

Epsom Spring Gully Recycled Water Project
Existing Treatment Plant Pathogen Reductions

Numbers less than the limit of detection shaded. Limit of detection used
Numbers in italic assume 10% recovery for one or more results

Influent Wastewater	(S1)	27-Jul-06	1-Aug-06	8-Aug-06	22-Aug-06	4-Sep-06	18-Sep-06	2-Oct-06	16-Oct-06	30-Oct-06	14-Nov-06	27-Nov-06	11-Dec-06	8-Jan-07	22-Jan-07	5-Feb-07	19-Feb-07	2-Mar-07	5-Mar-07	7-Mar-07	8-Mar-07	13-Mar-07	14-Mar-07	15-Mar-07	19-Mar-07	Geomean	Average	Corrected by Recovery	Median	5th Percentile		
E.coli	MPN/100 ml	8,700,000	7,300,000	4,600,000	5,800,000	9,200,000	8,200,000	10,000,000	12,000,000	16,000,000	24,000,000	14,000,000	12,000,000	24,000,000	12,000,000	31,000,000	16,000,000	10,000,000	11,000,000	16,000,000	33,000,000	20,000,000	19,000,000	13,000,000	18,000,000	13,161,528	1,294,917		12,500,000	6,025,000		
IRNA Phage	pfu/100ml	2,100,000	1,200,000	360,000	540,000	470,000	590,000	2,000,000	3,200,000	680,000	2,000,000	5,100,000	2,500,000	1,000,000	1,200,000	1,800,000	1,800,000	1,800,000	1,800,000	400,000	1,800,000	1,800,000	5,000,000	790,000	550,000				1,800,000	410,500		
Crypto	ocysts/L	60	20	20	20	20	20	20	30	20	30	70	30	370	370	5700	10000	8400	4000	1,800,000	1,800,000	1,800,000	5,000,000	790,000	550,000							
Giardia	cysts/L	1900	680	520	940	120	740	400	80	870	830	900	530	570	280	40	400										434		1789	550	70	
Recovery Crypto	%	15%	NA	0%	20%	12%	10%	34%	20%	32%	30%	51%	33%	37%	36%	40%	54%	36%										29%		33%	8%	
Recovery Giardia	%	20%	NA	0%	57%	30%	10%	19%	12%	15%	53%	31%	47%	33%	31%	10%	10%	10%										24%		20%	8%	
OST (S2)																																
E.coli	MPN/100 ml	170,000	280,000	170,000	87,000	690,000	6,300	19,000	2,400,000	2,500	17,000	5,200	130	13,000	19,000	3,700	11,000	9,100	2,600	29,000	18,000	55,000	120,000	140,000	12,000	59,121			18,500	2,515		
IRNA Phage	pfu/100ml	900	700	1,500	4,300	1,800	1,100	21,000	300	800	1,100	1,000	500	400	400	300	200	300	700	200	400	200	200	100	200	1,456			600	200		
Crypto	ocysts/L	2	14	4.2	0.1	2.5	2	1.8	0.1	0.25	1	1.25	4.7	0.25	36	120	80										1.1		3	2	0	
Giardia	cysts/L	17	11	3.4	6.3	14	6.5	0.25	1.6	1.8	0.5	0.75	1.8	1	NR	0.1	0.08									3.2		10	2	0		
Recovery Crypto	%	20%	NA	46%	32%	23%	63%	50%	32%	59%	49%	25%	43%	39%	49%	34%	30%	25%										39%		37%	22%	
Recovery Giardia	%	47%	NA	74%	43%	12%	57%	36%	10%	26%	60%	31%	30%	26%	41%	0%	10%	10%										32%		31%	8%	
Lagoon Outlet to Tertiary Filters (S3)																																
E.coli	MPN/100 ml	770	210	100	610	45	100	2400	380	160	610	130	93	1200	80	3	75	51	70	96	130	220	110	130		288			130	46		
IRNA Phage	pfu/100ml	1	1	1	9	1	1	200	14	1	1	1	1	1	1	1.5	1	1	1	1	1	1	1	1	1		3		1	1		
Crypto	ocysts/L	10	0.4	0.2	NR	0.02	0.08	0.25	NR	0.2	0.1	0.3	0.1	0.1	1	0.3	0.7	0.5									0.2		1	0	0	
Giardia	cysts/L	0.3	0.4	0.2	0.05	0.06	0.08	0.25	0.1	0.2	0.2	0.1	0.3	0.1	35	0.3	0.3	0.2									0.1		0	0	0	
Recovery Crypto	%	10%	NA	48%	12%	0%	0%	17%	26%	0%	10%	30%	49%	12%	39%	18%	32%	10%										20%		15%	0%	
Recovery Giardia	%	18%	NA	78%	12%	10%	10%	44%	18%	10%	32%	48%	59%	66%	56%	10%	14%	20%										32%		19%	10%	
Tertiary Filter Outlet (S4)																																
E.coli	MPN/100 ml	37	20	18	6	130	9	54	330	36	16	36	8	12	110	3	26	15	4	15	16	8	15	490	2	32			16	3		
IRNA Bacteriophage	pfu/100ml	1	1	1	1	13	0.1	1	21	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1			1	1	
Crypto	ocysts/L	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02			0	0	
Giardia	cysts/L	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02			0	0	
Recovery Crypto	%	55%	53%	41%	71%	53%	74%	69%	10%	58%	68%	70%	60%	11%	18%	42%	51%	15%										48%		53%	11%	
Recovery Giardia	%	58%	69%	64%	78%	65%	79%	82%	17%	36%	71%	75%	72%	24%	43%	10%	14%	14%										51%		64%	13%	
LOG REMOVALS																																
Using Percentile Function																																
Minimum Mean Median 5th Percentile Std Dev Count 5th Percentile																																
Across BNR Plant																																
E.coli		1.71	1.42	1.43	1.82	1.12	3.11	2.72	0.70	3.81	3.15	3.43	4.97	3.27	2.80	3.92	3.16	3.04	3.63	2.74	3.26	2.56	2.20	1.97	3.18	0.70	2.71	2.92	1.17	1.00	24	2.36
IRNA Phage		3.37	2.93	2.71	2.56	2.04	2.52	3.26	2.18	3.36	3.40	3.67	3.40	3.30	3.48	3.78	3.95	3.78	3.41	3.12	3.95	3.65	4.40	3.86	3.44	2.04	3.31	3.40	2.23	0.58	24	3.11
Crypto		1.60	0.88	0.82	0.88	2.58	1.70	1.17	2.57	2.29	1.17	1.86	0.83	3.30	3.30	2.13	1.67	1.86								0.82	1.76	1.70	0.82	0.73	15	1.43
Giardia		2.42	2.66	2.06	1.78	1.69	2.33	1.94	2.74	3.22	2.88	2.37	2.88		2.88			2.60	3.70							1.69	2.52	2.51	1.75	0.56	14	2.25
Across Lagoons																																
E.coli		2.34	2.91	2.94	3.05	2.15	2.28	3.00	0.82	2.03	0.93	0.00	2.15	1.20	1.67	3.56	2.08	1.71	2.62	2.27	2.63	2.74	3.10	1.97		0.00	2.18	2.27	0.83	0.85	23	1.88
IRNA Phage		2.95	2.85	3.18	2.68	3.26	3.04	2.02	1.33	2.90	3.04	3.00	2.70	2.60	2.48	2.12	2.48	2.85	2.48	2.30	2.60	2.30	2.00	2.30		1.33	2.59	2.60	2.00	0.45	23	2.42
Crypto		-1.00	1.56	0.90	1.30	0.93	0.77	-0.59	0.78	1.15	0.68	0.30		0.30	2.48	2.12	1.80	2.26	1.81							-1.00	0.90	0.91	-0.74	0.90	14	0.48
Giardia		1.34	1.46	0.68	2.02	1.61	2.00	0.26	0.79	0.68	0.59	1.17	1.18	1.14				-0.33	-0.10							-0.33	0.97	1.14	-0.17	0.69	15	0.65
Across Tert Filters																																
E.coli		1.32	1.07	1.22	0.67	0.70	0.27	0.86	1.02	1.00	1.23	1.21	0.89	1.04	1.43	-0.94	0.70	1.11	0.67	0.78	1.21	1.17	-0.65	1.81		-0.94	0.86	1.02	-0.56	0.61	23	0.64
IRNA Phage		0.00	0.00	-0.16	1.00	0.00	2.30	-0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.30		-0.30	0.13	0.00	-0.18	0.54	22	-0.07
Crypto		3.44	1.53	1.77	0.87	1.21	0.68	1.83	1.37	0.79	1.14	0.36		0.36	1.54	1.75	1.57									0.36	1.42	1.45	0.57	0.73	14	1.07
Giardia		1.68	1.52	1.81	1.21	1.37	0.87	1.07	1.26	1.35	1.19	0.74	0.58		0.58	1.18	1.18	0.85								0.58	1.17	1.18	0.70	0.34	16	1.01
Across BNR to Outlet Tert Filters																																
E.coli		5.37	5.56	5.41	5.99	4.85	5.96	5.27	4.56	5.65	6.18	5.59	6.18	6.30	5.04	7.01	5.79	5.82	6.44	6.03	6.31	6.40	6.10	4.42	6.95	4.42	5.80	5.89	4.60	0.67	24	5.57
IRNA Phage		6.32	6.08	5.56	6.30	4.56	6.77	6.30	6.51	4.51	6.30	6.71	6.40	6.00	6.08	6.26	6.26	6.26	6.26	5.60	6.26	6.26	6.70	5.86	5.44	4.51	6.05	6.26	4.65	0.59	23	5.84
Crypto		4.04	3.91	3.55	3.65	3.87	3.31	2.88	3.26	3.53	3.31	3.80	2.65	3.97	3.97	5.48	5.67	5.24								2.65	3.88	3.72	2.82	0.88	16	3.50
Giardia		5.44	5.64	4.55	5.01	4.68	5.20	4.45	3.98	4.77	5.00	4.84	4.28	4.60	4.60	4.15	3.45	4.45								3.45	4.65	4.64	3.85	0.55	16	4.41