433	2:31	0.10	normal filtration	
1/8/2009	8:10	JR	Y	Y	34	37	X	7.53	8.30	0.26	28.25	2490	2012	20:55	0.10	normal filtration	
1/9/2009	8:31	JG	Y	Y	36	38	X	8.51	8.30	8.50	30.80	19286	17750	13:03	0.11	normal filtration	
1/12/2009	14:08	KL	Y		44	50	X	7.67	13.40	7.03	27.30	20470	18605	19:14	0.11	normal filtration	
1/13/2009	12:00	AM	Y		42	45		8.39	8.68	0.33	26.25	20470	18603	0:43	0.11	normal filtration	
1/14/2009	10:00	AM	Y	Y				8.28	8.59	9.85	24.43	9309	8565	8:23	0.11	normal filtration	
1/15/2009	15:00	AM	Y	Y	54	50	X	8.14	9.23	8.54	28.63	25347	23010	6:43	0.10	normal filtration	
1/16/2009	7:45	AM	Y	Y	46	48	X	8.52	8.89	8.94	26.87	25347	23010	19:40	0.10	normal filtration	
1/20/2009	8:24	JG	Y	Y	42	46	X	8.61	8.80	11.79	45.70	12385	11335	23:54	0.10	normal filtration	522
1/21/2009	11:26	AM	Y	Y	48	42	X	8.55	9.13	20.69	28.50	5624	4921	6:49	0.11	normal filtration	
1/22/2009	14:55	JR	Y	Y	41	44	X	9.24	9.30	8.16	27.70	21551	19664	1:49	0.11	normal filtration	
1/23/2009	14:54	JR	Y	FILL	37	39		9.34	9.50	7.81	27.90	26124	23884	21:12	0.11	normal filtration	
1/26/2009	11:02	JR	Y	FILL	49	51	X	10.12	9.60	9.59	27.90	26068	23878	4:32	0.11	normal filtration	
1/27/2009	7:55	JG	Y	FILL	51	53		10.40	9.50	6.90	27.60	25973	23844	21:20	0.11	normal filtration	
1/28/2009	8:00	AM	Y	Y	40	42	X	10.67	9.30	0.95	31.81	25973	23844	11:54	0.10	normal filtration	
1/30/2009	15:00	AM	Y	Y	36	38	X	7.91	9.70	17.34	18.80	0	12	15:48	0.10	normal filtration	
2/2/2009	10:08	AM	Y	FILL	38	40	X	8.52	10.36	26.18	13.13	25975	23573	21:38	0.10	normal filtration	
2/2/2009	15:49	AM								19.03	12.40						
2/3/2009	12:32	JR	Y	Y	33	36		8.78	9.90	15.64	12.31	25129	22966	18:04	0.11	normal filtration	
2/4/2009	8:10	AM	Y	FILL	38	40	X	8.63	9.92	17.41	12.75	26064	23609	9:37	0.11	normal filtration	
2/5/2009	9:54	JR	Y	Y				9.22	10.10	14.94	12.87	24929	22471	6:26	0.11	normal filtration	
2/6/2009	8:17	AM	Y		52	45		8.54	10.26	12.73	13.13	26372	24146	0:37	0.11	normal filtration	
2/9/2009	7:56	JG	Y	FILL	39	40	X	9.28	10.33	9.80	13.06	26273	23783	10:59	0.10	normal filtration	
2/10/2009	8:24	JR	Y	Y	37	39		10.08	10.20	9.13	12.63	26301	24045	2:01	0.10	normal filtration	
2/11/2009	7:58	AM	Y	Y	38	40		9.75	10.18	10.63	13.06	25847	23657	1:59	0.10	normal filtration	
2/23/2009	12:10	JG	Y	Y	48	52	X	9.85	11.00	15.90	46.60	0	0	14:29	0.10	normal filtration	
2/24/2009	7:50	AM	Y	Y	50	52		11.83	10.73	13.59	12.56	4824	4161	6:07	0.10	normal filtration	
2/25/2009	8:15	AM	Y	FILL	44	48	X	11.80	10.81	9.13	14.75	34902	31929	0:42	0.11	normal filtration	
2/26/2009	12:40	AM	Y	Y	47	46	X	10.41	11.55	10.21	11.13	33834	30950	4:50	0.11	normal filtration	
2/27/2009	12:07	AM	Y	Y	44	48	X										
3/16/2009	9:15	AM	Y	Y	49	53	X	10.54	12.74	23.76	11.25	22690	20025	3:44	0.12	normal filtration	
3/16/2009	15:57	JG	Y	Y	42	46											
3/17/2009	9:05	JR	Y	Y	39	42		8.08	13.00	21.96	11.19	21507	18848	7:45	0.12	normal filtration	
3/19/2009	8:50	JR	Y	N	39	42		7.97	13.80	19.97	11.69	22127	19335	21:12	0.13	normal filtration	
3/20/2009	13:00	AM	Y	Y	38	40		6.55	13.91	30.10	11.19	21727	19323	3:37	0.11	normal filtration	
3/23/2009	9:23	JG	Y	FILL	41	44	X	10.10	11.20	29.20	11.75	21843	19209	8:31	0.15	normal filtration	

3/24/2009	8:17	JG	Y	Y	41	43		9.87	11.19	24.16	11.06	22173	19621	2:26	0.12	normal filtration	
3/26/1990	9:43	JR	Y	FILL	39	42		9.26	12.60	19.51	11.13	31837	18796	15:44	0.12	normal filtration	
3/27/2009	9:01	JR	Y	N	38	42		8.45	13.20	19.53	11.14	21857	19137	9:27	0.11	normal filtration	
3/30/2009	11:20	AM	Y	FILL	38	42	X	7.66	13.66	31.41	11.25	21970	19745	18:04	0.10	normal filtration	
3/31/2009	8:15	AM	Y	Y	44	48	X	7.64	14.17	24.50	11.06	22007	19492	9:57	0.11	normal filtration	
4/2/2009	12:37	JR	Y	FILL	36	40		8.42	14.30	25.20	10.69	21402	18920	2:54	0.11	normal filtration	
4/3/2009	9:39	JR	Y	Y	40	44		7.30	14.00	36.09	11.19	21946	19721	18:57	0.11	normal filtration	
4/6/2009	14:40	JR	Y	Y	37	40		8.14	14.50	24.22	10.25	21814	19022	7:08	0.13	normal filtration	
4/7/2009	9:01	JG	Y	FILL	40	44		9.13	14.30	20.99	10.81	21814	19022	22:01	0.13	normal filtration	
4/8/2009	8:10	AM	Y	FILL	40	43	X	8.59	13.87	24.11	11.00	21909	19653	15:35	0.12	normal filtration	
4/10/2009	8:13	JR	Y	FILL	41	44		9..63	13.70	23.28	11.19	21986	19700	5:19	0.12	normal filtration	
4/13/2009	9:12	JG	Y	Y	40	43		9.15	15.50	23.80	10.81	21983	19782	13:32	0.15	normal filtration	
4/14/2009	9:12	JG	Y		40	43	X	9.07	14.80	27.80	11.13	21704	19155	6:00	0.15	normal filtration	
4/16/2009	8:52	J	FIX	FILL	40	44	X	9.44	14.80	33.67	11.25	22053	19774	21:32	0.17	normal filtration	
4/17/2009	10:25	JR	Y	FILL	38	42		8.52	15.20	34.21	11.19	21809	19207	17:18	0.15	normal filtration	
4/20/2009	13:52	JG	Y	FILL	33	38	X	7.98	16.30	21.12	10.06	22002	19766	3:39	0.16	normal filtration	
4/23/2009	8:02	JR	Y	N	41	44		6.86	16.70	21.33	11.40	21831	19231	7:21	0.16	normal filtration	

Daily Walk-Through - RO Trailer

						RO 2					RO3				
Date	Time	Operator Initials	AS tubes full	AS tank level ok	Feed conductivity	RO2 feed flow	RO2 inlet pressure	RO2 system pressure	RO2 conc pressure	RO2 perm conductivity	RO3 feed flow	RO3 inlet pressure	RO3 system pressure	RO3 conc pressure	RO3 perm conductivity
			Y/N/fix	Y/N/fill	uS/cm (sc)	gpm	psi	psi	psi	uS/cm	gpm	psi	psi	psi	uS/cm
		JR/AM	Y	Y	15000	9.00			420	50.7	9			225	485.0
		JR	Y	FILL	13200	9.00	29	400	400	43.0	9	33	235	210	412.0
11/10/2008		AM	Y	FILL	11150	9.01	45	380	380	35.7	9	50	210	181	321.7
11/11/2008	15:31	AM	Y		11813	9.02	45	400	345	39.1	9	50	210	185	337.0
11/12/2008	8:43	JG	Y	Y	11691	9.01	45	410	360	36.0	9.1	51	190	165	>1000
11/13/2008	9:15	AM	Y	Y											
11/14/2008	15:47	JG	Y	Y	12805	8.98	38	370	42.4	42.4	9	34	185	165	>2000
11/17/2008	8:46	JG	Y	FILL	15125	9.04	50	480	51.9	51.9	8.9				
11/18/2008	9:13	AM	Y	Y	14301	8.98	40	400	44.9	44.9					
11/19/2008	12:11	JG	Y	Y	13965	8.97	40	400	42.7	42.7					>5000
11/20/2008	10:25	JR	Y	FILL	13752	9.00	31	400	41.5	41.5	9.1	36	220	195	
11/21/2008	9:50	JR	Y		13446	8.97	31	400	400	39.7	8.8	35	230	195	
11/24/2008	8:44	JG	Y	Y	11203	9.00	35	390	380	31.4	9	38	205	195	
11/25/2008	10:30	AM	Y	FILL	13400	9.00	31	420	324.5	37.9	9	34	235	212	
11/26/2008	8:18	JG	Y	FILL	14499	8.99	31	425	420	40.0	8.9	35	240	210	Instrument not working
11/28/2008	9:28	JG	See Log Book		16392	8.98	47	450	440	45.8	8.8	51	260	230	
12/1/2008	9:30	AM	Y	FILL	14683	8.91	33	450	450	40.0	9	36	250	225	
12/2/2008	9:00	AM	Y	Y	15034	8.96	34	430	425	41.8	9.03	37	265	235	
12/3/2008	8:31	JG	Y	FILL	14530	8.92	32	450	440	37.5	9	37	255	225	
12/4/2008	8:20	AM	FIX	Y	14515	9.03	33	400	400	38.8	9.04	37	250	225	413.6
12/5/2008	8:20	JG	Y	FILL	14560	8.95	34	450	445	35.4	9	37	255	235	396.8
12/8/2008	9:07	NP	Y	Y	13629	9.02	32	450	445	31.4	9	36	245	225	325.1
12/9/2008	8:30	AM	N, FIX, FILL	N, FIX, FILL	14332	9.03	50	460	450	35.7	9	57	235	207	341.9
12/10/2008	8:30	AM	Y	Y	15369	9.01	38	480	480	33.9	8.9	36	275	240	390.7
12/11/2008	9:00	AM	Y	Y	15339	9.00	42	480	470	34.8	8.7	52	260	220	425.8
12/12/2008	8:40	JG	Y		17440	9.00	40	500	490	39.4	9	38	275	245	485.3
12/18/2009	9:14	JR	Y	Y	18340	8.99	53	530	520	49.1	7	52	275	250	657.8
12/30/2008	10:41	AM	Y	Y	17590	8.68	38	520	435.6	49.8	7.9	44	225	221	551.0
1/2/2009	12:47	JR	Y	FILL	12840	9.00	35	480	440	0.0	8	49	225	205	398.4
1/6/2009	8:01	JR	Y	Y	10880	8.98	49	410	400	485.0	7.9	53	210	190	274.7
1/8/2009	9:33	JR	Y	Y	10510	10.00	30	490	480	434.1	11.4	34	245	185	212.0
1/9/2009	8:38	JG	Y		13780	10.03	32	490	495	30.8	11.4	36	270	205	284.0
1/12/2009	13:38	KL	Y	Y	12347	9.96		440	440	29.8	8	37	235	205	352.6
1/13/2009	18:00	AM	Y	Y	10806	7.30	35	500	450	28.1	9.98	39	225	200	312.9
1/14/2009	13:30	AM	Y	Y	11722	10.04	47	465	460	29.3	8	52	225	200	328.1
1/15/2009	15:00	AM	Y	Y	10699	9.88	46	450	460	77.5	8	50	225	180	309.8
1/16/2009	8:59	AM	Y	Y	9615	10.04	46	440	430	26.3	8	50	225	180	297.6
1/20/2009	9:15	JG	Y	Y	10840	9.95	36	470	460	29.3	7.8	40	245	215	326.6
1/21/2009	11:30	AM	Y	Y	13470	9.96	32.5	500	500	38.8	8	37	275	240	467.0
1/22/2009	15:00	JR	Y	Y	13900	9.99	33	500	500	38.2	8.1	38	270	240	522.0
1/23/2009	14:57	JR	Y	Y	14490	9.97	34	490	490	38.5	8	38	280	245	468.6
1/26/2009	14:16	JR	Y	FILL	13480	10.05	34	490	490		8.1	39	265	235	439.6
1/27/2009	9:15	AM	Y	Y	13110	10.02	48	500	490	219.8	8	53	265	233	422.8
1/28/2009	8:07	AM	Y	FILL	13680	10.03	36	490	480	31.4	8	40	255	223	404.5
1/30/2009	15:26	AM	Y	Y	12530	10.03	33	450	450	28.4	8.1	38	230	200	323.6
2/2/2009	10:00	AM	Y	FILL	7570	10.08	36	440	430	19.8	8	40	290	160	181.6
2/3/2009	12:37	JR	Y	Y	8110	10.01	32	420	410	21.4	8	37	295	170	198.4
2/4/2009	8:20	AM	Y	Y	9219	10.04	35	435	430	22.6	8.1	39	210	180	227.0
2/5/2009	9:56	JR	Y	FILL	10830	10.00	34	450	445	26.9	7.9	38	225	200	314.4
2/6/2009	8:24	AM	Y	Y	11752	9.99	34	440	460	30.5	7.9	38	250	220	358.7
2/9/2009	7:59	JG	Y	FILL	10830	10.01	35	450	440	27.8	8	38	240	215	322.0
2/10/2009	10:01	JR	Y	FILL	10890	9.95	35	450	440	26.3	8	39	240	200	306.8
2/11/2009	8:08	AM	Y	Y	10690	10.04	33	450	435	25.6	8.1	38	230	200	283.9
2/23/2009	12:15	JG	Y	Y	4940	8.80	47	365	355	15.6	7.9	52	165	155	152.0
2/24/2009	8:00	AM	Y	Y	2590	8.78	48	380	370	14.7	8.1	52	165	140	108.4
2/25/2009	8:21	AM	Y	Y	3587						8	44	160	140	85.5

Daily Walk-Through - RO Trailer

						RO 2					RO3				
Date	**Time**	**Operator Initials**	**AS tubes full**	**AS tank level ok**	**Feed conductivity**	**RO2 feed flow**	**RO2 inlet pressure**	**RO2 system pressure**	**RO2 conc pressure**	**RO2 perm conductivity**	**RO3 feed flow**	**RO3 inlet pressure**	**RO3 system pressure**	**RO3 conc pressure**	**RO3 perm conductivity**
			Y/N/fix	**Y/N/fill**	**uS/cm (sc)**	**gpm**	**psi**	**psi**	**psi**	**uS/cm**	**gpm**	**psi**	**psi**	**psi**	**uS/cm**
2/26/2009	12:40	AM	Y	Y	3541						7.4	56	145	125	88.5
2/27/2009	12:10	AM	Y	Y	3190						7.4	56	145	125	79.4
3/16/2009	9:18	AM	Y	Y											
3/16/2009	15:59	JG	Y	Y	809						7.3	46	110	90	27.5
3/17/2009	9:10	JR	Y	Y	714	8.03	36	300	290	7.6	7.4	40	105	90	13.7
3/19/2009	8:55	JR	Y	FILL	443	7.98	36	290	280	5.5	7.4	41	100	80	10.7
3/20/2009	13:00	AM	Y	Y	427	8.00	36	280	270	5.2	7.3	41	105	85	12.2
3/23/2009	9:27	JG	Y	Y	885	7.97	37	340	330	7.3	7.2	42	120	100	15.3
3/24/2009	8:25	JG	Y		702	8.00	36	325	315	6.4	7.4	41	120	100	15.3
3/26/2009	11:00	JR	Y	FILL	631	8.00	36	310	290	6.4	7.4	42	110	90	15.3
3/27/2009	9:20	JR	Y	FILL	683	7.98	35	310	300	6.1	7.3	40	110	90	13.7
3/30/2009	11:00	AM	Y	Y	916	8.02	36	320	300	6.1	7.4	41	120	80	18.3
3/31/2009	8:19	AM	Y	Y	1145	8.03	37	310	300	7.9	7.2	41	110	90	25.9
4/2/2009	13:30	JR	Y	FILL	2651	8.04	32	310	300	7.5	7.5	39	80	100	98.3
4/3/2009	9:47	JR	Y	Y	2950	7.99	37	320	310	12.2	7.5	42	140	120	70.2
4/6/2009	14:50	JR	Y	N	1370	8.00	34	375	370	8.4	7.5	40	105	95	32.1
4/7/2009	9:05	JG	Y	Y	1374	8.01	36	295	285	8.2	7.5	41	120	100	29.0
4/8/2009	8:16	AM	Y	Y	1465	7.95	36	320	310	9.2	7.4	40	120	100	29.0
4/10/2009	8:29	JR	Y	FILL	1557	8.00	38	310	300	9.8	7.5	42	130	100	30.5
4/13/2009	9:13	JG	Y	Y	1435	8.00	36	280	270	7.6	7.4	42	120	95	32.1
4/14/2009	9:17	JG	Y	FILL	1496	8.00	37	310	300	8.9	7.4	42	120	95	29.0
4/16/2009	9:05	JG	Y	FILL	1084	8.04	37	370	360	6.4	7.3	42	120	95	32.1
4/17/2009	10:29	JR	Y	Y	824	7.97	35	290	275		7.5	40	110	90	18.3
4/20/2009	13:54	JG	Y	Y	1557	7.97	33	380	370	8.5	7.4	40	160	85	39.7
4/23/2009	8:18	JR	Y	N	4280	7.98	35	280	260	15.6	7.4	41	220	120	132.8

Daily Walk-Through - RO Trailer - RO1 system

Date	Time	Operator Initials	Inlet pressure	Feed flow	Feed temperature	S1 feed P (pre-orifice)	S1 feed P (post-orifice)	S2 feed pressure	S2 feed conductivity	S1 perm pressure	S1 perm pressure	S1 perm flow	Permeate pH	Permeate conductivity	S2 conc pressure	Conc flow	Conc pH
			psi	gpm (sc)	deg C	psi	psi	psi	uS/cm (sc)	psi (sc)	psi	gpm (sc)	pH (sc)	uS/cm (sc)	psi	gpm (sc)	pH (sc)
			37	19		420	360	330	33761	14		12	4.6	178	334	4.0	7.85
			34	19	15	395	350	343	31859	15		12	4.57	205	323	4.0	7.83
11/10/2008	14:39	AM															
11/12/2008	9:10	JG	36	19	15	360	320	325	17967	16	90	12	4.54	139	300	4.0	7.91
11/13/2008	9:30	AM	43	19	16	360	300	315	26630	14	90	12	4.5	190	300	4.0	7.65
11/14/2008	15:56	JG	37	19	16.5	360	320	315	29225	14	87	12	4.53	216	320	4.0	7.77
11/17/2008	8:53	JG	37	19	16	400	360	340	24342	15	90	12	4.56	204	360	4.0	7.79
11/18/2008	9:14	AM	45	19	16	400	370	360	34228	15	90	12	4.52	225	340	4.0	7.87
11/19/2008	12:35	JG	46	19	16.5	400	360	340	33245	15	90	12	4.51	235	360	4.0	7.89
11/20/2008	11:00	JR	38	19	16	395	360	360	32549	15	90	12	4.52	228	350	4.0	7.92
11/21/2008	9:55	JR	37	19	15.5	390	310	310	29875	14	90	12	4.5	212	310	5.0	7.96
11/24/2008	8:46	JG	38	19	15	350	310	300	24562	13	85	11	4.5	162	300	5.0	7.86
11/25/2008	10:36	AM	36	19	15.6	400	360	352	33712	15	90	12	4.51	203	360	4.0	7.89
11/26/2008	8:22	JG	37	19	15	405	370	360	33129	14	85	12	4.49	200	360	4.0	7.85
11/28/2008	12:03	JG	37	19	15	420	380	370	35808	14	85	12	4.53	230	370	5.0	7.92
12/1/2008	9:26	AM	37	19	14.4	420	380	376	34527	15		12	4.5	224	360	4.0	7.94
12/2/2008	9:11	AM	38	19	14.4	420	400	363	35808	14		13	4.52	225	372	4.0	7.95
12/3/2008	8:35	JG	37	19	14	425	380	375	34527	14	90	12	4.52	185	380	4.0	7.97
12/4/2008	8:24	AM	37	19	13.89	420	400	363	34392	14	90	12	4.51	174	351	4.0	7.96
12/5/2008	8:23	JG	37	19	13.5	410	370	360	32216	13	85	11	4.52	158	360	4.0	7.98
12/8/2008	9:14	NP	36	19	12	410	375	360	30425	13	90	12	4.57	132	353	4.0	8.04
12/9/2008	8:30	AM	50	19	12	400	380	360	30110	12	90	12	4.55	124	356	4.0	7.89
12/10/2008	8:30	AM	38	19	12	440	420	393	35909	13	90	12	4.54	155	389	4.0	8.02
12/11/2008	9:00	AM	45	19	12	440	410	385	35378	12	90	11	4.56	159	383	4.0	7.93
12/12/2008	8:43	JG	39	19	12	480	460	440	40310	14	90	12	4.55	185	420	4.0	7.96
12/30/2008	10:42	AM	55	15	10	300	260	240	23820	29	34	5	4.51	204	235	5.0	7.87
1/2/2009	12:52	JR	40	19	10	400	360	360	22807	75	88	8	4.44	161	320	5.0	7.78
1/5/2009	8:23	AM	52	19	10	390	350	330	19154	80	82	9	4.14	107	312	5.0	7.77
1/8/2009	10:01	JR	30	19.98	9	390	330	340	22102	12	18	10.8	4.18	114	300	5.0	8
1/9/2009	8:42	JG	35	19.9	9	400	350	340	12363	11	16	10.6	4.16	141	320	6.0	8.05
1/12/2009	14:00	KL	40	18.84	9	380	320	300		11	16	10.5	4.15	106	320	5.8	6.06
1/13/2009	12:00	AM	50	18.81	10	360	300			11	16	10.45	4.1	68	297	5.0	5.5
1/14/2009	15:05	AM	40	18.96	10	320	280	278		10	15	10.64	4.16	61	300	4.9	6.12
1/15/2009	14:55	AM	45	19.09	10	320	300	236		10	15	10.59	4.13	51	264	4.6	5.64
1/16/2009	8:53	AM	50	19.09	10	360	300	264		9	16	11.6	4.19	62	287	5.1	6.1
1/20/2009	9:19	JG	40	19.3	10	380	340	330		10	16	11.5	4.22	114	300	5.0	6.22
1/21/2009	9:40	AM	49	19.08	10	380	340	320		9	15	10.77	4.21	161	303	5.5	5.92
1/22/2009	15:10	JR	40	18.79	10	460	410	400	35621	12	18	12.85	4.25	175	391	4.9	6
1/23/2009	15:01	JR	40	18.91	11	420	380	380	32331	12	17	12.98	4.01	166	350	5.9	6.88
1/26/2009	14:48	JR	40	18.97	10	440	400	395	33124	12	16	12.62	3.84	151	360	4.8	6.95
1/27/2009	11:02	AM	55	18.96	11	400	360	360	29923	12	17	12.14	3.83	142	345	5.6	6.66
1/28/2009	8:10	AM	40	19.08	10	420	380	398	30317	13	18	13.16	3.91	121	364	4.8	6.89
1/30/2009	15:30	AM	40	18.97	11	370	330	315	24436	11	15	11.71	5.1	107	300	5.6	6.81
2/2/2009	10:17	AM	40	18.97	12	320	280	270	16362	10	16	11.71	5.25	50	251	5.5	7.03
2/3/2009	12:45	JR	40	19.04	11	340	300	285	17840	9	17	11.7	5.28	54	260	5.6	7.08
2/4/2009	8:24	AM	40	18.85	11	360	320	305	21183	12	16	12.84	5.31	68	299	4.8	7.06
2/5/2009	11:02	JR	40	18.97	11	390	360	340	26512	10	16	12.57	4.68	112	330	5.0	6.97
2/6/2009	8:28	AM	40	19.07	12	380	320	311	25716	10	15	12.38	4.67	107	315	5.5	6.97
2/9/2009	8:17	JG	40	19.01	11	400	350	340	12335	11	15	11.59	4.68	97	320	5.0	7.05
2/10/2009	10:08	JR	40	19.04	11	360	320	320	23851	10	16	10.98		94	300	5.6	7.42
2/11/2009	8:12	AM	40	18.92	11	340	340	317	24588	11	18	11.25	4.86	87	324	4.9	7.37
2/23/2009	14:03	JG	50	17.97	12.5	295	250	240	5222	9	15	11.01	5.12	49	220	3.9	7.22
2/24/2009	8:00	AM	55	17.42	12.5	300	250	235	9783	10	16	11.02	5.08	39	222	4.1	7.28
2/25/2009	8:24	AM	50	18.22	11	290	250	221	9240	11	16	11.01	5.13	34	224	3.9	7.39
2/26/2009	12:40	AM	50	17.01	12.5	270	240	216	9882	10	16	11.29	5.19	31	209	2.9	7.41
2/27/2009	12:11	AM	50	17.01	12	270	240	209	8962	10	16	11.05	5.07	38	209	3.3	7.38
3/16/2009	9:20	AM	55	14.34	13.5	180	150	125	2355	5	10	8.44	5.02	12	123	3.5	7.17
3/16/2009	16:01	JG	50	16.7	14.5	230	190	170	2484	11	15	11.01	5	11	160	3.1	7.28
3/17/2009	9:30	JR	45	17.14	14	220	195	175	2000	10	14	10.6	5.03	7	160	3.7	7.41
3/19/2009	9:30	JR	45	17.13	14.7	220	185	180	1426	10	15	11.05	4.96	7	160	2.9	7.14
3/20/2009	13:00	AM	45	17.17	15	210	180	162	1528	10	15	10.95	4.84	7	155	3.1	7.24
3/23/2009	9:30	JG	45	17.08	12	260	220	200	2676	10	16	11.05	4.9	11	195	2.9	6.11
3/24/2009	8:29	JG	45	16.95	12.5	240	205	195	2404	10	15	10.99	4.97	7	180	3.1	6.98
3/26/2009	11:05	JR	45	17.13	13	240	220	195	2167	10	15	11.25	4.88	7	175	3.1	7.25
3/27/2009	9:25	JR	45	17.65	14	220	190	180	1966	9	18	10.58	4.99	7	170	3.6	7.62
3/30/2009	11:00	AM	45	16.79	14	220	190	167	2555	10	16	10.4	5.02	11	161	3.7	7.69

3/31/2009	8:21	AM	45	16.45	15	220	190	163	3197	10	15	10.54	5.13	13	161	3.5	7.64
4/2/2009	14:04	JR	42	16.06	15	240	200	195	6885	11	15	11.28	4.95	27	192	2.7	7.37
4/3/2009	9:38	JR	45	16.55	14.5	260	220	205	8317	11	16	11.15	5.03	32	202	3.0	7.42
4/6/2009	14:51	JR	45	17.65	15	210	190	185	3793	10	14	10.45	5.07	14	180	3.7	7.57
4/7/2009	9:07	JG	45	17.03	15	220	190	180	3781	10	15	10.59	4.91	14	160	3.7	7.52
4/10/2009	9:05	JR	45	16.54	14	260	210	200	4676	11	17	10.85	4.97	18	180	2.9	7.42
4/13/2009	9:16	JG	40	16.79	16	230	200	180	4250	10	18	11.32	5.1	14	170	2.8	7.48
4/14/2009	9:24	JG	40	16.91	15.5	240	200	190	4472	10	18	11.54	5.2	15	180	3.1	7.35
4/16/2009	9:11	JG	45	16.65	15.5	230	200	190	3278	10	16	11.03	5.24	11	175	3.0	7.55
4/17/2009	10:32	JR	45	17.96	16	220	180	185	2367	10	16	10.98	5.11	7	160	33.0	7.54
4/20/2009	13:58	JG	45	17.16	17.5	20	180	170	4339	11	15	10.81	4.97	15	160	3.4	7.28
4/23/2009	8:22	JR	45	17.27	17	240	205	200	10768	9	16	10.78	5.09	51	185	3.6	7.29

Bay Area Regional Desalination Project - Pilot Plant
Logsheet Daily-Walkthrough-6 - Waste Trailer General

Daily Walk-Through - Waste Trailer

Date	Time	Operator Initials	T-3 tank level ok	T-4 tank level ok	CS tube full?	CS tank level ok?	Waste flow	Power	Power		Vandalism?	Trash picked up?	Unusual noises?	Strangers near site?	Gates locked @ arrival?
			Y/N/fix	Y/N/fix	Y/N/fix	Y/N/fix	galx1000	time	kW		Y/N	Y/N	Y/N	Y/N	Y/N
			N	Y	Y	Y					N	N	Y (P4)	N	Y
			Y	Y	Y	Y					N	N	Y(RO2-3)	N	Y
11/10/2008	11:30	AM	Y	Y	Y	Y					N		N	N	Y
11/11/2008	15:40	AM	Y	Y	Y	Y					N		N	N	Y
11/12/2008	8:50	JG	Y	Y	Y	Y					N	mostly	N	N	Y
11/13/2008	9:38	AM	Y	Y	Y	Y					N				Y
11/14/2008	16:00	JG	Y	Y	Y						N	Y	N	N	Y
11/17/2008	8:50	JG	Y	Y	Y	Y	300				N	Y	N	N	Y
11/18/2008	9:23	AM	Y	Y	FIX	Y	319.3	9:28 AM	312032		N	Y	N	N	Y
11/19/2008	12:40	JG	Y	Y	Y	Y	341.2				N	Y	N	N	Y
11/20/2008	11:00	JR	Y	Y	Y	Y	359.1	11:04 AM	312819		N	Y	N	Y	Y
11/21/2008	10:00	JR	Y	Y	Y		381.5	10:00 AM	313199		N	Y	N	Y	N
11/24/2008	8:50	JG	Y	Y	Y	Y	456.1				N	Y	N	N	Y
11/25/2008	10:42	AM	Y	Y	Y	Y	478	10:45 AM	314747		N		N	Y	Y
11/26/2008	9:04	JG	Y	Y	Y	Y	496.7				N	Y	N	N	Y
11/28/2008	9:44	JG	Y	Y	Y		537				N	Y	N	N	Y
12/1/2008	9:21	AM	Y	Y	Y	Y	606.9				N	Y	N	N	Y
12/2/2008	9:00	AM	Y	Y	Y		634.5	9:18 AM	317655		N	Y	N	N	Y
12/3/2008	8:42	JG	Y	Y	FIXED	Y	653.7				N	Y	N	N	Y
12/4/2008	8:28	AM	Y	Y	Y	Y	673.1	8:30 AM	318611		N	Y	N	N	Y
12/5/2008	8:27	JG	Y	Y	Y	FILL	692.4				N	Y	N	N	Y
12/8/2008	9:25	NP	Y	Y	Y	Y	750.7				N	Y	N	N	Y
12/9/2008	8:51	AM	Y	Y	Y	Y	769.5	8:54 AM	321043		N	Y	N	N	Y
12/10/2008	8:00	AM	Y	Y	Y	Y					N	Y	N	N	Y
12/11/2008	9:00	AM	Y	Y	Y	Y	808.2	9:09 AM	321994		N	Y	N	N	Y
12/12/2008	8:48	JG	Y	Y	Y	Y	829.103				N	Y	N	N	Y
12/18/2008	9:20	JR			Y	Y	862.051	9:37 AM	323297						
12/30/2008	10:48	AM	Y	Y	Y	Y	891.32	10:53 AM	325041		N	Y	N	N	Y
1/2/2009	12:56	JR	Y	Y	Y	Y	917.667	1:04 PM	326053						
1/5/2009	7:56	AM	Y	Y	Y	Y	939.84	8:13 AM	326913		N	Y	N	N	Y
1/6/2009	8:04	JR	Y	Y	Y	Y	950.06	8:30 AM	327231		N	Y	N	N	Y
1/8/2009	10:09	JR	Y	Y	Y	Y	967.962	10:14 AM	327788		N	Y	N	N	Y
1/9/2009	8:45	JG	Y	Y	Y		992.118				N	Y	N	N	Y
1/12/2009	14:00	KL	Y	Y	Y		1078.832				N	Y	N	N	Y
1/13/2009	9:27	KL	Y	Y	Y	Y	1095.49				N	Y	N	N	Y
1/14/2009	13:30	AM	Y	Y	Y	Y	1110.566				N	Y	N	N	Y
1/15/2009	15:07	AM	Y	Y	Y	Y	1129.366	3:09 PM	329757		N	Y	N	N	Y
1/16/2009	7:45	AM	Y	Y	Y	Y	1135.476				N	Y	N	N	Y
1/20/2009	9:37	JG	Y	Y	Y	Y	1186.3				N	Y	N	N	Y
1/21/2009	9:45	AM	Y	Y	Y	Y	1193.72				N	Y	P-5/FIX	N	Y
1/22/2009	15:15	JR	Y	Y	Y	Y	1219.3				N	Y	N	N	Y
1/23/2009	15:05	JR	Y	Y	Y	Y	1252.1	3:07 PM	332390		N	Y	N	N	Y
1/27/2009	14:12	AM	Y	Y	Y	Y	1382.9				N	Y	N	N	Y
1/28/2009	8:20	AM	Y	Y	Y	Y	1397.9				N	Y	N	N	Y
1/30/2009	15:43	AM	Y	Y	Y	Y	1404.1	3:43 PM	335008		N	Y	N	N	Y
2/2/2009	10:29	AM	Y	Y	Y	Y	1489.29				N	Y	N	N	Y
2/3/2009	12:50	JR	Y	Y	Y	FILL	1508.94	1:13 PM	336357		N	Y	N	N	Y
2/4/2009	8:28	AM	Y	Y	Y	Y	152436				N	Y	N	N	Y
2/5/2009	11:07	JR	Y	Y	Y	Y	1541.2	9:16 AM	337038		N	Y	N	N	Y
2/6/2009	8:30	AM	Y	Y	Y	Y	1560.14				N	Y	N	N	Y
2/9/2009	8:20	JG	Y	Y	FIX	FILL	1622.82				N	Y	N	N	Y
2/10/2009	10:13	JR	Y	Y	Y	Y	1657.5	10:14 AM	339330		N	Y	N	N	Y
2/11/2009	8:15	AM	Y	Y	Y	Y	1677				N	Y	N	N	Y
2/23/2009	12:18	JG	Y	Y	Y	Y	1714.9				N	Y	N	N	Y
2/24/2009	8:20	AM	Y	Y	Y	Y	1715.8				N	Y	N	N	Y

Bay Area Regional Desalination Project - Pilot Plant
Logsheet Daily-Walkthrough-6 - Waste Trailer General

Daily Walk-Through - Waste Trailer

Date	Time	Operator Initials	T-3 tank level ok	T-4 tank level ok	CS tube full?	CS tank level ok?	Waste flow	Power	Power		Vandalism?	Trash picked up?	Unusual noises?	Strangers near site?	Gates locked @ arrival?
			Y/N/fix	Y/N/fix	Y/N/fix	Y/N/fix	galx1000	time	kW		Y/N	Y/N	Y/N	Y/N	Y/N
2/25/2009	8:28	AM	Y	Y	Y	Y	1718.64				N	Y	N	N	Y
2/26/2009	12:40	AM	Y	Y	Y	Y	1718.7	12:48 PM	342455		N	Y	N	N	Y
2/27/2009	12:13	AM	Y	Y	Y	Y	1722.08				N	Y	N	N	Y
3/16/2009	9:25	AM	Y	Y	Y	Y	1749.55				N	Y	N	N	Y
3/17/2009	9:35	JR	Y	Y	Y	Y	1761.41	9:36 AM	346177		N	Y	N	N	Y
3/19/2009	9:30	JR	Y	Y	Y	FILL	1797.496	9:50 AM	346834						
3/20/2009	13:00	AM	Y	Y	Y	Y	1824.149				N	Y	N	N	Y
3/23/2009	9:34	JG	Y	Y	Y	FILL	1881.8				N	Y	N	N	Y
3/24/2009	8:32	JG	Y	Y	Y	Y	1900.6				N	Y	N	N	N
3/26/2009	11:10	JR	Y	Y	Y	Y	1946.9	11:07 AM	349253		N	Y	N	N	Y
3/27/2009	9:30	JR	Y	Y	Y	Y	1968.5	9:19 AM	349571		N	Y	N	N	Y
3/30/2009	11:30	AM	Y	Y	Y	Y	2033				N	Y	N	N	Y
3/31/2009	8:25	AM	Y	Y	Y	Y	2062	8:25 AM	350899		N	Y	N	N	Y
4/2/2009	14:10	JR	Y	Y	Y	Y	2105	2:09 PM	351707		N	Y	N	N	Y
4/3/2009	9:40	JR	Y	Y	Y	Y	2122	9:55 AM	352018		N	Y	N	N	Y
4/6/2009	15:07	JR	Y	Y	Y	N	2206				N	Y	N	Y	Y
4/7/2009	9:12	JG	Y	Y	Y	Y	2222	9:15 AM	353359		N	Y	N	N	N
4/8/2009	8:23	AM	Y	Y	Y	Y	2242				N	Y	N	N	N
4/10/2009	9:10	JR	Y	Y	Y	Y	2300.4	9:10 AM	354260		N	Y	N	N	Y
4/13/2009	9:19	JG	Y	Y	Y	Y	2361.8				N	Y	N	N	Y
4/14/2009	9:27	JG	Y	Y	Y	FILL	2382				N	Y	N	N	Y
4/16/2009	9:15	JG	Y	Y	Y	Y	2423.3	9:17 AM	356414		N	Y	N	N	Y
4/17/2009	10:35	JR	Y	Y	Y	Y	2449.7	10:35 AM	356740		N	Y	N	N	Y
4/20/2009	14:00	JG	Y	Y	Y	FILL	2497.9	2:04 PM	357883		N	Y	N	N	Y
4/23/2009	8:26	JR	Y	Y	Y	Y	2541	8:28 AM	358967		N	Y	N	N	Y

Bay Area Regional Desalination Plant - Pilot Testing
Logsheet Onsite Analytical-1 - Onsite Analyses to be performed Daily

On-site Parameter	Sample Daily	Conductivity (µS/cm)																			
Date	Operator	time	S2		S10		S11		S12		S13		S14		S15		S16		S24		S34
11/6/2008	AM	11:30	14160	11:30	14380	1:00	116.6	1:00	128.8	4:55	1538	11:30	35400	11:30	32500	11:30	1083	11:30	26000	11:30	24400
11/7/2008	JR	11:15	12,820	11:15	12,840	11:15	121	11:15	114	11:15	460	11:15	27300	11:15	27400	11:15	36400	11:15	22300	11:15	25300
11/10/2008	AM	1:20	11680															2:15	20400	2:15	19500
11/11/2008	AM	4:43	10970															4:44	18850	3:56	19920
11/12/2008	AM	2:44	10960	9:27	11020	9:27	170.1	9:27	72.3	9:27	821	9:27	26000	9:27	25900	9:27	35100	9:27	26300	9:27	17850
11/13/2008	SOH	0:00	11020	0:00	11870	0:00	66.2	0:00	60.3	0:00	370	0:00	25.1	0:00	24.6	0:00		0:00	19880	0:00	18820
11/17/2008	AM	10:44	14450	11:12	14320	11:23	90.3	11:23	91	11:23	1531	11:24	32800	11:20	33400	11:10	43300	11:15	26100	11:15	24800
11/18/2008	AM	12:00		9:10	13360	9:10	74.1	9:10	66.5	9:10	653	9:10	33100	9:10	32400	9:10	43400	9:10	25300	12:00	
11/19/2008	AM	12:43	13390	13:15	13280	13:15	74.4	13:15	72.1	13:15	1218	13:15	32000	13:15	30700	13:15	41700	13:15	26900	14:42	25300
11/20/2008	AM	9:47	13040	9:40	13050	9:40	84.7	9:40	66.6	9:40	933	9:40	32100	9:40	30900	9:40	41400	9:40	25000	9:40	24500
11/21/2008	JG	16:49	12400	17:10	12430	17:11	74.2	17:12	69.5	17:12	623	18:10	27500	17:24	26500	17:26	35700	17:31	23100	17:33	23500
11/24/2008	AM	11:30	12400	11:30	12430	11:30	65.6	11:30	64.4	11:30	654	23:30	27200	11:30	26700	11:30	35300	11:30	24800	11:30	22900
11/25/2008	AM	13:45	13860	13:45	9450	13:45	737.7	13:45		13:45	468	13:45	32300	13:45	31400	13:45	42000	17:53	26000	18:00	20700
11/26/2008	AM	11:30	14980	15:12	14980	15:12	80.8	15:12	75.6	15:12	468	15:12	33000	15:12	31700	15:12	41400	11:30	27700	15:12	28000
12/1/2008	AM	12:55	13750	13:24	13660	13:24	70.3	13:24	64	13:24	1312	13:24	33000	13:24	31800	13:24	43400	13:24	26600	13:24	27400
12/2/2008	AM	11:04	14310	11:40	14270	11:40	75.5	11:40	67.7	11:40	1376	11:40	34000	11:40	33100	11:40	37000	11:40	26500	11:40	28400
12/3/2008	JG	Instrument not calibrated																			
12/4/2008	AM																				
12/5/2008	JG																				
12/8/2008																					
12/9/2008	AM																				
12/10/2008	AM																				
12/11/2008	AM																				
12/12/2008	AM																				
12/30/2008	AM	11:18	15300	11:45	15360	11:45	96.7	11:45	87.6	11:45	631	11:45	24500	11:45	24300	11:45	33400	11:45	29100	11:45	31400
1/2/2009	JR	14:58	13200	15:06	12520	15:07	106.7	15:08	219	15:09	514	15:09	21700	15:12	21400	15:13	25200	14:29	24700	15:01	24100
1/5/2009	AM	9:58	10650	10:22	10630	10:45	40.8	10:45	77.8	10:50	408	10:50	17570	10:50	16890	10:50	27500	10:45	21400	10:45	20600
1/6/2009	JR	10:12	9850															10:32	19230	10:32	20300
1/7/2009	AM																				
1/8/2009	JR	12:10	10520	12:10	9870	12:10	62.7	12:10	53.9	12:10	178	12:10	20200	12:10	19700	12:10	28000	12:10	18540	12:10	16270
1/9/2009	JG	15:59	12500	16:22	12500	16:44	140.5			16:25	198.1	16:26	24700	16:27	24100	16:29	32900	16:36	23000	16:34	21000
1/12/2009	KL/JR	12:44	11230	12:44	9500	12:44	164.4			12:44	129.8	12:44	23700	12:44	22800	12:44	31400	12:44	23500	12:44	24800
1/13/2009	KL	15:23	10820	15:23	7860	15:23	123.7			15:23	258	15:23	23600	15:23	21300	16:22	32000	15:23	13590	15:23	24000
1/14/2009	AM	15:30	10640	15:30	10640	15:30				15:30	179.2	15:30	22100	15:30	21500	15:30	29900	15:30	19890	15:30	22800
1/15/2009	AM	15:20	10320	15:51	10340	15:51				15:51	149.8	15:51	19670	15:51	19220	15:51	19940	15:51	18820	15:51	21800
1/16/2009	AM	11:05	10010	10:30	10020	10:30				10:30	296	10:30	20700	10:30	19950	10:30	28500	10:30	16350	10:30	21400
1/20/2009	AM	8:57	11780	9:40	11180	9:40				9:43	557	9:43	22900	9:40	22100	9:43	30500	9:48	21400	9:48	25400
1/21/2009	AM	13:58	15050	14:30	14960	14:30				14:30	757	14:30	31000	14:30	30200	14:30	39900	14:15	26800	14:15	31.5
1/22/2009	AM	14:45	14810	14:50	14830	14:50				14:50	405	14:50	33600	14:50	32900	14:50	45200	14:50	26800	15:00	27500
1/23/2009	AM	15:18	14630	15:20	14680	15:20				15:20	369	15:20	30600	15:20	30700	15:20	39700	15:10	27300	15:10	534
1/26/2009	JR	15:33	14020	15:33	13980	15:33	163			15:33	419	15:33	32100	15:33	31200	15:33	42600	15:33	26100	15:33	29600
1/27/2009	AM	11:18	13540	11:15	13590	11:15	67.9			11:15	298	11:15	29200	11:15	29300	11:15	40200	9:50	25200	11:01	28800
1/28/2009	JG	7:55	12800	8:23	13280	8:24	143			8:26	166	8:27	29100	8:28	28800	8:29	39300	8:45	24000	8:42	29500
1/30/2009	AM	16:00	11080	16:15	11020	16:15				16:15	226	16:15	23500	16:15	22500	16:15	31000	16:15	20700	16:15	23800
1/31/2009	JR									12:00		12:00		12:00		12:00		12:00		12:00	
2/2/2009	AM	13:56	7140	14:16	7170	14:16				14:16	118	14:16	15500	14:16	14880	14:16	21600	14:16	13360	14:16	14950
2/3/2009	AM/JR	15:55	7990	16:19	8000	16:19				16:19	163.5	16:19	18300	16:19	17740	16:19	25900	16:05	14610	16:05	17470
2/4/2009	JG	8:05	8960	8:27	9010	8:28	93.3			8:29	98.9	8:32	18620	8:33	18330	8:36	28000	8:38	16800	10:45	23000
2/5/2009	AM	8:33	11230	8:50	11200	9:00				9:00	227	8:52	24000	8:52	22700	8:50	31700	8:45	21200	8:45	23700
2/6/2009	AM/JG	9:50	11980	10:00	12050	10:00				10:00	273	10:00	27300	10:00	26500	10:00	37300	10:00	22300	10:00	25800
2/9/2009	JG	11:35	10990	12:10	11070	12:12	122.7			12:11	137.3	12:14	25000	12:15	24200	12:16	34300	12:03	20900	12:06	23500
2/10/2009	AM	10:17	10750	10:51	10750	10:59				10:59	24.3	11:04	23700	11:04	23500	10:59	33200	10:45	20200	10:45	24500
2/11/2009	JG	8:23	10440	8:50	10430	8:50	69.2			8:50	228					8:50	33000	8:59	19500	9:02	22100
2/23/2009	JG	12:57	4400	13:36	4600	13:37	48.5			13:38	55.1					13:40	17650			13:34	11340
2/24/2009	AM	8:31	3860	8:25	3860	8:25				8:25	74.6					8:25	15650	9:05	9510	9:05	9760
2/25/2009	AM	9:57	3670	10:05	3700	10:10	34.9			10:10	39.3	11:15	8920	11:15	8580	10:10	14750			11:14	9050
2/26/2009	AM	13:06	4140	13:10	3600	13:10	34.9			13:10	50.4					13:10	14750			13:10	8950
2/27/2009	AM	9:14	4050	9:45	3330	9:45	35.4			9:45	46.1					9:45	16470			9:45	8410
3/16/2009	AM	9:40	1010	9:50	1050	9:50	15.41			9:50	12.28					9:50	3810				
3/17/2009	AM	8:55	836	9:46	838	9:46	9.27			9:46	8.26	9:46	2020	9:46	1978	9:46	3500	9:50	2120	9:50	2160
3/19/2009	JR	10:40	548	10:40	572	10:40	7.29			10:40	9.05					10:40	2990	10:40	1413	10:40	1362

Bay Area Regional Desalination Plant - Pilot Testing
Logsheet Onsite Analytical-1 - Onsite Analyses to be performed Daily

On-site Parameter	Sample Daily	Conductivity (µS/cm)																			
Date	Operator	time	S2		S10		S11		S12		S13		S14		S15		S16		S24		S34
3/20/2009	AM	13:00	631	13:00	561	13:00	7.69			13:00	7.84					13:00	2840	13:00	1596	13:00	1551
3/23/2009	JG	9:59	1068	11:05	957	11:06	7.93			11:07	9.38	11:08	2450	11:09	2340	11:11	4820	11:16	2010	11:14	2370
3/24/2009	JG	8:41	917	9:01	932	9:02	8.89			9:03	9.98					9:03	4790	9:08	2280	9:10	2330
3/26/2009	AM	13:25	834	13:31	847	13:31	8.97			13:31	8.65					13:31	4620	14:22	1946	14:22	2090
3/27/2009	AM	8:43	828	9:03	836	9:03	8.24			9:03	7.27					9:03	3460	8:59	2160	8:59	2050
3/30/2009	JR	9:47	1127	11:47	1077	11:48	9.64			11:49	10.17					11:50	4540	11:55	2780	11:53	2650
3/31/2009	JR	8:30	1317	8:30	1320	8:30	14.12			8:30	14.73					8:30	5.58	8:30	3370	8:30	3830
4/2/2009	AM	12:57	2570	13:41	2600	13:53	26.3			13:52	36.4	13:55	6850	13:55	6470	13:49	12930	13:38	6330	13:58	6460
4/3/2009	JR	8:30	2260	8:30	2270	8:30	23.1			8:30	18.6					8:30	11480	8:30	5320	8:30	5630
4/6/2009	JG	14:53	1573	15:32	1602	15:33	14.81			15:34	16.94					3:35	6650	3:38	4110	3:40	3580
4/7/2009	AM	9:42	1567	9:31	1582	9:56	16.27			9:59	17.01	11:52	3750	11:52	3600	10:02	6540	10:03	3930	9:20	3870
4/10/2009	AM	8:44	1744	10:30	1753	10:30	17.34			10:30	20.7					10:30	8960	10:30	3710	10:30	4340
4/14/2009	JR	10:23	1725	10:23	1712	10:23	16.77			10:23	20.7	10:23	4380	10:23	4270	10:23	8300	10:23	4300	10:23	4200
4/16/2009	JR	12:36	1285	12:36	1297	12:36	16.52			12:36	15.26					12:36	6650	12:36	3340	12:36	3780
4/17/2009	JR	9:12	963	9:12	978	9:12	11.77			9:12	11.1					9:12	4980	9:12	1820	9:12	2470
4/20/2009	JG	14:25	1826	15:03	1814	15:06	18.28			15:05	23.9					15:04	8110	15:02	4470	15:00	4490

Bay Area Regional Desalination Plant - Pilot Testing
Logsheet Onsite Analytical-1 - Onsite Analyses to be performed Daily

On-site Parameter	Sample Daily	pH														Free-Cl (mg/L)		Total Cl (mg/L)				Free-Cl (mg/L)	
Date	Operator	time	S2	time	S3	time	S17	time	S21	time	S24	time	S31	time	S34	time	S3	time	S3	time	S7	time	S7
11/6/2008	AM	11:30	6.83	11:30	7.00	11:44	7.38	11:55	6.57	11:58	7.45	12:02	7.10	12:04	7.29								
11/7/2008	JR	11:24	7.34	11:24	7.32	11:24	7.38	11:24	6.23	11:24	7.11	11:24	6.04	11:24	7.16								
11/10/2008	AM	13:21	7.35	1:21	7.48	13:21		13:21	6.20	13:21	7.15	13:21	6.31	13:21	7.21	5:30	0.16	5:30	0.17	5:32	0.10	5:35	0.04
11/11/2008	AM	16:47	7.37	16:47	7.50	16:47		16:47	6.52	16:47	7.29	16:47	7.00	16:47	7.36	6:21	0.08	6:21	0.10	6:23	0.06	6:24	0.02
11/12/2008	AM	14:05	7.31	14:05	7.44	9:36	7.44	14:05	6.56	14:05	7.19	14:05	6.71	14:05	7.05	4:00	0.09	4:00	0.18	4:00	0.02	4:00	0.02
11/13/2008	SOH	11:16	7.29	11:16	7.37	11:16	7.19	11:16	6.91	11:16	6.89	11:16	6.57	11:16	6.79	1:35	0.07	1:35	0.07	1:35	0.00	1:35	0.01
11/17/2008	AM	10:08	7.38	10:06	7.24	11:24	7.36	11:10	6.71	11:15	7.23	11:10	6.87	11:15	7.23	3:30	0.38	3:30	0.47	3:30	0.03	3:30	0.01
11/18/2008	AM	12:18	7.47	11:15	7.36	9:10	7.43	9:10	6.61	9:10	7.26	12:00		12:00		9:46	0.30	9:46	0.58	9:39	0.01	9:39	0.01
11/19/2008	AM	12:43	7.25	12:47	7.39	13:15	7.40	13:15	6.30	13:15	7.26	14:42	6.31	14:42	7.30	14:13	0.10	14:16	0.56	14:06	0.01	14:06	0.02
11/20/2008	AM	8:57	7.47	8:57	7.59	9:40	7.51	9:40	6.54	9:40	7.28	9:40	6.46	9:40	7.39	9:47	0.42	9:47	0.43	9:47	0.03	9:47	0.05
11/21/2008	JG	16:49	7.48	16:53	7.39	17:27	7.59	17:31	6.58	18:14	7.68	17:33	6.20	17:33	7.56	16:53	0.21	16:53	0.46	16:56	0.02	16:56	0.02
11/24/2008	AM	9:10	7.66	9:00	7.61	11:30	7.68	11:30		11:30	7.55	11:30	6.37	11:30	7.53	11:30	0.35	11:30	0.35	11:30	0.03	11:30	0.01
11/25/2008	AM	12:56	7.90	12:49	7.82	18:32	7.66	17:46	7.26	17:53	7.43	17:53	6.39	18:00	7.53	18:18	0.27	18:18	0.32	18:16	0.01	18:16	0.05
11/26/2008	AM	16:24	7.90	9:28	7.78	15:12	7.64	11:30	6.43	11:30	7.30	15:12	6.61	15:12	7.55	11:30	0.32	11:30	0.31	11:30	0.40	11:30	0.40
12/1/2008	AM	12:55	7.99	12:47	7.85	13:24	7.62	13:24	6.57	13:24	7.61	13:24	6.51	13:24	7.60	13:00	0.20	13:00	0.53	13:58	0.06	13:58	0.03
12/2/2008	AM	11:04	7.78	11:04	7.97	11:40	7.63	11:40	6.04	11:40	7.51	11:40	6.22	11:40	7.85	11:04	0.39	11:04	0.42	11:26	0.09	11:26	0.07
12/3/2008	JG	13:23	7.59	13:27	7.58	12:00		13:59	5.89	13:59	7.21	13:58	5.48	13:58	7.24	9:13	0.27	13:27	0.26	13:30	0.01	13:30	0.02
12/4/2008	AM	9:17	7.59	9:19	7.64	13:46	7.30	9:10	5.90	9:10	7.25	9:10	5.93	9:10	7.28	9:10	0.07	9:10	0.08	9:10	0.00	9:10	0.00
12/5/2008	JG	10:20	7.60	10:24	7.68	10:58	7.45	11:04	6.64	11:05	7.44	11:06	6.29	11:07	7.46	10:24	0.28	10:24	0.44	10:27	0.02	10:27	0.07
12/8/2008		8:25	7.64	8:35	7.66	9:35	7.46	9:45	6.31	9:45	7.44	9:45	6.09	9:45	7.47	8:35	0.25	8:33	0.30	8:56	0.07	8:56	0.03
12/9/2008	AM	11:42	7.53	11:36	7.49	12:45	7.35	12:00	5.82	12:00	7.24	12:00	6.10	12:00	7.28	11:42	0.25	11:42	0.25	12:00	0.00	12:00	0.00
12/10/2008	AM	9:16	7.55	8:59	7.78	9:00	7.50	9:25	6.24	9:25	7.47	9:25	6.17	9:25	7.50	8:59	0.16	8:59	0.15	9:10	0.03	9:10	0.04
12/11/2008	AM	9:20	7.64	9:26	7.74	9:45	7.41	10:38	6.03	10:38	7.21	10:38	5.98	10:38	7.25	11:05	0.29	11:05	0.31	11:05	0.01	11:05	0.00
12/12/2008	AM	8:48	7.75	8:44	7.83	9:00	7.48	9:20	6.15	9:20	7.33	9:51	6.77	9:51	7.47	8:44	0.26	8:44	0.22	8:53	0.00	8:53	0.00
12/30/2008	AM	11:18	7.67	11:17	7.47	11:45	7.31	11:45	6.14	11:45	7.27	11:45	6.07	11:45	7.25	11:17	0.14	11:17	0.18	11:25	0.02	11:25	0.04
1/2/2009	JR	8:29	7.67	8:29	7.70	8:38	7.23	8:45	6.31	8:45	7.29	8:45	6.08	8:45	7.27	15:22	0.15	15:24	0.17	15:25	0.04	11:23	0.03
1/5/2009	AM	9:58	7.72	9:58	7.72	10:45	7.51	10:50	6.49	10:50	7.22	10:50	6.29	10:50	7.37	8:58	0.04	9:58	0.07	10:10	0.06	10:10	0.01
1/6/2009	JR							10:38	6.50	10:33	7.51	10:38	6.34	10:33	7.46	9:06	0.19	9:06	0.19	9:06	0.03	9:06	0.04
1/7/2009	AM																						
1/8/2009	JR	13:29	6.60	13:01	7.57	13:11	7.14	13:13	6.03	13:14	7.14	13:17	5.92	13:20	7.16	11:00	0.12	11:00	0.17	11:00	0.03	11:00	0.05
1/9/2009	JG	15:59	7.76	16:01	7.74	16:28	7.19	16:35	5.68	16:36	7.13	16:32	5.60	16:34	7.11	16:01	0.13	16:01	0.14	16:05	0.02	16:05	0.06
1/12/2009	KL/JR	15:00	6.77	15:00	7.19	15:00	7.08	15:00	6.71	15:00	7.08	15:00	6.68	15:00	6.75								
1/13/2009	KL	16:05	7.95	12:00	7.92	12:00	7.33	12:00	6.43	15:52	7.21	16:22	5.55	15:52	6.94	16:08	0.19	16:05	0.29	16:08	0.02	16:08	0.02
1/14/2009	AM	15:30	7.90	15:30	7.91	15:30	7.62	15:30	5.85	15:30	7.57	15:30	5.68	15:30	7.74	15:30	0.19	15:30	0.20	15:30	0.03	15:30	0.02
1/15/2009	AM	15:51	7.90	15:51	7.90	15:51	7.55	15:51	6.57	15:51	7.34	15:51	5.71	15:51	7.21	15:51	0.16	15:31	0.14	15:31	0.07	15:31	0.07
1/16/2009	AM	11:05	6.67	11:05	7.36	10:30	7.07	10:30	5.68	10:30	6.89	10:30	5.78	10:30	6.36	11:03	0.29	11:05	0.27	12:03	0.09	14:03	0.09
1/20/2009	AM	8:57	7.46	8:58	7.78	9:43	7.13	9:48	5.54	9:48	7.10	9:48	5.62	9:48	7.01	8:58	0.13					9:49	0.02
1/21/2009	AM	13:58	7.57	13:58	7.63	14:30	6.94	14:15	5.43	14:15	6.65	14:15	5.51	14:15	6.55	13:58	0.20					13:58	0.00
1/22/2009	AM	14:45	7.34	14:45	7.39	14:50	6.89	14:50	5.60	14:50	6.79	15:00	5.96	15:00	6.67	14:45	0.03					14:43	0.13
1/23/2009	AM	15:18	7.29	15:18	7.08	15:50	5.90	15:50	5.36	15:10	6.52	15:10	5.48	15:10	5.71					16:15	0.05	16:15	0.01
1/26/2009	JR	15:33	7.47	16:45	7.49	17:00	7.02	17:30	5.79	15:33	7.04	17:00	5.79	15:33	7.71	15:02	0.13	15:02	0.16	15:04	0.02	15:04	0.05
1/27/2009	AM	11:37	7.49	11:37	7.48	11:15	6.10	10:40	5.91	10:00	6.52	9:50	5.28	9:50	5.34	11:37	0.07	11:37	0.19	11:37	0.00	11:37	0.00
1/28/2009	JG	7:55	7.50	7:56	7.56	8:30	6.77	8:44	5.50	8:45	6.79	8:41	5.44	8:42	6.75	7:56	0.15	7:56	0.14	7:57	0.01	7:57	0.03
1/30/2009	AM															16:00	0.12	16:00	0.19	16:40	0.11	16:40	0.02
1/31/2009	JR															8:40	0.13			8:40	0.05	8:40	0.02
2/2/2009	AM	13:56	7.50	13:56	7.54	14:16	7.24	14:16	5.10	14:16	7.07	14:16	5.58	14:16	7.14	13:56	0.17	13:56	0.21	13:56	0.01	13:56	0.03
2/3/2009	AM/JR	15:55	7.53	15:55	7.49	16:19	6.99	16:05	5.76	16:05	6.98	16:05	5.65	16:05	6.82	13:45	0.12	13:45	0.16	13:45	0.05	13:45	0.03
2/4/2009	JG	8:05	7.35	10:30	7.38	8:34	7.07	8:37	5.68	8:38	7.07	10:45	5.73	10:45	7.03	8:06	0.18	8:06	0.15	8:09	0.01	8:09	0.05
2/5/2009	AM	8:11	7.54	8:10	7.54	8:52	6.99	8:45	5.87	8:45	6.90	8:45	5.79	8:45	6.82	8:10	0.17	8:10	0.23	8:13	0.04	8:13	0.04
2/6/2009	AM/JG	9:50	7.43	9:50	7.58	10:00	7.07	10:00	6.03	10:00	7.11	10:00	5.85	10:00	7.09	11:53	0.15	23:53	0.15	12:23	0.04	12:23	0.01
2/9/2009	JG	11:35	7.47	11:38	7.45	12:13	7.06	12:02	5.87	12:03	7.21	12:05	5.88	12:06	7.22	11:38	0.10	11:38	0.14	11:45	0.01	11:45	0.01
2/10/2009	AM	10:17	7.47	10:05	7.45	11:04	7.18	10:45	7.04	10:45	7.05	10:45	5.97	10:45	6.78	10:05	0.15	10:05	0.19	10:30	0.02	10:30	0.02
2/11/2009	JG	8:23	7.56	8:25	7.56	8:50	7.27	8:59	6.05	8:59	7.32	9:02	5.90	9:02	7.29	8:25	0.12	8:25	0.14	8:40	0.00	8:40	0.01
2/23/2009	JG	12:47	7.61	12:50	7.59	13:41	7.33					13:32	5.61	13:34	7.28	12:50	0.10	12:50	0.09	14:12	0.02	12:58	0.00
2/24/2009	AM		7.56		7.42	8:25	7.21		5.38		6.96		5.70		6.99	12:54	0.03	12:54	0.04	12:52	0.00	12:52	0.00
2/25/2009	AM	9:57	7.41	9:33	7.50	10:05	7.18					11:15	5.34	11:15	7.32	9:33	0.14	9:33	0.24	9:38	0.00	9:38	0.00
2/26/2009	AM	13:06	7.42	12:51	7.53	13:10	7.33					13:10	5.69	13:10	7.35	12:51	0.17	12:51	0.29	12:51	0.04	12:51	0.02
2/27/2009	AM	9:14	7.46	9:17	7.49	9:45	7.33					9:45	5.59	9:45	7.30	9:17	0.22	9:17	0.27	9:29	0.04	9:29	0.03
3/16/2009	AM	9:40	7.06	9:40	7.10	9:50	6.96									11:45	0.30	11:45	0.36	11:45	0.02	11:45	0.02
3/17/2009	AM	8:55	7.30	8:58	7.45	9:46	7.21	9:50	5.65	9:50	7.22	9:50	5.81	9:50	7.19	8:58	0.33	8:58	0.31	9:16	0.02	9:16	0.02
3/19/2009	JR	10:40	7.42	10:40	7.40	10:40	7.17	10:40	5.84	10:40	7.15	10:40	5.66	10:40	7.18	11:15	0.10	11:15	0.11	11:15	0.04	11:15	0.04

Bay Area Regional Desalination Plant - Pilot Testing
Logsheet Onsite Analytical-1 - Onsite Analyses to be performed Daily

On-site Parameter	Sample Daily	pH														Free-Cl (mg/L)		Total Cl (mg/L)				Free-Cl (mg/L)	
Date	Operator	time	S2	time	S3	time	S17	time	S21	time	S24	time	S31	time	S34	time	S3	time	S3	time	S7	time	S7
3/20/2009	AM	13:00	7.39	13:00	7.36	13:00	7.10	13:00	5.52	13:00	7.09	13:00	5.65	13:00	7.08	14:00	0.36	14:00	0.44	14:00	0.03	14:00	0.03
3/23/2009	JG	9:59	5.03	10:00	7.49	11:10	7.26	11:15	5.05	11:16	7.19	11:13	5.29	11:14	7.22	10:00	0.12	10:00	0.14	10:13	0.01	10:13	0.03
3/24/2009	JG	8:41	7.61	8:43	7.56	9:26	7.37	9:07	5.40	9:08	7.38	9:09	5.67	9:10	7.42	8:43	0.07	8:43	0.14	8:50	0.01	8:50	0.02
3/26/2009	AM	13:25	7.49	13:31	7.45	14:31	7.20	14:22	5.45	14:22	6.98	14:22	5.61	14:22	7.03	13:31	0.29	1:31	0.46	13:37	0.03	13:37	0.02
3/27/2009	AM	8:21	7.47	8:46	7.32	9:29	7.30	8:59	5.62	8:59	7.08	8:59	5.70	8:59	7.07	8:46	0.21	8:46	0.25	8:46	0.02	8:46	0.02
3/30/2009	JR	9:47	7.77	9:50	7.78	11:51	7.58	11:54	5.47	11:55	7.60	11:52	5.72	11:53	7.60	9:50	0.04	9:50	0.01	9:57	0.04	9:57	0.01
3/31/2009	JR	8:30	7.69	8:30	7.71	8:30	7.36	8:30	5.82	8:30	7.39	8:30	5.98	8:30	7.45	9:02	0.30	9:02	0.32	9:12	0.00	9:12	0.04
4/2/2009	AM	12:57	7.62	13:36	7.65	13:55	7.32	13:58	5.72	13:58	7.32	13:58	5.73	13:58	7.36	13:36	0.21	13:36	0.27	12:53	0.05	12:53	0.03
4/3/2009	JR	8:30	7.54	8:30	7.77	8:30	7.45	8:30	5.79	8:30	7.38	8:30	5.96	8:30	7.35	9:03	0.07	9:03	0.31	9:03	0.03	9:03	0.01
4/6/2009	JG	14:53	7.54	16:10	7.56	15:36	7.49	15:37	5.55	15:38	7.54	3:39	5.71	15:40	7.52	15:00	0.10	15:00	0.22	3:08	0.00	15:08	0.05
4/7/2009	AM	9:41	7.58	9:37	7.58	9:57	7.40	10:03	6.10	10:03	7.48	10:05	6.03	9:20	7.49	11:52	0.26	11:56	0.36	12:05	0.05	12:02	0.03
4/10/2009	AM	8:44	7.37	10:30	7.40	10:30	7.32	10:30	5.59	10:30	7.22	10:30	5.56	10:30	7.24	10:08	0.25	10:08	0.30	10:13	0.03	10:13	0.02
4/14/2009	JR	10:23	7.62	10:23	7.67	10:23	7.54	10:23	5.73	10:23	7.48	10:23	5.91	10:23	7.47	11:44	0.23	11:44	0.33	11:44	0.03	11:44	0.04
4/16/2009	JR	12:36	7.99	12:36	8.04	12:36	7.49	12:36	5.87	12:36	7.49	12:36	5.85	12:36	7.51	13:40	0.21	13:40	0.32	13:41	0.00	13:41	0.00
4/17/2009	JR	9:12	8.01	9:12	8.02	9:12	7.51	9:12	5.63	9:12	7.48	9:12	5.85	9:12	7.33	9:54	0.35	9:54	0.43	9:54	0.05	9:54	0.04
4/20/2009	JG	14:25	7.57	14:27	7.53	15:05	7.34	15:01	5.71	15:02	7.40	14:59	5.71	15:00	7.41	14:27	0.31	14:27	0.33	14:33	0.05	14:33	0.01

Bay Area Regional Desalination Plant - Pilot Testing
Logsheet Onsite Analytical-1 - Onsite Analyses to be performed Daily

On-site Parameter	Sample Daily	Turbidity (NTU)												Temperature			
Date	Operator	time	S10		S18		S20		S21		S30		S31	time	S2		S3
11/6/2008	AM	11:20	0.6	11:30	0.5	12:33	<0.05	12:33	<0.05	12:33	<0.05	12:33	<0.05	12:11	16.3	11:30	16.3
11/7/2008	JR	12:03	<0.05	12:05	<0.05	12:05	<0.05	12:07	<0.05	12:09	<0.05	12:10	<0.05	12:28	19.2	12:28	19.5
11/10/2008	AM	0:00		0:00		2:25	<0.05	2:25	<0.05	2:25	<0.05	2:25	0.07	1:22	18.9	1:23	18.0
11/11/2008	AM	9:52	0.23	9:52	0.19	3:13	0.89	3:13	0.41	3:13	<0.05	3:13	0.06	2:04	18.7	2:05	18.0
11/12/2008	AM	0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00	
11/13/2008	SOH	12:00	<0.05	12:00	<0.05	12:00	<0.05	12:00	<0.05	12:00	<0.05	12:00	<0.05	10:30	16.7	10:30	16.8
11/17/2008	AM	11:12	<0.05	11:12	<0.05	11:15	<0.05	11:15	<0.05	11:15	<0.05	11:15	<0.05	10:08	16.6	10:06	17.2
11/18/2008	AM	9:10	<0.05	9:10	<0.05	9:10	<0.05	9:10	<0.05	11:15	<0.05	12:00		9:58	16.6	10:00	16.8
11/19/2008	AM	13:15	<0.05	13:15	<0.05	13:15	<0.05	13:15	<0.05	14:42	<0.05	14:42	<0.05	12:43	17.8	12:47	17.0
11/20/2008	AM	9:40	0.07	9:40	<0.05	9:40	<0.05	9:40	<0.05	9:40	0.05	21:40	<0.05	8:57	16.7	8:57	16.2
11/21/2008	JG	17:10	<0.05	17:28	0.07	17:30	<0.05	17:31	<0.05	17:30	<0.05	17:33	<0.05	16:49	19.0	16:53	17.5
11/24/2008	AM	11:30	<0.05	11:30	<0.05	11:30	<0.05	11:30	<0.05	11:30	<0.05	11:30	<0.05	9:10	14.5	9:00	15.0
11/25/2008	AM	13:30	0	13:30	<0.05	13:30	<0.05	13:30	<0.05	13:30	<0.05	13:30	<0.05	12:56	17.1	12:56	17.2
11/26/2008	AM	15:12	<0.05	15:12	<0.05	11:30	<0.05	11:30	<0.05	11:30	<0.05	15:12	<0.05	9:24	14.7	9:28	14.5
12/1/2008	AM	13:24	<0.05	13:24	<0.05	13:24	<0.05	13:24	<0.05	13:24	<0.05	13:24	<0.05	12:55	14.2	12:47	14.4
12/2/2008	AM	11:40	<0.05	11:40	<0.05	11:40	<0.05	11:40	<0.05	11:40	<0.05	11:40	<0.05	11:04	14.4	11:04	14.2
12/3/2008	JG	15:13	<0.05	15:13	<0.05	13:56	<0.05	13:59	<0.05	13:56	<0.05	13:58	<0.05	13:23	14.8	13:27	14.1
12/4/2008	AM	9:10	<0.05	9:10	<0.05	9:10	<0.05	9:10	<0.05	9:10	<0.05	9:10	<0.05	9:17	14.6	9:19	14.3
12/5/2008	JG	10:41	<0.05	11:01	<0.05	11:02	<0.05	11:04	<0.05	11:02	<0.05	11:06	<0.05	10:20	12.5	10:24	12.6
12/8/2008		8:56	<0.05	9:45	<0.05	9:45	<0.05	9:45	<0.05	9:45	<0.05	9:45	<0.05	8:25	11.3	8:35	11.5
12/9/2008	AM	12:45	<0.05	12:45	<0.05	12:00	<0.05	12:00	0.07	12:00	<0.05	12:00	<0.05	11:42	10.4	11:36	10.1
12/10/2008	AM	9:00	<0.05	9:25	<0.05	9:26	<0.05	9:25	<0.05	9:25	<0.05	9:25	<0.05	9:16	11.9	8:59	12.2
12/11/2008	AM	9:45	<0.05	9:45	<0.05	10:38	<0.05	10:38	<0.05	10:38	<0.05	10:38	<0.05	9:20	9.9	9:26	10.2
12/12/2008	AM	9:00	<0.05	9:00	<0.05	9:20	<0.05	9:20	<0.05	9:51	<0.05	9:51	<0.05	8:48	11.3	8:44	11.9
12/30/2008	AM	11:45	<0.05	11:45	<0.05	11:45	<0.05	11:45	<0.05	11:45	<0.05	11:45	<0.05	11:18	12.3	11:17	12.6
1/2/2009	JR	15:25	<0.05	15:26	<0.05	15:27	<0.05	15:28	<0.05	15:29	<0.05	15:30	<0.05	8:29	9.7	8:29	9.6
1/5/2009	AM	10:22	<0.05	10:22	<0.05	10:50	<0.05	10:50	<0.05	10:50	<0.05	10:50	<0.05	9:58	8.4	9:58	8.9
1/6/2009	JR					10:57	<0.05	10:51	<0.05	10:57	<0.05	10:51	<0.05				
1/7/2009	AM													10:02	8.8		
1/8/2009	JR	12:34	<0.05	12:34	<0.05	12:34	<0.05	12:34	<0.05	12:34	<0.05	12:34	<0.05	13:29	9.7	13:01	11.2
1/9/2009	JG	16:22	<0.05	16:30	<0.05	16:29	<0.05	16:35	<0.05	16:28	<0.05	16:32	<0.05	8:55	8.9	8:55	8.8
1/12/2009	KL/JR													15:35	8.0	15:40	7.5
1/13/2009	KL	16:05	<0.05	16:20	<0.05	16:20	<0.05	16:20	<0.05	16:20	<0.05	16:20	<0.05	16:08	11.8	16:08	12.0
1/14/2009	AM	15:30	<0.05	15:30	<0.05	15:30	<0.05	15:30	<0.05	15:30	<0.05	15:30	<0.05	15:05	10.3	15:05	11.0
1/15/2009	AM													15:20	12.3		
1/16/2009	AM													11:05	11.8	11:05	11.3
1/20/2009	AM													8:57	10.8	8:58	10.1
1/21/2009	AM	Turbidimeter broke; data no longer needed due to consistency.												13:58	10.5	13:58	10.4
1/22/2009	AM													14:45	10.8	14:45	10.7
1/23/2009	AM													15:18	10.8	15:18	10.9
1/26/2009	JR													16:45	11.1	16:45	11.3
1/27/2009	AM													11:18	10.7	11:37	11.0
1/28/2009	JG													7:55	9.8	7:56	10.1
1/30/2009	AM																
1/31/2009	JR																
2/2/2009	AM													13:56	11.8	13:56	12.7
2/3/2009	AM/JR													15:55	11.7	15:55	12.4
2/4/2009	JG													8:05	10.7	8:06	10.7
2/5/2009	AM													8:11	11.8	8:10	12.0
2/6/2009	AM/JG													9:50	13.1	9:50	12.4
2/9/2009	JG													11:35	11.2	11:38	11.3
2/10/2009	AM													10:17	10.7	10:05	10.8
2/11/2009	JG													8:23	11.2	8:25	10.9
2/23/2009	JG													12:47	14.6	12:50	12.8
2/24/2009	AM													8:31	12.5	8:35	12.1
2/25/2009	AM													9:57	12.4	9:33	13.0
2/26/2009	AM													13:06	12.8	12:51	14.4
2/27/2009	AM													9:14	11.8	9:17	11.7
3/16/2009	AM													9:40	13.7	9:40	14.1
3/17/2009	AM													8:55	14.4	8:55	14.1
3/19/2009	JR													11:15	15.8	11:15	16.1

Bay Area Regional Desalination Plant - Pilot Testing
Logsheet Onsite Analytical-1 - Onsite Analyses to be performed Daily

On-site Parameter	Sample Daily	Turbidity (NTU)											Temperature			
Date	Operator	time	S10		S18		S20		S21		S30		S31	time	S2		S3
3/20/2009	AM													14:00	15.9	14:00	17.3
3/23/2009	JG													9:59	11.8	10:00	11.7
3/24/2009	JG													8:41	12.6	8:43	12.6
3/26/2009	AM													13:25	15.2	13:31	15.1
3/27/2009	AM	Turbidimeter broke; data no longer needed due to consistency.												8:43	14.5	8:21	14.5
3/30/2009	JR													9:47	14.6	9:50	14.4
3/31/2009	JR													9:00	15.0	9:00	15.0
4/2/2009	AM													12:57	15.9	12:45	15.8
4/3/2009	JR													9:22	14.6	9:23	14.8
4/6/2009	JG													14:53	17.8	15:00	16.8
4/7/2009	AM													11:48	14.5	11:47	14.8
4/10/2009	AM													8:44	13.4	8:44	14.0
4/14/2009	JR													11:58	15.8	11:57	15.7
4/16/2009	JR													12:36	16.3	12:44	17.1
4/17/2009	JR													11:00	15.9	11:00	17.3
4/20/2009	JG													14:25	18.6	14:27	18.3

Bay Area Regional Desalination Project - Pilot Plant
Logsheet Onsite Analytical-2 - SDI tests to be performed Twice per week

SDI		Biweekly	Sample Port	SDI								
Date	Time	Operator	5A, 5B, 10	Temp, initial	time 0 min	time 5 min	time 10 min	time 15 min	Temp, final	SDI (log)	SDI (calc)	Comments
11/7/08	12:30	AM	5A	18	1:10	1:23	1:22	1:26	16.4	1.24	1.24	
11/7/08	12:30	AM	5B	16.3	1:17	1:21	1:17	1:24	17.4	0.77	0.56	
11/7/08	12:30	AM	10	16.7	1:10	1:21	1:27	1:31	17	1.54	1.54	
11/12/08	14:00	AM	5B	16.8	1:19	1:37	1:43	2:02	16.8	2.35	2.35	
11/12/08	14:00	AM	10	17.8	1:12	1:27	1:37	1:47	17.4	2.18	2.18	
11/18/08	14:30	AM	5A	17.3	1:16	1:22	1:23		17.8	0.73	0.84	
11/18/08	14:30	AM	5B	18	1:13	1:26	1:27	1:20	17.4	0.58	1.61	
11/18/08	14:30	AM	10	8.6	1:14	1:18	1:22		17.2	0.98	0.98	
11/24/08	11:00	AM	5A	14.6	1:16	1:32	1:34	1:40	14.2	1.6	1.60	
11/24/08	11:00	AM	5B	14.9	1:07	1:13	1:20	1:21	14.4	1.15	1.15	
11/24/08	11:00	AM	10	14.5	1:18	1:24	1:21	1:25	14.5	0.555	0.55	
12/1/08	9:51	AM	5A	13.8	1:21	1:24	1:26	1:30	13.2	0.67	0.67	
12/1/08	9:51	AM	5B	13.5	1:20	1:25	1:31	1:32	13.2	0.87	0.87	
12/1/08	9:51	AM	10	13.6	1:19	1:23	1:29		13.1	1.12	1.12	
12/3/08	14:45	AM	5A	14.7	1:25	1:25	1:31	1:35	14.1	0.7	0.70	
12/3/08	14:45	AM	5B	14.2	1:19	1:25	1:26	1:29	14	0.75	0.75	
12/3/08	14:45	AM	10	13.9	1:17	1:22		1:35	14	1.89	1.26	
12/10/08	11:11	AM	5A	12.2	1:26	1:33	1:35	1:41	12.5	0.99	0.99	
12/10/08	11:11	AM	5B	12.7	1:20	1:28	1:30	1:35	13	1.58	1.05	
12/10/08	11:11	AM	10	13.1	1:27	1:32	1:34	1:31	12.8	0.29	0.74	
12/12/08	12:50	AM	5A	13.1	1:26	1:31	1:35	1:37	12.9	0.76	0.76	
12/12/08	12:50	AM	5B	12.3	1:19	1:28	1:32	1:34	13.1	1.06	1.06	
12/12/08	12:50	AM	10									
12/30/08	13:09	AM	5B									
12/30/08	13:09	AM	5A	11.1	1:33	1:46	1:56		11	1.98	1.98	
12/30/08	13:09	AM	5B	11.3	1:34	1:48	1:59		11.6	2.16	2.10	
1/2/09	14:00	AM	5A									
1/2/09	14:00	AM	5B									
1/2/09	14:00	AM	10									
1/5/09	8:43	AM	5B	11.2	1:29	1:49	1:57	2:05	9.2	1.92	1.92	
1/5/09	9:00	AM	10	11	1:35	1:57	2:07	2:03	10	1.52	2.52	
1/5/09	14:30	AM	5A	10	1:32	1:51	2:24	2:54	9.3	3.14	3.14	
1/6/09	8:00	AM	5A									
1/6/09	8:00	AM	5B	9.5	1:36	1:46	1:56		9.4	1.72	1.72	
1/6/09	8:00	AM	7	10.4	1:33	1:41	1:47		10.1	1.3	1.31	
1/6/09	8:00	AM	5A	10.2	1:27	1:37	1:46	1:49	10.8	1.34	1.35	
1/8/09	8:25	AM	10	9.4	1:30	1:39	1:48	1:56	9.2	1.49	1.49	
1/8/09	8:25	AM	5A	9.4	1:27	1:46	1:46	1:55	9.9	1.62	1.62	
1/8/09	8:25	AM	5B	9.5	2:06	2:08	2:19	2:29		1.02	1.03	
1/9/09	16:45	AM	5A	9.9	1:40	2:03	2:17	2:40	10.5	2.5	2.50	
1/9/09	16:45	AM	5B	10.1	2:02	2:09	2:16	2:35	10.7	1.4	1.42	

Bay Area Regional Desalination Project - Pilot Plant
Logsheet Onsite Analytical-2 - SDI tests to be performed Twice per week

SDI		Biweekly	Sample Port	SDI								
Date	Time	Operator	5A, 5B, 10	Temp, initial	time 0 min	time 5 min	time 10 min	time 15 min	Temp, final	SDI (log)	SDI (calc)	Comments
1/9/09	16:45	AM	10	9.7	1:57	2:05	2:17	2:24	10	1.25	1.25	
1/13/09	13:06	AM	5A	11.2	1:42	1:51	2:02	2:08	11.3	1.35	1.35	
1/13/09	13:06	AM	5B									
1/13/09	13:06	AM	20	10.7	1:45	2:04	2:08	2:14	11.2	0.92	1.44	Probably switched
1/13/09	13:06	AM	5B	10.7	1:33	1:43	1:45	1:48	11.9	1.44	0.93	
1/14/09	13:30	AM	5A	10.3	1:53	2:03	2:09	2:10	11	0.87	0.87	
1/14/09	13:30	AM	30	10.7	1:47	2:01	2:20	2:13	11.8	1.3	2.36	
1/14/09	13:30	AM	5B	10.2	1:39	1:45	1:50		11.4	1	1.00	
1/15/09	11:28	AM	5A	10.9	1:33	1:43	1:52				1.70	
1/15/09	11:28	AM	20	10.7	2:10	2:14	2:17		11.5	0.5	0.51	
1/15/09	11:28	AM	5B	10.9								
1/15/09	11:28	AM	5A	12.2	2:05	2:20	2:24	2:25	12.1		0.92	
1/16/09	13:00	AM	10	12.5	1:28	1:35	1:49	1:44	12.8		1.93	
1/16/09	13:00	AM	5A	10.9	1:26	1:31	1:42	1:42	11.8		1.57	
1/21/09	12:45	AM	5A	10.4	1:27	1:37	1:45	1:51	10.5		1.44	
1/21/09	12:45	AM	10	10.9	1:27	1:32	1:42		10.5		1.47	
1/21/09	12:45	AM	5B	10.1	2:07	2:27	2:40				2.06	
1/23/09	13:59	AM	5B	10.6	1:57	2:22	2:34		11.4		2.40	
1/23/09	13:59	AM	5A	10.6	1:40	1:54			11		2.46	
1/23/09	13:59	AM	10	10.6	2:00	2:18	2:15		11.3		2.61	
1/28/09	8:45	AM	5A	9.3	1:35	1:47	1:52	1:49	9.8		1.52	
1/28/09	8:45	AM	10	10	1:38	1:50	2:03	2:11			1.68	
1/28/09	8:45	AM	5B	9.9	1:23	1:32	1:33	1:44	10.1		1.35	
2/3/09	14:04	AM	10	11.5	1:35	1:46	2:25	2:05	12.3	1.60	3.45	
2/3/09	14:04	AM	5A	12.4	1:29	1:37	1:43	1:48	12.2	1.18	1.17	
2/3/09	14:04	AM	5B									
2/4/09	14:05	AM	10	11.3	1:30	1:36	1:48	1:51	12.1	1.26	1.26	
2/4/09	14:05	AM	5A	12.4	1:24	1:38	1:42	1:42	12.2	1.18	1.76	
2/4/09	14:05	AM	5B	11.3	1:21	1:28	1:39		12.7	1.21	1.82	
2/10/09	8:00	AM	5B	10.2	1:24	1:30	1:35	1:35	9.9	0.77	1.16	
2/10/09	8:00	AM	5A	11.7	1:25	1:31	1:36	1:40	9.7	1.00	1.00	
2/10/09	8:00	AM	10	10.2	1:21	1:37	1:43		9.9	2.14	2.14	
2/11/09	14:35	AM	10	11.2	1:24	1:31	1:42	1:40	11.3	1.07	1.76	
2/11/09	14:35	AM	5B	10.9	1:23	1:30	1:36	1:40	11.1	1.13	1.13	
2/11/09	14:35	AM	5A	11.7	1:23	1:35	1:38	1:41	10.6	1.19	1.19	
2/24/09	9:20	AM	5A									Layne not running
2/24/09	9:20	AM	10									Layne not running
2/24/09	9:20	AM	5A	11.9	1:25	1:27	1:36	1:40	12.3	1.00	1.00	Layne not running
2/24/09	9:20	AM	10	12.3	1:23	1:37	1:50	2:07	12.7	2.31	2.31	Layne not running
2/25/09		AM	10	12.9	1:20	1:28	1:38	1:46	13.1	1.64	1.64	Layne not running
2/27/09	13:30	AM	5B	12.3	1:19	1:37	1:57	1:52	12.5	1.96	3.25	

Bay Area Regional Desalination Project - Pilot Plant
Logsheet Onsite Analytical-2 - SDI tests to be performed Twice per week

SDI		Biweekly	Sample Port	SDI								
Date	Time	Operator	5A, 5B, 10	Temp, initial	time 0 min	time 5 min	time 10 min	time 15 min	Temp, final	SDI (log)	SDI (calc)	Comments
2/27/09	13:30	AM	10	12.4	1:28	1:32	1:40	1:39	12.5	0.74	1.20	
3/17/09	13:30	AM	5B									
3/17/09	13:30	AM	30	15.1	1:11	1:18	1:24		15.8	1.03	1.55	Combined sample ok
3/17/09	13:30	AM	5A	15.6	1:17	1:23	1:28	1:34	15.8	1.21	1.21	
3/19/09	8:27	AM	5B	14.6	1:17	1:15	1:20	1:20	15		0.38	
3/19/09	8:27	AM	5A	14.6	1:11	1:14	1:24	1:23	15.2		1.55	
3/19/09	8:27	AM	10	14.8	1:08	1:17	1:23	1:20	15.3		1.81	
3/26/09	9:00	AM	5A									new filter style, ran out of water
3/26/09	9:00	AM	5A									new filter style
3/26/09	9:00	AM	5B									new filter style
3/26/09	9:00	AM	10									new filter style
3/31/09	11:00	AM	5A	15.0	1:12	1:13	1:19	1:19	15.1	0.89	0.89	reverted back to old filters
4/2/09	10:00	AM	5B	15	1:12	1:19	1:22	1:26	15.3	1.06	1.09	
4/2/09	10:00	AM	10	15.6	1:11	1:17	1:29	1:32	15.6	1.52	1.52	
4/2/09	10:00	AM	5A	15.3	1:08	1:14	1:14	1:15	15.7	0.62	0.62	
4/3/09	8:00	AM	5B	14.5	1:05	1:09	1:10	1:13	14	0.73	0.73	
4/3/09	8:00	AM	10	14.7	1:13	1:22	1:21	1:25	14.3	0.94	0.94	
4/3/09	8:00	AM	5A	14.6	1:13	1:13	0:42	1:23	1:26	1.01	0.80	
4/8/09	9:23	AM	10	14.6	1:16	1:25	1:32	1:40	14.4	1.6	1.60	
4/8/09	9:23	AM	5A	14.6	1:10	1:19	1:24	1:24		1.11	1.67	
4/8/09	9:23	AM	5B	14.6	1:15	1:17	1:19	1:21	14.5	0.49	0.49	
4/10/09	8:00	AM	5A	14.2	1:07	1:12	1:15	1:15	13.4	0.71	1.07	
4/10/09	9:00	AM	5B	13.6	1:17	1:21	1:19	1:25	13.1	0.62	0.63	
4/10/09	9:00	AM	10	14.5	1:16	1:22	1:29	1:35	13.6	1.33	1.33	
4/17/09	9:00	JG	5A	15.9	1:09	1:12	1:15	1:10			0.80	had trouble maintaining pressure
4/17/09	9:37	JG	5A	16	1:07	1:12	1:14	1:19	16.3		1.01	
4/17/09	10:17	JG	10	16.3	1:06	1:18	1:40	1:59	16.4		2.97	
4/17/09	10:49	JG	5B	16	1:07	1:14	1:18	1:16			1.41	

Bay Area Regional Desalination Plant - Pilot Testing
Logsheet Onsite Analytical-3 - Analyses to be performed Weekly

On-site Parameter	Sample Weekly	Conductivity (µS/cm)																	
Date	Operator	time	S3	time	S4B	time	S7	time	S17	time	S18	time	S20	time	S21	time	S30	time	S31
11/6/2008	AM	15:00	14190	15:00	14150	16:55	14170	15:00	33200	16:55	447	12:33	14360	12:33	61.8	12:33	12950	12:33	559
11/10/2008	AM	13:31	11320	13:31	11470	13:31	11440					14:20	11,330	14:20	106.1	14:20	11250	14:20	431
11/11/2008	AM	17:29	11170	17:29	11160	17:29	11590					17:29	11150	17:29	260	17:29	11160		
11/12/2008	AM							9:40	26400	9:40	334								
11/13/2008	AM/SOH	11:49	10940	11:49	11000	11:49	11010	11:49	24700	11:49	190.2	11:49	10930	11:49	52.4	11:49	10980		
11/17/2008	AM	10:44	14320	10:50	14330	10:55	14300	11:24	33300	11:12	529	11:15	14260	11:15	129.5	11:15	14300		
11/18/2008	AM	11:15	13410	11:15	13590	9:10	13430	9:10	33000	9:10	237	9:10	13530	9:10	86.6	11:15	13590	12:00	
11/24/2008	AM	11:30	12380	11:30	12420	11:30	12290	11:30	26700	11:30	202	11:30	12350	11:30	61.2	11:30	12310	11:30	392
12/2/2008	AM	11:04	14280	11:16	14210	11:26	14290	11:40	32700	11:40	266	11:40	14200	11:40	43.3	11:40	14250	11:40	427
12/8/2008	AM	Instrument not calibrated																	
12/17/2008	SH													9:00	48			9:00	583
12/30/2008	AM	11:17	15430	11:45	15350	11:45	15440	11:45	24200	11:45	195	11:45	15360	11:45	111.6	11:45	13400	11:45	524
1/5/2009	AM	9:58	10560	10:10	10560	10:10	10620	10:45	17160	10:20	120.8	10:50	10820	10:50	111.6	10:50	10780	10:50	316
1/13/2009	KL	16:30	10950	16:30		16:30	10880	16:30	20800	16:30	158.4	16:30	8340	16:30	120.2	16:30	9010	16:30	475
1/20/2009	AM	8:58	11660	9:11	11660	9:49	11560	9:43	22200	9:48	143.1	9:48	11200	9:48	30.3	9:48	11150	9:48	331
1/27/2009	AM	11:37	13510	11:37	13540	11:37	13560	11:37	29300	11:37	172.8	9:58	13600	9:45	47.5	9:58	13630	9:50	435
2/4/2009	AM	13:00	11300	13:00	11310	13:00	11200	13:00	25300	13:00	141.6	13:00	11230	13:00	28.7	13:00	11230		
2/6/2009	AM																		
2/9/2009	JG																		
2/10/2009	AM	10:05	10720	10:19	10720	10:30	10780	11:04	23100	10:59	135.6	10:35	10740	10:45	26.5	10:35	10730	10:45	322
2/11/2009	AM													8:59	25.7			9:02	286
2/23/2009	JG																	13:32	111.4
2/24/2009	AM													9:05	12.51			9:05	87.5
2/25/2009	AM																	11:14	95.9
2/26/2009	AM																	13:10	81.5
2/27/2009	AM																	9:45	77.2
3/16/2009	AM																		
3/17/2009	AM	8:58	836	9:04	851	9:30	858	9:46	2050	9:46	10.91	9:50	854	9:50	4.83	9:50	730	9:50	14.56
3/19/2009	JR													10:40	14.03			10:40	16.99
3/20/2009	AM													13:00	4.07			13:00	11.54
3/23/2009	JG	10:00	967	10:18	962	10:13	1004	11:10	2370	11:10	8.18	11:13	949	11:15	3.5	11:12	950	11:13	12.74
3/24/2009	JG													9:07	3.81			9:09	13.36
3/26/2009	AM													14:22	4.82			14:22	14.54
3/27/2009	AM													8:59	4.11			8:59	14.55
3/30/2009	JG													11:54	3.63			11:52	16.77
3/31/2009	JR													8:30	8.82			8:30	28.7
4/2/2009	AM	12:45	2570	12:48	2580	12:53	2580	1:55 PM	6600	1:50 PM	29.1	1:46 PM	2590	13:58	9.42	1:47 PM	2590	1:58	57.1
4/3/2009	JR													8:30	40.9			8:30	52.5
4/6/2009	JG													15:37	5.18			15:39	28.6
4/7/2009	AM	9:37	1637	11:49	1549	11:44	1563	9:57	3730	11:52	21.2	9:31	1579	10:03	24.9	9:31	1585	10:05	40.1
4/10/2009	AM													10:30	8.04			10:30	33.9
4/14/2009	JR	10:23	1715	10:23	1716	10:23	1715	10:23	4420	10:23	34.8	10:23	1711	10:23	14.63	10:23	1718	10:23	36.03
4/16/2009	JR													12:36	10.94			12:36	29.2
4/17/2009	JR													9:12	6.42			9:12	18.2
4/20/2009	JG													15:01	6.61			14:59	39.6

Bay Area Regional Desalination Plant - Pilot Testing
Logsheet Onsite Analytical-3 - Analyses to be performed Weekly

On-site Parameter	Sample Weekly	pH										Temperature (℃)											
Date	Operator	time	S3		S16		S18		S20		S30	time	S3		S4A		S4B		S10		S20		S30
11/6/2008	AM	15:00	7.21	16:55	7.17	16:55	6.38	12:33	7.24	12:33	7.21	15:00	16.9	15:00	16.9	15:00	16.9	16:50	18.4	12:33	17.6	12:33	17.6
11/10/2008	AM	13:28	7.51					14:00	7.17	14:09	7.02	13:27	16.8	13:26	17.2	13:28	16.8			13:59	16.8	14:09	16.3
11/11/2008	AM	16:08	7.51					16:10	7.11	16:27	7.21	16:08	16.3	16:08	17.9	16:26	16.3			16:25	16	16:25	16.8
11/12/2008	AM			9:40	7.44	9:40	6.78											9:40	17.8				
11/13/2008	AM/SOH		7.45			11:49	5.91	11:49	6.84	11:49	6.79					9:55	16.5	11:15	17.8	11:14	18	11:14	18.1
11/17/2008	AM	10:06	7.24	11:10	7.34	11:12	6.44	10:27	7.03	10:31	7.14			10:19	17.1	10:16	17	10:24	17.3	10:27	17.2	10:31	17.2
11/18/2008	AM	11:15	7.41	9:10	7.32	9:10	6.68	9:10	7.21	11:10	7.09	10:00	16.8	10:03	16.6	9:54	16.5	10:08	16.7	10:08	17	10:10	16.8
11/24/2008	AM	11:30	7.8	11:30	7.56	11:30	6.29	9:27	7.27	9:32	7.3	9:00	15	9:10	14.2	9:10	14.3	9:20	14.1	9:27	14.1	9:32	14.1
12/2/2008	AM	11:04	7.97	11:40	7.75	11:40	6.54	11:40	7.45	11:40	7.42	11:04	14.2	11:11	13.9	11:16	13.9	11:58	14.6	11:58	14.5	11:58	14.5
12/8/2008	AM	8:35	7.69	8:56	7.51	8:56	6.42	9:45	7.38	9:45	7.39	8:35	11.5	8:41	11	8:41	11.9	10:40	12	10:40	11.9	10:40	11.9
12/17/2008	SH																						
12/30/2008	AM	11:17	7.47	11:45	7.17	11:45	6.11	11:45	7.07	11:45	7.05	11:17	12.6	11:21	12.3	11:28	13	11:45	13.5	11:45	14.2	11:45	14
1/5/2009	AM	16:58	7.72	10:45	7.27	10:20	6.38	10:50	7.06	10:50	7.02	9:58	8.9	14:23	11.2	10:04	8.6	10:20	10	13:46	11.4	13:46	11.5
1/13/2009	KL	16:38	7.92	16:38	7.37	16:38	6.34	16:38	7.29	16:38	7.56	16:38	12.6	16:38	10.2								
1/20/2009	AM	8:58	7.44	9:45	7.12	9:48	5.68	9:48	6.93	9:48	6.97	8:58	10.1	9:34	10.4	9:11	10.8	9:19	10.3	9:22	10.4	9:22	10.3
1/27/2009	AM	11:37	7.35	11:37	6.74	11:37	5.81	9:58	6.6	9:58	6.15	11:37	11.2			13:27	11.2	13:05	11.2	13:27	11.1	13:27	11.1
2/4/2009	AM	13:00	7.49	13:00	7.18	1:00 PM	6	13:00	7.01	1:00 PM	7.02	13:39	12.9	1:35 PM	11	13:37	11	13:34	11.5	13:32	11.4	13:30	11.7
2/6/2009	AM																						
2/9/2009	JG																						
2/10/2009	AM	10:05	7.45	10:59	7.29	10:59	5.99	10:35	6.97	10:35	7.12	10:05	10.8	10:28	10.6	10:19	10.8	10:51	11.5	10:35	11	10:35	11.4
2/11/2009	AM																						
2/23/2009	JG																						
2/24/2009	AM											8:35	12.1	8:46	12.1			8:17	12.6				
2/25/2009	AM	11:35	7.39	11:37	7.41	11:37	5.72			11:37	7.2											11:37	14.3
2/26/2009	AM																						
2/27/2009	AM																						
3/16/2009	AM																						
3/17/2009	AM	8:58 AM	7.45	9:40	7.29	9:46	5.48	9:50	7.04	9:50	6.99	8:58	14.1	9:11	14.1	9:04	14.2	9:46	14.8	12:55	14.6	12:54	14.8
3/19/2009	JR																						
3/20/2009	AM																						
3/23/2009	JG	10:00	7.49	11:11	7.34	11:10	5.56	11:13	7.06	11:12	7.04	10:00	11.7	10:10	11.3	10:18	11.6	11:05	12	11:13	12	11:12	12.1
3/24/2009	JG																						
3/26/2009	AM																						
3/27/2009	AM																						
3/30/2009	JG																						
3/31/2009	JR																						
4/2/2009	AM	1:36 PM	7.65	1:49 PM	7.49	1:50 PM	5.78	1:46 PM	7.15	1:47	7.13	12:45	15.8	12:46	15.8	12:48	15.8	1:41 PM	17.2	1:46 PM	16.5	1:47 PM	16.4
4/3/2009	JR																						
4/6/2009	JG																						
4/7/2009	AM	9:37	7.86	10:03	7.63	11:52	5.52	9:31	7.18	9:32	7.22	11:47	14.8	11:49	14.6	11:45	14.6	9:31	15.8	9:31	15.9	9:31	16.1
4/10/2009	AM																						
4/14/2009	JR																						
4/16/2009	JR	10:25	7.67	10:25	7.59	10:25	6.15	10:25	7.33	10:25	7.32	11:58	15.7	12:59	17.1	12:59	17.4	12:59	16.6	12:59	16.4	12:59	16.5
4/17/2009	JR																						
4/20/2009	JG																						

On-site Parameter	Sample Weekly	ORP (mV)	Turbidity (NTU)							
Date	Operator	S7	time	S3	time	S4B	time	S5A	time	S5B
11/6/2008	AM									
11/10/2008	AM		13:41	8.86	13:43	18.30				
11/11/2008	AM		17:04	10.81	17:05	9.56				
11/12/2008	AM									
11/13/2008	AM/SOH									
11/17/2008	AM		10:44	6.94	10:50	6.31	10:55	<0.05	10:50	<0.05
11/18/2008	AM		11:15	6.96	11:15	7.18			9:10	<0.05
11/24/2008	AM		11:30	7.42	11:30	11.70	11:30	<0.05	11:30	0.09
12/2/2008	AM		11:04	7.42					11:16	<0.05
12/8/2008	AM		8:35	7.80	8:41	8.80	8:45	<0.05	8:45	<0.05
12/17/2008	SH									
12/30/2008	AM		11:17	8.64	11:21	11.20	11:21	0.20	11:21	<0.05
1/5/2009	AM		9:58	8.88	10:22	8.93	2:23	<0.05	10:22	<0.05
1/13/2009	KL		16:40	9.69						
1/20/2009	AM									
1/27/2009	AM		11:37	5.98	11:37	7.21			11:37	0.12
2/4/2009	AM		13:00	9.97	13:00	11.10	13:00	0.12	13:00	0.09
2/6/2009	AM		11:53	9.60	11:53	11.20	11:53	0.14	11:53	0.20
2/9/2009	JG		11:38	10.50	11:42	11.20	11:43	0.04	11:40	0.06
2/10/2009	AM		10:05	11.30	10:19	8.50	10:28	0.11	10:28	0.08
2/11/2009	AM		8:25	8.34	8:35	9.39	8:40	0.12	8:34	0.11
2/23/2009	JG		12:50	14.50	12:53	13.10	12:55	0.11		
2/24/2009	AM			10.60		10.10	8:44	0.13		
2/25/2009	AM		10:31	13.70			10:00	0.19		
2/26/2009	AM		12:51	14.30			13:00	0.27		
2/27/2009	AM		9:17	11.40	9:25	12.10	9:28	0.15	9:22	0.25
3/16/2009	AM		9:40	32.10						
3/17/2009	AM		8:58	35.00	9:04	27.70	9:11	0.12	9:04	0.17
3/19/2009	JR		10:40	28.90		31.60		0.17		0.10
3/20/2009	AM		13:00	30.90	13:00	32.70	13:00	0.03	13:00	0.02
3/23/2009	JG		10:00	34.30	10:18	34.60	10:12	0.01	10:16	0.04
3/24/2009	JG									
3/26/2009	AM		13:31	24.10	13:39	24.00	13:36	0.16	13:39	0.20
3/27/2009	AM		8:46	23.60	8:46	23.60	8:46	0.09	8:46	0.03
3/30/2009	JG		10:53	34.50	9:52	31.70	9:55	0.06	9:54	0.08
3/31/2009	JR		8:30	28.00	8:30	29.00	8:30	0.08	8:30	0.13
4/2/2009	AM		12:45	23.00	1:02	26.10	1:03	0.10	1:02	0.07
4/3/2009	JR		8:30	56.90	8:30	51.80	8:30	0.18	8:30	0.07
4/6/2009	JG		3:00	31.90	3:05	30.70	3:06	0.10	3:32	0.07
4/7/2009	AM		9:37	25.60	9:49	30.60	9:47	0.09	9:40	0.02
4/10/2009	AM		10:08	26.90	10:08	28.90	10:08	0.10	10:08	0.10
4/14/2009	JR		10:33	30.90	10:33	31.00	10:33	0.19	10:33	0.04
4/16/2009	JR		12:36	38.70	12:36	24.70	12:36	0.07	12:36	0.11
4/17/2009	JR		9:12	39.40	9:12	28.90	9:12	0.16	9:12	0.13
4/20/2009	JG		14:27	23.90	14:31	26.80	14:35	0.08	14:30	0.43

Bay Area Regional Desalination Project - Pilot Plant
Logsheet Calibration-Verification-1

Calibration Checklist for Instruments - All

			Temperature verified w/ certified thermometer						pH meters calibrated							In-line turbidimeters' reservoirs cleaned & recalibrated				ORP
		Frequency:	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	monthly	monthly	monthly	monthly	monthly
		System:		Memcor	Layne	RO 1	RO 2	NF	plant	Memcor	Layne	RO 1	RO1	RO 2	NF	Memcor		Layne		non-skid
		Location:	after P-3	feed	feed	feed	feed	feed	feed	filtrate	n/a	combined permeate	stage 2 conc	feed	feed	feed	filtrate	feed	filtrate	RO Feed, int tank
		Equip Tag:	AIT301B	M-TIT001	L-TI01	E-TI01	AI-2/23	AI-3/23	ns-ph	M-ph	n/a	E-AE03	E-AE02	AI-2/22	AI-3/22			L-AIT01	L-AIT02	AIT300
Date	**Time**	**Op Initials**																		
11/7/2008	6:00 PM	AM		(16.10)						JR						AM	AM			
11/12/2008	11:15 AM	AM	Ok	16.1	28	16	14.7	0		AM										
				17.1	16.8	17	16.9	17												
11/18/2008	2:00 PM	JR	18.1	17.1	17															
			17.7	17.2	19															
11/24/2008	9:30 AM	AM	15.6	13.7	26.7	14.4	13.5	13.7												
			13.8	14.2	14.3	14.1	14.1	14.1												
11/25/2008	11:30 AM	AM								AM				AM	AM			JR		
11/26/2008	8:56 AM	AM	16.3	14.01	27.1	15	13.9	14												
			15.5	14.5	14.5	14.8	14.8	14.7												
12/1/2008																			JG	
12/4/2008	11:00 AM	JR								JR				JR	JR	AM				
12/5/2008	2:10 PM	JG	15.6	13.3	12.6	14.5	13.4	13.56		(gauge/ screen)										
			15.3	16	14.9	15.7	16	15.8	(thermo-meter)											
12/8/2008	2:10 PM	AM	14.2	11.85	11.4	12.5	11.8	11.9	"											
			11.9	11.9	13.2	11.9	11.8	11.9	"											
12/10/2008	1:00 PM	JG												JG	JG					
12/11/2008	12:00 PM	JR								JR										
12/28/2009		JR/JM												JR	JR	JR		JR		
12/29/2008		AM/JR								AM										
1/2/2009	10:00	JR	9.7/11.8	9.6/11	9.2/9.2	10.8/10.5	11.5/9.5	11.6/9.7												
1/5/2009	9:45	JR												JR	JR					
1/13/2009	12:00	AM													AM					
1/15/2009	3:40	JR	11.5/11.1	14.7/10.5		11/11.3	9.7/11.3	9.9/11.5												
1/20/2009	12:40	AM	11.7/11.3	11.9/9.0	11.0/8.4	11.2/10.1	10.6/9.4	10.7/9.7												
1/22/2009	12:00	AM										AM	AM	AM	AM					

1/23/2009	1:20	JR										JR								
1/28/2009	10:30	JG	11.8/10.1	9.4/11	9.1/10.2	10.5/11	10.6/9.6	10.6/10		JG				AM	AM					
1/30/2009		JR														JR	JR	JR	JR	JR
2/4/2009	9:30	JG	11.3	11.3	11.3	11.9	11.4	11.6		AM		AM	AM	AM	AM					
			SC 12.1	9.8	9.5	10.7	10	10.3												
			12.7	10.37	9.9	12	10.4	10.7		JR										
2/6/2009	10:45	AM	11.2	11.2	11.4	11.8	11.4	11.4		JR										
2/7/2009	3:00	JR																		JR
2/23/2009	1:00	AM										AM	AM		AM					
2/24/2009	9:00	JR	12.6	14			11.4	11.6								JR	JR	JR	JR	
			13.3	11.04			12.6	12.8								JR		JR		
3/20/2009	10:00	AM								AM		AM	AM		AM	JR		JR		
3/23/2009	10:17	AM	**SC** 13.4	11	10.8	11.5	11	11.4												
			INST 11.6	11.7	11.6	12	12	12												
3/26/2009		JR								JR		JR	JR		JR					
3/27/2009																	JR		JR	
3/31/2009		AM	16.6	14.4	13.5	15	14.6	14.8				AM	AM		AM					
4/2/2009		JR	15	15.4	15.2	15.8	15.6	15.7		JR										
4/7/2009	9:31	JG	14.5	14.1	14.6	15.8	15.9	16.1				JG	JG		JG					
			SC 16.4	14.04	13.5	15	14.1	14.4												
4/8/2009	12:30	AM								AM										
4/17/2009	10:15	JR	15.9	16.2	16.2	16.6	16.5	16.5												
			SC 17.4	15	14.4	15.5	15.4	15.4												

Verification of Chemical Feed Pump Flowrates - Plant Process Chemicals, 1/wk

Date	Time	Operator Initials	Sodium Hypochlorite		Aqueous Ammonia		Sodium Bisulfite		Caustic Soda		Ferric Chloride		RO1 Antiscalant		RO2 Antiscalant		RO3 Antiscalant	
			target	actual	target	actual	target	actual	target	actual	target	actual	target	actual	target	actual	target	actual
11/12/2008		AM	**15.4**	**30**	**5.3**	**5.5**	**10**	**13**	**16.1**	**20**	**5.22**	**4.5**	**16.1**	**80**	**13**	**13**	**13**	**13**
11/18/2008	3:30 PM	JR		**13**		**3**												
11/21/2008	5:30 PM	JR						**17**										
11/25/2028	2:00 PM	JR	15	16	18	18	6.4	18	8.7	11	5.22	4.5						
11/26/2008													16.1	16	13	14	13	13
11/26/2008		JG	11	11	11	11					5.22	5						
12/2/2008		JR	11	10	11	9	18	20	8.7	9		5	16.1	13	13	16	13	18
12/4/2008		JR											16.1	16	13	13	13	13
12/8/2008	12:30 PM	AM	8	8	9	8	20	20	9	10	5	4	16.1	14	13	14	13	13
12/12/2008	8:30 AM	AM					10	16					16.1	16.1	13	13.5	13	13.5
12/12/2008	9:30 AM	JG	4.5	4.5	9	9					5	5						
12/12/2008	11:30 AM				6	6			6	6								
12/30/2008	3:00 PM	AM					16	16	6	6					13	13	13	13
1/6/2009	10:30 AM	AM					16	16	6	6	5	5						
1/8/2009	10:22 AM	AM	5.9	5.9	5.9	5.9		19			5.8	5.8	17	17	14.3	14.3	16.3	16.3
1/15/2009	8:04 AM	AM	5.9	5.9	5.9	5.9		25	6	6	5.5	5.5	16	16	14.5	14.5	11.5	11.5
1/21/2009	4:30 PM	AM	5.9	5.9	5.9	5.9		38	6.6	14	5.5	5.5	16	16	14.5	14.5	11.5	11.5
1/27/2009	11:00 PM	AM					20	20					16	16	14.5	14.5	11.5	11.5
2/3/2009	1:00 PM	AM	5.9	5.9	5.9	5.9	ORP = 217	24	6.7	22	5.5	5.5	16	16	14.5	14.5	11.5	11.5
2/9/2009	8:16 PM	AM	5.9	5.9	5.9	5.9	ORP = 226	22	7.5	22	5.5	5.5	16	16	14.5	14.5	11.5	11.5
2/23/2009	12:00 PM	AM	7.2	7.2	7.2	7.2	ORP = 205	22	7.5	23			16	16	13	13	11.5	11.5
3/16/2009	1:00 PM	AM					ORP = 171	22	6.6	25								
3/17/2009	12:00 PM	JR	7.2	7.2	7.2	7.2					7	7	15	15	11.5	11.5	11	11
3/23/2009	10:49 AM	AM	7.2	7.2	7.2	7.2	185	22	7	25	7	7	15	15	11.5	11.5	11	11
3/30/2009	12:15 PM	AM	7.2	7.2	7.2	7.2	178	18	7	14	7	7	15	15	11.5	11.5	11	11
4/7/2009	9:32 AM	JR	7.2	7.2	7.2	7.2	175	16	6.6	17	7	7	15	15	11.5	11.5	11	11
4/14/2009			7.2	7.2	7.2	7.2					7	7	15	15	11.5	11.5	11	11

Bay Area Regional Desalination Project - Pilot Plant
Logsheet Calibration-Verification-3

Verification of Chemical Feed Pump Flowrates - Pretreatment Cleaning Chemicals, 1/mo

Date	Time	Operator Initials	Layne CEB (hypo)		Layne CEB (citric)		Memcor MW (hypo)		Memcor MW (acid)		Memcor CIP (acid)	
			target	vol/time	target	vol/time	target	vol/time	target	vol/time	target	vol/time
early DEC		AM	**505 mL/min**	**510**	**505 mL/min**	**510**	**222 mL/min**	**225**	**106 mL/min**	**85**	**221 mL/min**	**220**
1/28/2009		AM	**505 mL/min**	**503**	**505 mL/min**	**540**	**222 mL/min**	**225**	**105 mL/min**	**94**	**221 mL/min**	**225**
1/24/2009		AM					**222 mL/min**	**220**	**105 mL/min**	**92**	**221 mL/min**	**224**
3/27/2009		AM	**505 mL/min**	536	**505 mL/min**	545	**222 mL/min**	230	**105 mL/min**	96	**221 mL/min**	222

Bay Area Regional Desalination Project - Pilot Plant
Logsheet Calibration-Verification-4

Verification of Instruments - Memcor Skid

			Verify turbidity values, 1/wk				Is turbidimeter flowing?, 1/wk		Verify in-line flowmeters, 2/mo				Pressure, 1/mo	
			feed	feed	filtrate	filtrate	feed	filtrate	feed		waste		pump inlet	pump inlet
		Record:	**online**		**online**				**M-FIT002**		**M-FIT001**		**M-PIT001**	**M-PI005**
		Verification:	NTU	**handheld (NTU)**	mNTU	**handheld (NTU)**	**Y/N**	**Y/N**		**flow test - membrane tank fill**		**flow test - backwash drain**	**M-PI005**	**M-PIT001**
Date	**Time**	**Op Initials**												
11/12/2008	11:30 AM	AM	6.58	6.78	23.7	1.12	N	Y						
11/24/2008	3:30 PM	AM	14.4	10.15	26.3	<0.05	Y	Y	20	25.8	12 to 14	11.34	-4.68	5
12/3/2008	2:18 PM	AM	19.96						20	20.98	15	16		
12/4/2008	10:33 AM	AM	9.307	9.47	27.688	<0.03	Y	Y						
12/8/2008	11:22 AM	AM/NP	10.175	17	29.1	<0.05	Y	Y						
			11.86	10.48	27.6	<0.05	Y	Y						
12/13/2008	5:30	AM				<0.05	Y	Y						
1/28/2009	10:15 AM	JG	8.5	15	28.8	100	SLOW	Y	20	18.8			-10.5	0.5
2/2/2009		JG												
2/4/2009	10:30 AM	JG	17.67	11.4	12.9	160	SLOW	Y	20	20.4	12 to 14	13.2		
2/10/2009	12:15 PM	JR	11.59	10	12.7	380	SLOW	Y						
2/23/2009	2:37 PM	JG	16.2	15.8	13.2	80	SLOW	Y	28	24.5	14 to 16	16.2	-2	-11.37
3/23/2009	10:10 AM	JG	28.4	35	11.25	10	SLOW	Y					-1	-9
		AM							17	16.5	14 to 16	14.2		
3/31/2009	12:30 PM	JR	24.5	24.1	9.1	10	SLOW	Y						
4/7/2009	9:45 AM	JG	22.5	29.4	13.4	70	SLOW	Y	17	15.6	10 to 12	10.3	-1	-7.3
4/16/2009		JR	33.1	43.6	21.56	70	SLOW	Y						

Verification of Instruments - Layne-Norit Skid

			Verify turbidity values, 1/wk				Is turbidimeter flowing? 1/wk		Verify in-line flowmeters, 2/mo				Verify conductivity values, 1/mo		Pressure, 1/mo				
			feed		filtrate		feed	filtrate	filtrate		backwash		raw		Pump outlet	feed 1	feed 2	bw	
		Reading:	**L-AIT01**		**L-AIT02**				**L-FIT01**	**gpm**	**XXXX**	**gpm**	**L-CIT01**		**L-PI-feed**	**L-PIT01**	**L-PIT02**	**L-PIT03**	
		Verification:	NTU	**handheld (NTU)**	mNTU	**handheld (NTU)**	**Y/N**	**Y/N**		**flow test - filtrate tank fill**		**flow test - filtrate tank empty**	**microS**	**handheld**	**L-PIT01/02**	**L-PI-feed (bot)**	**L-PI-feed (top)**		**handheld**
Date	**Time**	**Op Initials**																	
11/26/2008	12:38 PM	AM	16.4	13.2	16.48	<.05	Y	Y		15.67		33	1995.48	15050		8.41	10.99	7.21	
12/3/2008		AM							24	23.2	88	76				8.3	1/11/1900		
12/4/2008	2:09 PM	AM	10.99	10.9	11	<.05	Y	Y											
12/8/2008	11:30 AM	AM	13.06	12	10.2	<.05	Y	Y											
12/13/2009	5:30 AM	AM	8.45	10.78	22.31	<.05	Y	Y											
1/21/2009													14.73	14.93		11.5	7.5		
																11.55	8		
1/28/2009	10:00 PM	JG	6.85	12.5	12.13	140	Y	Y	26	27.5	70	70							
2/4/2009	10:15 AM	JG	10.82	13.4	11.49	220	Y	Y	26	24.5	70	69.1							
2/10/2009	12:22	JR	9.72	11.4	13.24	100	Y	Y											
2/23/2009	10:16	JG	24.71	34.6	1.47	40	Y	Y					1,200	1068		11	11.51		
	2:30 PM	AM							33	28.7	70	70.8			SCREEN	16		13	
																13		12.82	
																16.73			
															GAGE	11.23			
																13.28			
3/31/2009	12:30 PM	JR	26.7	29.1	1	10	Y	Y					1,730	1,370					
4/7/2009	10:00 AM	JG	19.5	32.6	0.89	110	Y	Y	33	32.2	70	73.6							
4/16/2009	12:37 PM	JR	28.31	39.7	5.03	80	Y	Y											

Bay Area Regional Desalination Project - Pilot Plant
Logsheet Calibration-Verification-6

Verification of Instruments - RO1 System

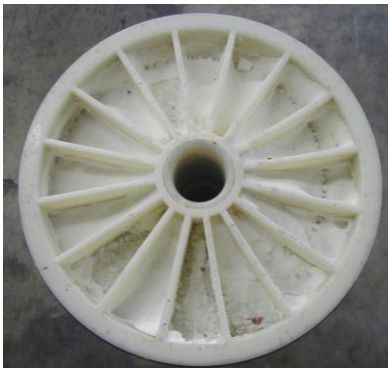
			Verify conductivity values, 1/mo				Pressure, 1/mo									
			comb permeate		stg 1 conc		feed	feed	orifice outlet	orifice outlet	S1 conc	S1 conc	S2 conc	S2 conc	S1 perm	S1 perm
		Reading:	**E-AE04**		**E-AE01**		**E-PI01**	**E-PT01**	**E-PI02a**	**E-PT02**	**E-PI03**	**E-PT03**	**E-PI05**	**E-PT04**	**E-PI08**	**E-PT05**
		Verification:		**handheld**		**handheld**	**E-PT01**	**E-PI01**	**E-PT02**	**E-PI02a**	**E-PT03**	**E-PI03**	**E-PT04**	**E-PI05**	**E-PT05**	**E-PI08**
Date	**Time**	**Op Initials**														
11/26/2008	4:33 PM	**AM**	233	228	**35125**	**33300**	**0**	**37**	**380**	**374**	**365**	**362**	**378**	**355**	**89/6**	13
1/5/2009	2:25 PM	**JR**	209	135.2	**18287**	**1704**	**40**	**38**	**325**	**328**	**320**	**0**	**300**	**300**	**82**	75
2/23/2009	1:00 PM	AM		CALIBRATED			**50**	**48**	**240**	**238**	**240**	**223**	**230**	**220**	**15**	11
3/26/2009		JR	7	7	**1866**	**1907**	**45**	**42**	**185**	**185**	**175**	**160**	**160**	**157**	**15**	10

Bay Area Regional Desalination Project - Pilot Plant
Logsheet Calibration-Verification-7

Verification of Instruments - RO2 & 3 Systems

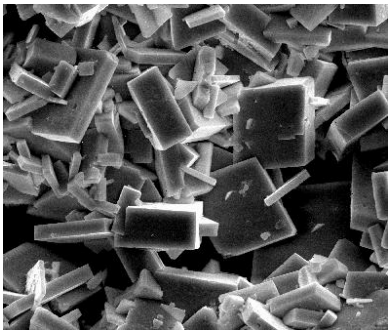
			RO 2 System								RO 3 System							
			Verify conductivity values, 1/mo				Pressure, 1/mo				Verify conductivity values, 1/mo				Pressure, 1/mo			
			feed		permeate		feed	feed	conc	conc	pump inlet		permeate		feed		conc	
		Reading:	**AI-2/21**		**AI-2/15**		**AI-2/24**	**PI**	**AI-2/16**	**PI**	**AI-3/21**		**AI-3/15**		**AI-3/24**	**PI**	**AI-3/16**	**PI**
		Verification:		**handheld**		**handheld**	**PI**	**AI-2/24**	**PI**	**AI-2/16**	**mS**	**handheld**	**uS**	**handheld**	**PI**	**AI-3/24**	**PI**	**AI-3/16**
Date	**Time**	**Op Initials**																
11/26/2008	12:00 PM	AM	15.675	14.85	44.6	46.4												
	4:36 PM	AM									25491	15360	1335	544	255.8	260	231.7	230
	4:46 PM	AM					498.8	475/450	361.1	440								
1/8/2009	1:53 PM	JR					574.6	498	416.7	498					260.3	265	203.8	204
1/23/2009	1:20 PM	JR	CALIBRATED								CALIBRATED							
2/23/2009	11:07 AM	AM	CALIBRATED								CALIBRATED				157.5	170	131.3	140
3/27/2009	9:55 AM	OR	672	703	5	5	126.9	300	274.4	280	611	837	14	13	100.1	105	74.2	80

Membrane Autopsy Report



Completed for:

MWH – BARDP



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EXECUTIVE SUMMARY

MWH – BARDP provided one Filmtec SW30HRLE-4040 (SN#F3406076) seawater reverse osmosis element to Avista Technologies for autopsy. Element SN#F3406076 was removed from RO#1 last element, tail position. SN#F3406076 was wet tested and data was normalized to the manufacture's published conditions. SN#F3406076 was weighed and dissected for autopsy. Please refer to the element drawing in Appendix A, for an explanation of terms used throughout this report.

SN# F3406076 was of normal weight, and showed greater than normal permeate flow and slightly reduced salt rejection on initial baseline pre-test. SN# F3406076 flat sheet cut membrane samples tested in a laboratory cell test apparatus mimicked wet test data. There was no evidence of mechanical failure (i.e. glue line failure or delamination). SN# F3406076 showed signs of membrane compaction (Appendix A).

Exposed membrane surfaces for SN# F3406076 were very lightly coated with tan colored foulant material. SEM/EDX analysis of SN# F3406076 identified trace amounts of clay as inorganic foulant. FT-IR analysis identified trace amounts of polysaccharides, proteins, and carbohydrates on this element. Insufficient foulant could be collected for LOI, foulant density, zeta potential, or light microscope analysis. RoClean P303 is recommended in a 2% solution for this particular foulant material.

Fujiwara testing was negative for the presence of halogen (i.e. chlorine) on element SN# F3406076. High water passage of membrane coupons is not caused by halogenation of the membrane surface. Instead, performance may be related to non-halogen oxidation and/or pH hydrolysis (i.e. aggressive cleaning with generic acid and caustic solutions).

Supporting data is included in the Procedures and Results, or Foulant Analysis section of this report.

PROCEDURES AND RESULTS

WET TEST
Filmtec SW30HRLE-4040 seawater element was wet tested on San Marcos, CA city water. Wet test results were normalized to the manufacturer's published test conditions.

Filmtec SW30HRLE-4040	Flow, gpm	Rejection, %	DP, psi
SN# F3406076	1.65	99.7	3
Manufacturer's Specifications	1.11	99.75	3-5

ELEMENT WEIGHT
Because element weight is often indicative of the degree of fouling, elements are weighed prior to the autopsy. SN# F3406076 weighed 8 pounds. New elements of this model weigh approximately 7-9 pounds.

EXTERNAL INSPECTION
Fiberglass wrap:
The outer fiberglass casing of this element was in satisfactory condition.

Telescoping of element leaves:
Both ends of each element were examined for signs of membrane and feed spacer extrusion. This type of damage is termed "telescoping" and is caused by the development of high differential pressure (usually greater than 12 psi) across the element. No telescoping was observed on this element.

Brine seal:
Brine seal was in good condition and showed no signs of damage that could allow bypass of the RO concentrate water around the spiral wound membrane scroll.

Anti-telescoping devices (ATD):
The ATD's are designed to prevent telescoping of element leaves at normal differential pressures. ATD's on this element were in good condition and showed no sign of physical damage.

Permeate tubes:
No gouges were visible on the ends of the permeate tube that could allow the by-pass of feed water.

PROCEDURES AND RESULTS

INTERNAL EXAMINATION

Membrane Surface:

Exposed membrane surface for SN# F3406076 contained a uniformly distributed tan colored foulant (See Photo in Appendix B, Figure 1). Significant membrane compaction was observed on element SN# F3406076 (See description of compaction in Appendix A).

Fujiwara test:

The Fujiwara test is used to confirm that a polyamide (PA) thin-film membrane has been exposed to an oxidizing halogen, such as chlorine, bromine, or iodine. The test analyzes qualitatively whether halogens have become part of the polymer structure through oxidative attack.

The Fujiwara test was negative on samples from this element.

Feed spacer:

The feed spacer is a plastic net material (Vexar) designed to separate membrane leaves to form a flow pathway and to promote turbulence within feed water passages. Feed spacer in SN# F3406076 was completely free of foulant.

Permeate spacer:

Permeate spacer (Tricot) provides a pathway for permeate flow to central permeate tube which minimizes permeate-side pressure loss. Tricot material was in good condition in this element.

Glue lines:

Membrane leaves are glued on three sides to separate feed and permeate streams. Glue lines in this element were in good condition and showed no signs of pouching or delamination.

FOULANT ANALYSIS

Loss on ignition:
Loss on ignition gives an approximation of the organic content of the foulant. Values in excess of about 35% represent a significant organic content. Insufficient foulant could be removed from the membrane surface to perform LOI analysis from SN# F3406076.

Membrane foulant density:
Membrane foulant density is the weight of dry foulant per area of membrane surface. Foulant densities determined from past autopsies range from 0.04 to 1.6 mg/cm^2 and average 0.203 mg/cm^2. Insufficient foulant could be removed from the membrane surface to perform foulant density analysis from SN# F3406076.

Acid test:
Several drops of dilute hydrochloric acid were placed on the foulant surfaces. Bubbles indicate the presence of carbonates. No bubbles were seen on the membrane surface for SN# F3406076.

Microbiological examination:
Insufficient foulant could be removed from the membrane surface to perform a light microscope analysis on SN# F3406076.

Fourier Transformed Infared (FT-IR) analysis:
FT-IR analysis identifies organic foulant constituents. FT-IR is a measurement technique whereby spectra are collected based on measurements of temporal coherence of a radiative source, using time-domain measurements of electromagnetic radiation. Spectra are compared against a library of more than 10,000 known constituents.

FT-IR spectrum of foulant from SN# F3406076 indicates limited amounts of organic foulants; polysaccharides, proteins, and carbohydrates (See image in Appendix B, Figure 2).

FOULANT ANALYSIS

ZETA POTENTIAL:

Most naturally occurring colloids are negatively charged and surrounded by a double layer of counter ions, Figure 1. Zeta potential is the charge that resides at the double layer boundary, which we can conveniently measure with a zeta potential meter.

Electrostatic repulsion becomes significant when two colloids approach each other and their charged double layers begin to interfere. Because of this mutual repulsion, coagulation and flocculation are difficult to accomplish and coagulants are often overfed into the RO system resulting in a positive zeta potential. Samples that show a near zero or neutral zeta potential represent the optimum coagulant dosage.

Insufficient foulant could be removed from the membrane surface to perform zeta potential analysis from SN# F3406076.

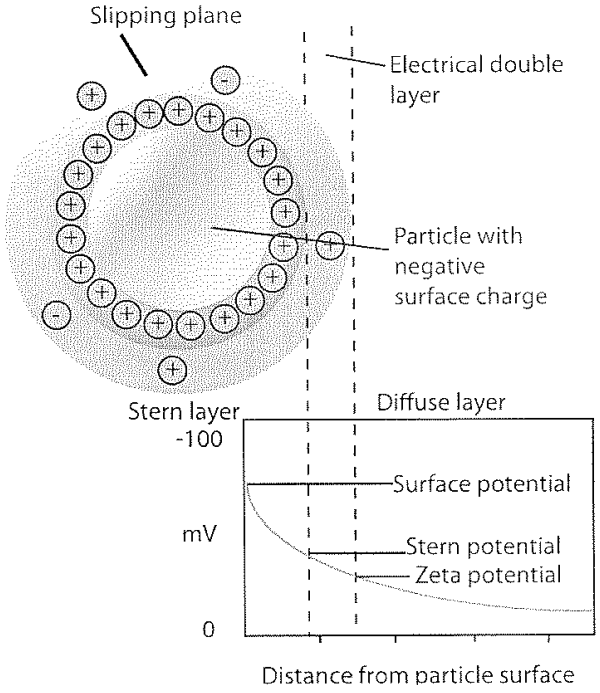

Figure 1: Image from Particle Characterization Laboratories, Inc. in Novato, CA.

FOULANT ANALYSIS

Scanning Electron Microscopy /Energy Dispersive X-ray Analysis (SEM/EDX):
EDX analysis is conducted in conjunction with SEM imaging to identify inorganic foulant constituents. In this technique, an electron microscope with an energy dispersive X-ray spectrometer is used for analysis. Electron beams in the microscope cause specimens to emit x-rays including those from the k, l and m atomic shells. Spectrometer counts of these x-rays, which are said to be "characteristic" of elements present in the specimen, can be used to calculate composition of foulant material. This analysis is non-destructive and is accurate to ~1%. This technique determined the elements (Ca, C, O, Si, S, Al and Fe) were present in the sample from SN# F3406076. SEM image can be found in Appendix B, Figure 3. All inorganic constituents are listed in the table below.

Elements (wt. %)	**SN# F3406076**
Carbon	17.2
Oxygen	11.3
Sodium	0.8
Magnesium	1.6
Aluminum	2.0
Silicon	8.5
Phosphorous	3.0
Sulfur	6.1
Potassium	2.1
Calcium	41.8
Iron	3.2

APPENDIX A

avista technologies

Spiral Wound Membrane Construction

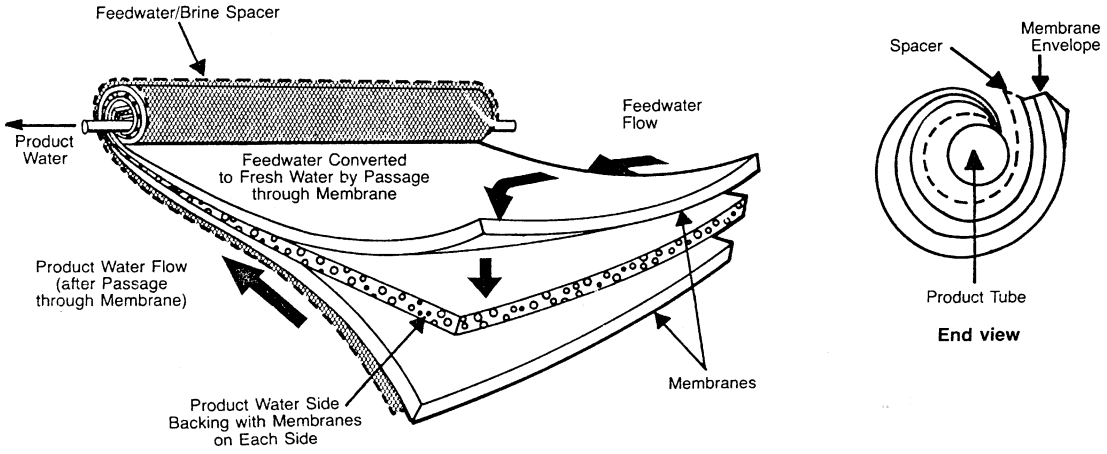

Diagram of a Spiral Wound Reverse Osmosis Element

APPENDIX A

COMPACTION

Compaction is defined the deformation of the membrane and membrane backing material under pressure. There are two possible consequences to compaction: One is the embossing of the membrane backing into the permeate (Tricot) carrier material. This results in increased pressure losses on the permeate side of the element, thus reducing flow, or conversely, requiring higher pressures to maintain specified flows. The second potential consequence is the compression of the porous polysulfone membrane support material, which is sandwiched between the rejecting membrane layer and the polyester backing. Compression of this layer also reduces flow. However, significant compression of the polysulfone layer generally occurs only at very high pressures.

A certain amount of membrane compaction is inevitable due to construction from plastics and textile materials that all deform under pressure. Only when compaction becomes severe is element performance significantly compromised.

The effect of embossing of the membrane into the permeate carrier is estimated by measuring the flux difference between the element and a membrane sample taken from the element and tested in a cell test apparatus.

Description of damage caused by compaction of a spiral wound membrane

APPENDIX B

***Figure 1*:** Exposed membrane surface for SN# F3406076.

APPENDIX B

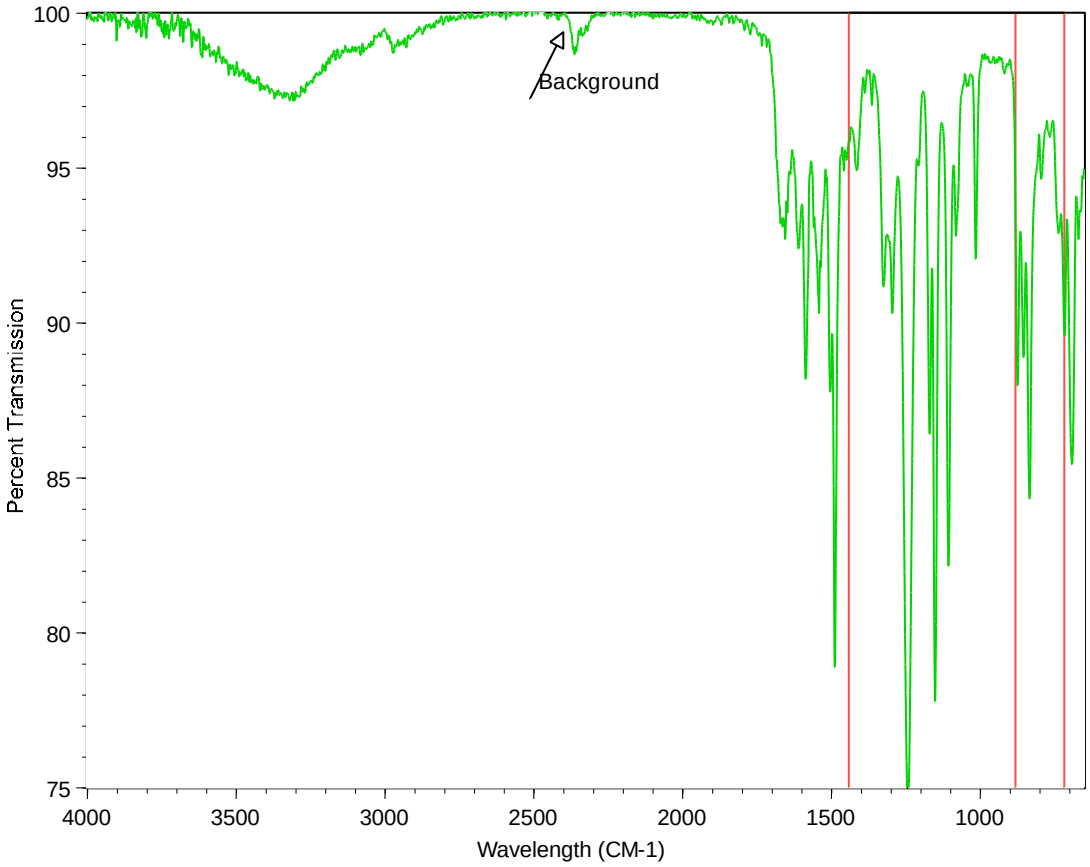

***Figure 2*:** FT-IR spectra for SN#F3406076 with red stick pattern represents bands from carbohydrates, polysaccharides, and proteins.

APPENDIX B

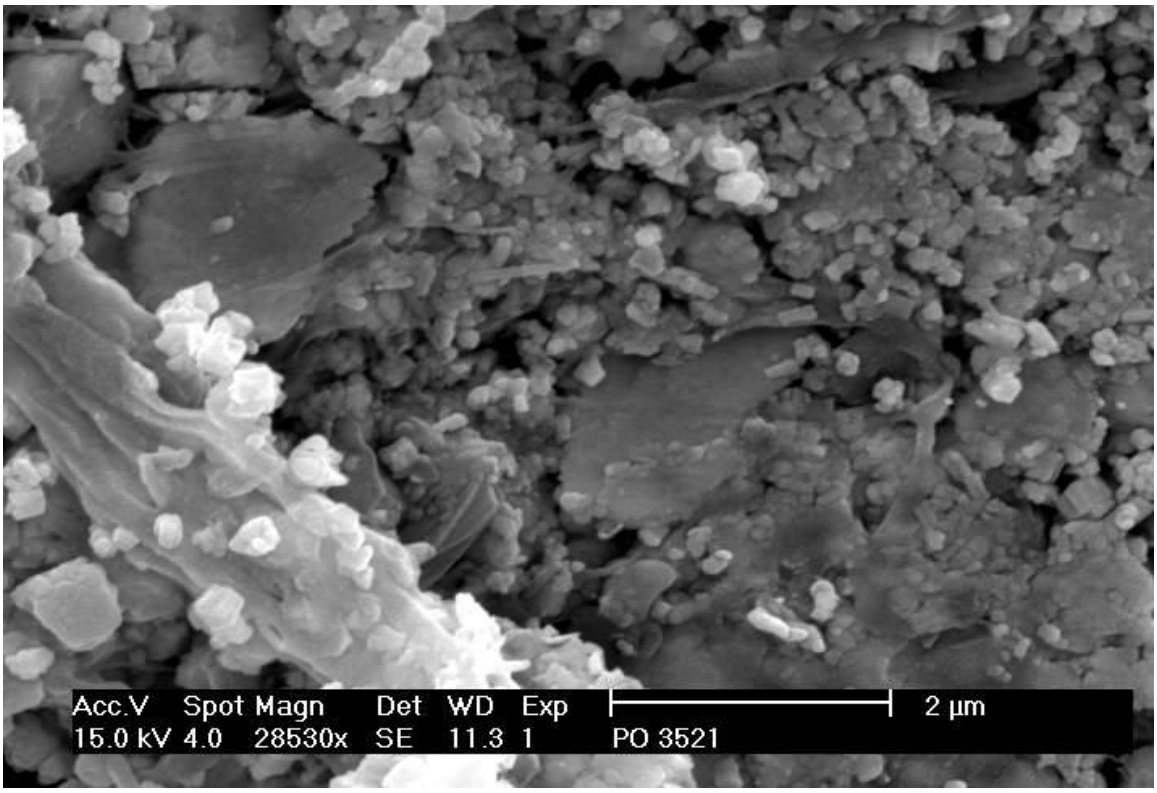

***Figure 3*:** SEM image of foulant from SN# F3406076.