



APPENDIX O

Background Groundwater Quality Data



O-I: Background Groundwater Quality (Monitoring Wells)

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	^{(2) (1)}		12-1-3.1	12-1-3.1	12-1-3.1
		ODWQS(169/03)-Health	^{(4) (3)} ODWQS-AO	11-Jan-2013 ⁽⁹⁾	25-Jun-2013 ⁽¹⁰⁾	05-Nov-2013 ⁽⁹⁾
				A-1	12-1-3	12-1-3
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	510	540	530
Ammonia Nitrogen	mg/l	--	--	12 ⁽¹¹⁾	13 ⁽¹¹⁾	12
Biologic Oxygen Demand, Five Day	mg/l	--	--	17	6.0	<2.0
Chemical Oxygen Demand	mg/l	--	--	140	110	140
Chloride, dissolved	mg/l	--	250	7300	8000	7600
Conductivity	uS/cm	--	--	23000	23000	24000
Conductivity (Field)	uS/cm	--	--	>3999	>3999	>3999
Dissolved Organic Carbon	mg/l	--	5	8.5	6.5	7.1
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.050	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	12 ⁽¹¹⁾	12 ⁽¹¹⁾	12
pH	-	--	--	7.98	8.05	7.86
pH (Field)	-	--	--	7.69	7.71	7.75
Phosphorus	mg/l	--	--	0.23	0.060	0.45
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	6	1	2
Temperature (Field)	deg c	--	15	6.5	8.4	9.7
Total Dissolved Solids	mg/l	--	500	12700	13400	12900
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.01	<0.01	0.011
Barium, dissolved	mg/l	1	--	16	17	17
Boron, dissolved	mg/l	5	--	1.7	1.8	1.9
Cadmium, dissolved	mg/l	0.005	--	<0.0010	<0.0010	<0.0010
Calcium, dissolved	mg/l	--	--	67	67	77
Chromium, dissolved	mg/l	0.05	--	<0.05	<0.05	<0.05
Copper, dissolved	mg/l	--	1	<0.01	<0.01	<0.01
Iron, dissolved	mg/l	--	0.3	<1	<1	1.2
Lead, dissolved	mg/l	0.01	--	<0.0050	<0.0050	<0.0050
Magnesium, dissolved	mg/l	--	--	330	340	320
Manganese, dissolved	mg/l	--	0.05	0.082	0.066	0.075
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	90	93	89
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	4800	5000	4800
Zinc, dissolved	mg/l	--	5	<0.05	<0.05	<0.05
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00025	<0.00025	<0.00010
Toluene	mg/l	--	0.024	<0.00050	<0.00050	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	0.0072
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00050	<0.00050	<0.00020
Methane	l/m3	--	3	16	64	50
Methane	mg/l	--	3 ⁽⁸⁾	10	42	33
Methylene Chloride	mg/l	0.05	--	<0.0013	<0.0013	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00050	<0.00050	<0.00020

TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE

Parameter	Unit	(2) (1)	(4) (3)	12-1-4A	12-1-4A	12-1-4A
		ODWQS(169/03)-Health	ODWQS-AO	11-Jan-2013	25-Jun-2013 ⁽¹⁰⁾	05-Nov-2013 ⁽⁹⁾
				A-2	12-1-4A	12-1-4A
General Chemistry						
Alkalinity (Total as CaCO ₃)	mg/l	--	--	490	560	600
Ammonia Nitrogen	mg/l	--	--	12	12	12
Biologic Oxygen Demand, Five Day	mg/l	--	--	15	6.0	16
Chemical Oxygen Demand	mg/l	--	--	110	110	160
Chloride, dissolved	mg/l	--	250	7100	7300	7500
Conductivity	uS/cm	--	--	22000	22000	23000
Conductivity (Field)	uS/cm	--	--	>3999	>3999	>3999
Dissolved Organic Carbon	mg/l	--	5	8.6	8.0	8.3
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.050	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	14	12	12
pH	-	--	--	7.99	8.05	7.92
pH (Field)	-	--	--	7.86	7.84	7.88
Phosphorus	mg/l	--	--	6.9	0.14	3.3
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	10	3	3
Temperature (Field)	deg c	--	15	6.1	8.2	10.2
Total Dissolved Solids	mg/l	--	500	12500	12400	12900
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.01	0.012	0.011
Barium, dissolved	mg/l	1	--	15	17	16
Boron, dissolved	mg/l	5	--	1.7	1.8	1.7
Cadmium, dissolved	mg/l	0.005	--	<0.0010	<0.0010	<0.0010
Calcium, dissolved	mg/l	--	--	71	68	68
Chromium, dissolved	mg/l	0.05	--	<0.05	<0.05	<0.05
Copper, dissolved	mg/l	--	1	<0.01	<0.01	<0.01
Iron, dissolved	mg/l	--	0.3	<1	<1	1.5
Lead, dissolved	mg/l	0.01	--	<0.0050	<0.0050	<0.0050
Magnesium, dissolved	mg/l	--	--	330	340	330
Manganese, dissolved	mg/l	--	0.05	0.12	0.086	0.14
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	91	93	92
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	4900	4900	4600
Zinc, dissolved	mg/l	--	5	<0.05	<0.05	<0.05
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00025	<0.00025	<0.00010
Toluene	mg/l	--	0.024	<0.00050	<0.00050	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	0.0075
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00050	<0.00050	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.0013	<0.0013	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00050	<0.00050	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	12-1-5B	12-1-5B	12-1-5B
		ODWQS(169 /03)-Health	ODWQS-AO	11-Jan-2013 (9)	25-Jun-2013 (13)	05-Nov-2013 (9)
				A-3	12-1-5B	12-1-5B
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	710	750	750
Ammonia Nitrogen	mg/l	--	--	3.4	2.5	2.4
Biologic Oxygen Demand, Five Day	mg/l	--	--	<2.0	2.0	10
Chemical Oxygen Demand	mg/l	--	--	220	87	96
Chloride, dissolved	mg/l	--	250	1600	1600	1500
Conductivity	uS/cm	--	--	6400	6200	6000
Conductivity (Field)	uS/cm	--	--	>3999	>3999	>3999
Dissolved Organic Carbon	mg/l	--	5	6.2	5.1	5.1
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	0.31
Nitrogen, Total Kjeldahl	mg/l	--	--	11	5.7	7.7
pH	-	--	--	8.07	8.15	7.91
pH (Field)	-	--	--	7.82	7.91	7.89
Phosphorus	mg/l	--	--	130	23	22
Sulfate, dissolved	mg/l	--	500 (6)	38	13	12
Temperature (Field)	deg c	--	15	6.4	10.9	10.4
Total Dissolved Solids	mg/l	--	500	3460	3310	3140
Metals						
Arsenic, dissolved	mg/l	0.025	--	0.0022	0.0057	0.0045
Barium, dissolved	mg/l	1	--	0.2	0.19	0.16
Boron, dissolved	mg/l	5	--	0.34	0.31	0.3
Cadmium, dissolved	mg/l	0.005	--	<0.00020	<0.00020	<0.00020
Calcium, dissolved	mg/l	--	--	67	71	68
Chromium, dissolved	mg/l	0.05	--	<0.02	<0.01	<0.01
Copper, dissolved	mg/l	--	1	<0.0020	0.0022	0.0029
Iron, dissolved	mg/l	--	0.3	<0.2	<0.2	0.37
Lead, dissolved	mg/l	0.01	--	<0.0010	<0.0010	<0.0010
Magnesium, dissolved	mg/l	--	--	130	140	130
Manganese, dissolved	mg/l	--	0.05	0.064	0.069	0.067
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	26	25	22
Sodium, dissolved	mg/l	--	200 (7)	1200	1200	1000
Zinc, dissolved	mg/l	--	5	<0.01	<0.01	0.013
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00020	<0.00050	<0.00010
Toluene	mg/l	--	0.024	<0.00040	<0.0010	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	<0.0010
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00040	<0.0010	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.0010	<0.0025	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00040	<0.0010	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(3) (1)	(4) (3)	12-1-6	12-1-6	12-1-6
		ODWQS(169/ 03)-Health	ODWQS- AO	11-Jan-2013	25-Jun-2013	05-Nov-2013
				A-5	12-1-6	12-1-6
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	660	540	460
Ammonia Nitrogen	mg/l	--	--	0.26	0.14	<0.050
Biologic Oxygen Demand, Five Day	mg/l	--	--	<2.0	<2.0	<2.0
Chemical Oxygen Demand	mg/l	--	--	51	29	27
Chloride, dissolved	mg/l	--	250	360	250	220
Conductivity	uS/cm	--	--	2700	2000	1700
Conductivity (Field)	uS/cm	--	--	2564	2408	1818
Dissolved Organic Carbon	mg/l	--	5	4.8	6.6	8.3
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	0.022	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	3.0	1.2	0.74
pH	-	--	--	7.70	7.79	7.46
pH (Field)	-	--	--	7.75	7.74	7.20
Phosphorus	mg/l	--	--	1.5	0.64	0.46
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	160	140	88
Temperature (Field)	deg c	--	15	2.5	12.2	9.8
Total Dissolved Solids	mg/l	--	500	1540	1140	832
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.0010	0.0013	<0.0010
Barium, dissolved	mg/l	1	--	0.079	0.061	0.079
Boron, dissolved	mg/l	5	--	0.067	0.058	0.027
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.00010	<0.00010
Calcium, dissolved	mg/l	--	--	130	110	100
Chromium, dissolved	mg/l	0.05	--	0.0072	<0.0050	<0.0050
Copper, dissolved	mg/l	--	1	0.0011	0.0010	0.0021
Iron, dissolved	mg/l	--	0.3	<0.1	0.13	<0.1
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.00050	<0.00050
Magnesium, dissolved	mg/l	--	--	88	60	48
Manganese, dissolved	mg/l	--	0.05	0.33	0.18	0.093
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	6.2	5.6	3.8
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	380	280	210
Zinc, dissolved	mg/l	--	5	<0.0050	<0.0050	0.011
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00010	<0.00010	<0.00010
Toluene	mg/l	--	0.024	<0.00020	<0.00020	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	<0.0010
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00020	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.00050	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00020	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	12-2-3	12-2-3	12-2-3	12-2-3
		ODWQS(169 /03)-Health	ODWQS- AO	21-Jan-2013 12-02-3	26-Jun-2013 (6) 12-2-3	30-Oct-2013 12-2-3	12-Nov-2013 12-2-3
General Chemistry							
Alkalinity (Total as CaCO3)	mg/l	--	--	590	620	610	--
Ammonia Nitrogen	mg/l	--	--	6.9	7.2	7.1	--
Biologic Oxygen Demand, Five Day	mg/l	--	--	4.0	5.0	8.0	--
Chemical Oxygen Demand	mg/l	--	--	56	67	45	--
Chloride, dissolved	mg/l	--	250	2800	3200	3300	--
Conductivity	uS/cm	--	--	10000	11000	11000	--
Conductivity (Field)	uS/cm	--	--	>3999	>3999	>3999	--
Dissolved Organic Carbon	mg/l	--	5	5.6	6.8	8.0	--
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10	--
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010	--
Nitrogen, Total Kjeldahl	mg/l	--	--	7.4	7.7	7.7	--
pH	-	--	--	8.07	8.25	8.20	--
pH (Field)	-	--	--	7.73	8.19	7.31	--
Phosphorus	mg/l	--	--	0.087	0.059	0.095	--
Sulfate, dissolved	mg/l	--	500 (6)	250	260	230	--
Temperature (Field)	deg c	--	15	3.6	8.9	7.3	--
Total Dissolved Solids	mg/l	--	500	5560	5970	6100	--
Metals							
Arsenic, dissolved	mg/l	0.025	--	<0.0050 (14)	0.0065	<0.005	--
Barium, dissolved	mg/l	1	--	0.09	0.18	0.11	--
Boron, dissolved	mg/l	5	--	1.5	1.7	1.6	--
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.00050	<0.0001	--
Calcium, dissolved	mg/l	--	--	27	34	33	--
Chromium, dissolved	mg/l	0.05	--	<0.025 (14)	<0.025	<0.005	--
Copper, dissolved	mg/l	--	1	<0.0010	<0.0050	<0.001	--
Iron, dissolved	mg/l	--	0.3	<0.1	<0.5	<0.1	--
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.0025	<0.0005	--
Magnesium, dissolved	mg/l	--	--	93	120	110	--
Manganese, dissolved	mg/l	--	0.05	0.018	0.019	0.016	--
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010	--
Potassium, dissolved	mg/l	--	--	50	56	54	--
Sodium, dissolved	mg/l	--	200 (7)	2000	2400	2500	--
Zinc, dissolved	mg/l	--	5	<0.0050	<0.025	<0.005	--
Petroleum Hydrocarbons							
Benzene	mg/l	0.005	--	<0.00010	<0.00010	--	<0.00010
Toluene	mg/l	--	0.024	<0.00020	<0.00020	--	0.00032
Phenols							
Phenolics, Total Recoverable	mg/l	--	--	0.0058 (15)	0.0052	0.010	--
VOCs							
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00020	--	<0.00020
Methane	l/m3	--	3	0.46	1.2	0.81	--
Methane	mg/l	--	3 (8)	0.30	0.79	0.53	--
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.00050	--	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00020	--	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	12-2-5B	12-2-5B	12-2-5B	12-2-5B
		ODWQS(169/03)-	ODWQS-AO	21-Jan-2013	26-Jun-2013 ⁽¹⁶⁾	30-Oct-2013	12-Nov-2013
				12-02-5B	12-2-5B	12-2-5B	12-2-5B
General Chemistry							
Alkalinity (Total as CaCO3)	mg/l	--	--	200	470	490	--
Ammonia Nitrogen	mg/l	--	--	2.3	2.0	2.3	--
Biologic Oxygen Demand, Five Day	mg/l	--	--	68	<2.0	2.0	--
Chemical Oxygen Demand	mg/l	--	--	740	260	380	--
Chloride, dissolved	mg/l	--	250	350	880	960	--
Conductivity	uS/cm	--	--	1700	3600	3900	--
Conductivity (Field)	uS/cm	--	--	1507	3548	3332	--
Dissolved Organic Carbon	mg/l	--	5	45	4.9	5.2	--
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10	--
Nitrite as N	mg/l	1	--	0.056	<0.010	<0.010	--
Nitrogen, Total Kjeldahl	mg/l	--	--	19	11	9.7	--
pH	-	--	--	8.36	8.30	8.26	--
pH (Field)	-	--	--	7.37	8.26	7.18	--
Phosphorus	mg/l	--	--	78	29	110	--
Sulfate, dissolved	mg/l	--	500 ⁽⁸⁾	32	7	8	--
Temperature (Field)	deg c	--	15	5.0	10.2	7.7	--
Total Dissolved Solids	mg/l	--	500	958	1840	2000	--
Metals							
Arsenic, dissolved	mg/l	0.025	--	0.0021	0.0068	0.007	--
Barium, dissolved	mg/l	1	--	0.044	0.1	0.11	--
Boron, dissolved	mg/l	5	--	0.13	0.21	0.2	--
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.00010	<0.0001	--
Calcium, dissolved	mg/l	--	--	19	40	36	--
Chromium, dissolved	mg/l	0.05	--	<0.0050	<0.0050	<0.005	--
Copper, dissolved	mg/l	--	1	<0.0010	<0.0010	<0.001	--
Iron, dissolved	mg/l	--	0.3	<0.1	0.18	0.19	--
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.00050	<0.0005	--
Magnesium, dissolved	mg/l	--	--	12	55	54	--
Manganese, dissolved	mg/l	--	0.05	0.044	0.13	0.13	--
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010	--
Potassium, dissolved	mg/l	--	--	5.2	12	11	--
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	350	660	750	--
Zinc, dissolved	mg/l	--	5	<0.0050	<0.0050	<0.005	--
Petroleum Hydrocarbons							
Benzene	mg/l	0.005	--	0.00061	<0.00020	--	<0.00010
Toluene	mg/l	--	0.024	0.00035	<0.00040	--	<0.00020
Phenols							
Phenolics, Total Recoverable	mg/l	--	--	0.0020 ⁽¹⁵⁾	<0.0010	<0.0010	--
VOCs							
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00040	--	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.0010	--	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00040	--	<0.00020

TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE

Parameter	Unit	(2) (1)	(4) (3)	12-2-6	12-2-6	12-2-6	12-2-6
		ODWQS(169/03)-Health	ODWQS-AO	21-Jan-2013	26-Jun-2013	30-Oct-2013	12-Nov-2013
General Chemistry							
Alkalinity (Total as CaCO3)	mg/l	--	--	390	330	340	--
Ammonia Nitrogen	mg/l	--	--	0.37	0.33	0.077	--
Biologic Oxygen Demand, Five Day	mg/l	--	--	5.0	<2.0	<2.0	--
Chemical Oxygen Demand	mg/l	--	--	140	120	18	--
Chloride, dissolved	mg/l	--	250	71	43	40	--
Conductivity	uS/cm	--	--	1000	820	820	--
Conductivity (Field)	uS/cm	--	--	920	825	800	--
Dissolved Organic Carbon	mg/l	--	5	5.7	4.0	3.5	--
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10	--
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010	--
Nitrogen, Total Kjeldahl	mg/l	--	--	4.0	4.5	1.7	--
pH	-	--	--	7.57	7.84	7.78	--
pH (Field)	-	--	--	7.72	7.85	7.03	--
Phosphorus	mg/l	--	--	25	26	1.8	--
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	55	34	42	--
Temperature (Field)	deg c	--	15	3.4	13.4	7.1	--
Total Dissolved Solids	mg/l	--	500	570	490	468	--
Metals							
Arsenic, dissolved	mg/l	0.025	--	<0.0010	<0.0010	<0.001	--
Barium, dissolved	mg/l	1	--	0.058	0.07	0.068	--
Boron, dissolved	mg/l	5	--	0.042	0.03	0.013	--
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.00010	<0.0001	--
Calcium, dissolved	mg/l	--	--	76	66	63	--
Chromium, dissolved	mg/l	0.05	--	<0.0050	<0.0050	<0.005	--
Copper, dissolved	mg/l	--	1	<0.0010	0.0027	0.003	--
Iron, dissolved	mg/l	--	0.3	<0.1	<0.1	<0.1	--
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.00050	<0.0005	--
Magnesium, dissolved	mg/l	--	--	35	27	28	--
Manganese, dissolved	mg/l	--	0.05	0.25	0.19	0.008	--
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010	--
Potassium, dissolved	mg/l	--	--	4.7	5	5.1	--
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	87	66	81	--
Zinc, dissolved	mg/l	--	5	<0.0050	<0.0050	0.007	--
Petroleum Hydrocarbons							
Benzene	mg/l	0.005	--	<0.00010	<0.00010	--	<0.00010
Toluene	mg/l	--	0.024	<0.00020	<0.00020	--	<0.00020
Phenols							
Phenolics, Total Recoverable	mg/l	--	--	0.0018 ⁽¹⁵⁾	<0.0010	<0.0010	--
VOCs							
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00020	--	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.00050	--	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00020	--	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1) ODWQS(169/ 03)-Health	(4) (3) ODWQS- AO	12-3-3	12-3-3	12-3-3
				11-Jan-2013 ⁽¹⁷⁾	19-Jun-2013 ⁽¹⁶⁾	05-Nov-2013 ⁽⁹⁾
				B-1	12-3-3	12-3-3
General Chemistry						
Alkalinity (Total as CaCO ₃)	mg/l	--	--	680	660	690
Ammonia Nitrogen	mg/l	--	--	9.7	8.6	9.1
Biologic Oxygen Demand, Five Day	mg/l	--	--	<40	12	12
Chemical Oxygen Demand	mg/l	--	--	100	75	92
Chloride, dissolved	mg/l	--	250	6000	6700	6400
Conductivity	uS/cm	--	--	21000	19000	20000
Conductivity (Field)	uS/cm	--	--	>3999	>3999	>3999
Dissolved Organic Carbon	mg/l	--	5	8.1	11	9.0
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	9.8	9.3	9.3
pH	-	--	--	8.03	8.12	7.93
pH (Field)	-	--	--	7.88	7.84	7.76
Phosphorus	mg/l	--	--	0.23	0.096	0.064
Sulfate, dissolved	mg/l	--	500 ⁽⁸⁾	4	1	<1
Temperature (Field)	deg c	--	15	6.9	8.6	9.3
Total Dissolved Solids	mg/l	--	500	11600	11200	10900
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.01	<0.01	0.012
Barium, dissolved	mg/l	1	--	17	15	17
Boron, dissolved	mg/l	5	--	1.7	1.6	1.7
Cadmium, dissolved	mg/l	0.005	--	<0.0010	<0.0010	<0.0010
Calcium, dissolved	mg/l	--	--	62	60	56
Chromium, dissolved	mg/l	0.05	--	<0.05	<0.05	<0.05
Copper, dissolved	mg/l	--	1	<0.01	<0.01	<0.01
Iron, dissolved	mg/l	--	0.3	<1	<1	<1
Lead, dissolved	mg/l	0.01	--	<0.0050	<0.0050	<0.0050
Magnesium, dissolved	mg/l	--	--	240	220	230
Manganese, dissolved	mg/l	--	0.05	0.031	0.097	0.036
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	81	75	81
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	4300	4000	4300
Zinc, dissolved	mg/l	--	5	<0.05	<0.05	<0.05
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	0.00072	<0.00025	<0.00010
Toluene	mg/l	--	0.024	0.00027	<0.00050	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	<0.0050 ⁽¹⁹⁾
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00050	<0.00020
Methane	l/m3	--	3	39	61	51
Methane	mg/l	--	3 ⁽⁹⁾	--	40	33
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.0013	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00050	<0.00020

TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE

Parameter	Unit	(2) (1)	(4) (3)	12-3-4A	12-3-4A	12-3-4A
		ODWQS(169/03)-Health	ODWQS-AO	11-Jan-2013 (5)	19-Jun-2013 (16)	05-Nov-2013 (8)
				B-2	12-3-4A	12-3-4A
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	620	670	640
Ammonia Nitrogen	mg/l	--	--	8.7 ⁽¹¹⁾	8.4	7.9 ⁽¹¹⁾
Biologic Oxygen Demand, Five Day	mg/l	--	--	8.0	6.0	31
Chemical Oxygen Demand	mg/l	--	--	85	75	100
Chloride, dissolved	mg/l	--	250	6100	6700	6300
Conductivity	uS/cm	--	--	19000	19000	19000
Conductivity (Field)	uS/cm	--	--	>3999	>3999	>3999
Dissolved Organic Carbon	mg/l	--	5	9.4	11	14
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	8.3 ⁽¹¹⁾	9.2	7.6 ⁽¹¹⁾
pH	-	--	--	8.07	8.16	7.97
pH (Field)	-	--	--	8.12	8.12	8.04
Phosphorus	mg/l	--	--	0.37	0.14	0.96
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	18	2	3
Temperature (Field)	deg c	--	15	6.8	8.9	8.6
Total Dissolved Solids	mg/l	--	500	10400	12100	9990
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.01	<0.01	0.012
Barium, dissolved	mg/l	1	--	14	14	14
Boron, dissolved	mg/l	5	--	1.5	1.7	1.6
Cadmium, dissolved	mg/l	0.005	--	<0.0010	<0.0010	<0.0010
Calcium, dissolved	mg/l	--	--	57	56	46
Chromium, dissolved	mg/l	0.05	--	<0.05	<0.05	<0.05
Copper, dissolved	mg/l	--	1	<0.01	<0.01	<0.01
Iron, dissolved	mg/l	--	0.3	<1	<1	<1
Lead, dissolved	mg/l	0.01	--	<0.0050	<0.0050	0.016
Magnesium, dissolved	mg/l	--	--	210	220	200
Manganese, dissolved	mg/l	--	0.05	0.05	0.13	0.12
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	74	74	72
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	4000	4100	3900
Zinc, dissolved	mg/l	--	5	<0.05	<0.05	<0.05
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00025	<0.00025	<0.00010
Toluene	mg/l	--	0.024	<0.00050	<0.00050	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	0.0013	0.0061
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00050	<0.00050	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.0013	<0.0013	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00050	<0.00050	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	12-3-5B	12-3-5B	12-3-5B	12-3-5B
		ODWQS(169/ 03)-Health	ODWQS- AO	11-Jan-2013	19-Jun-2013	30-Oct-2013	12-Nov-2013
				B-3	12-3-5B	12-3-5B	12-3-5B
General Chemistry							
Alkalinity (Total as CaCO3)	mg/l	--	--	340	340	410	--
Ammonia Nitrogen	mg/l	--	--	1.7	1.4	1.5	--
Biologic Oxygen Demand, Five Day	mg/l	--	--	20	3.0	<2.0	--
Chemical Oxygen Demand	mg/l	--	--	380	180	350	--
Chloride, dissolved	mg/l	--	250	900	630	540	--
Conductivity	uS/cm	--	--	3900	2900	2600	--
Conductivity (Field)	uS/cm	--	--	3364	3108	2395	--
Dissolved Organic Carbon	mg/l	--	5	21	12	11	--
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10	--
Nitrite as N	mg/l	1	--	<0.010	<0.010	0.012	--
Nitrogen, Total Kjeldahl	mg/l	--	--	14	9.7	10	--
pH	-	--	--	8.16	8.29	8.21	--
pH (Field)	-	--	--	7.71	7.67	7.17	--
Phosphorus	mg/l	--	--	48	22	25	--
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	130	87	75	--
Temperature (Field)	deg c	--	15	6.8	12.4	9.8	--
Total Dissolved Solids	mg/l	--	500	2170	1660	1460	--
Metals							
Arsenic, dissolved	mg/l	0.025	--	0.0021 ⁽¹⁴⁾	0.0038	0.002	--
Barium, dissolved	mg/l	1	--	0.2	0.15	0.15	--
Boron, dissolved	mg/l	5	--	0.18	0.17	0.15	--
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.00010	<0.0001	--
Calcium, dissolved	mg/l	--	--	120	82	68	--
Chromium, dissolved	mg/l	0.05	--	<0.01 ⁽¹⁴⁾	<0.0050	<0.005	--
Copper, dissolved	mg/l	--	1	<0.0010	<0.0010	<0.001	--
Iron, dissolved	mg/l	--	0.3	<0.1	<0.1	<0.1	--
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.00050	<0.0005	--
Magnesium, dissolved	mg/l	--	--	34	33	32	--
Manganese, dissolved	mg/l	--	0.05	1.4	1.3	0.99	--
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010	--
Potassium, dissolved	mg/l	--	--	12	11	10	--
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	690	520	470	--
Zinc, dissolved	mg/l	--	5	<0.0050	<0.0050	<0.005	--
Petroleum Hydrocarbons							
Benzene	mg/l	0.005	--	0.0043	0.0016	--	0.00035
Toluene	mg/l	--	0.024	0.0011	0.00043	--	<0.00020
Xylenes, Total	mg/l	--	0.3	--	--	--	0.00011
Phenols							
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	<0.0010	--
VOCs							
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00050	<0.00020	--	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.0013	<0.00050	--	<0.00050
Vinyl Chloride	mg/l	0.002	--	0.0013	0.00028	--	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1) ODWQS(169/0 3)-Health	(4) (3) ODWQS- AO	12-3-6	12-3-6	12-3-6	12-3-6
				11-Jan-2013 B-4	19-Jun-2013 12-3-6	30-Oct-2013 12-3-6	12-Nov-2013 12-3-6
General Chemistry							
Alkalinity (Total as CaCO3)	mg/l	--	--	320	270	320	--
Ammonia Nitrogen	mg/l	--	--	0.22	0.16	0.068	--
Biologic Oxygen Demand, Five Day	mg/l	--	--	<2.0	<2.0	<2.0	--
Chemical Oxygen Demand	mg/l	--	--	26	13	24	--
Chloride, dissolved	mg/l	--	250	950	880	950	--
Conductivity	uS/cm	--	--	3900	3600	3600	--
Conductivity (Field)	uS/cm	--	--	3108	2996	3280	--
Dissolved Organic Carbon	mg/l	--	5	4.5	4.0	3.8	--
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10	--
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010	--
Nitrogen, Total Kjeldahl	mg/l	--	--	1.9	1.3	0.73	--
pH	-	--	--	7.54	7.85	7.72	--
pH (Field)	-	--	--	7.81	7.84	7.10	--
Phosphorus	mg/l	--	--	6.3	1.9	1.9	--
Sulfate, dissolved	mg/l	--	500 (6)	83	83	77	--
Temperature (Field)	deg c	--	15	3.5	12.6	10.6	--
Total Dissolved Solids	mg/l	--	500	2270	2320	2200	--
Metals							
Arsenic, dissolved	mg/l	0.025	--	<0.0020 (14)	<0.0010	<0.005	--
Barium, dissolved	mg/l	1	--	0.36	0.21	0.2	--
Boron, dissolved	mg/l	5	--	0.017	0.023	<0.01	--
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.00010	<0.0001	--
Calcium, dissolved	mg/l	--	--	240	180	200	--
Chromium, dissolved	mg/l	0.05	--	0.011 (14)	<0.0050	<0.005	--
Copper, dissolved	mg/l	--	1	0.0016	0.0015	0.002	--
Iron, dissolved	mg/l	--	0.3	<0.1	<0.1	<0.1	--
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.00050	<0.0005	--
Magnesium, dissolved	mg/l	--	--	56	38	44	--
Manganese, dissolved	mg/l	--	0.05	0.51	0.39	0.48	--
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010	--
Potassium, dissolved	mg/l	--	--	6	6.6	7	--
Sodium, dissolved	mg/l	--	200 (7)	530	530	540	--
Zinc, dissolved	mg/l	--	5	<0.0050	<0.0050	0.006	--
Petroleum Hydrocarbons							
Benzene	mg/l	0.005	--	<0.00010	<0.00010	--	<0.00010
Ethylbenzene	mg/l	--	0.0024	--	--	--	<0.00010
m,p-Xylenes	mg/l	--	--	--	--	--	<0.00010
o-Xylene	mg/l	--	--	--	--	--	<0.00010
Toluene	mg/l	--	0.024	<0.00020	<0.00020	--	<0.00020
Xylenes, Total	mg/l	--	0.3	--	--	--	<0.00010
Phenols							
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	<0.0010	--
Semi-VOCs							
4-Methyl-2-pentanone	mg/l	--	--	--	--	--	<0.0050
Styrene	mg/l	--	--	--	--	--	<0.00020
VOCs							
1,1,1,2-Tetrachloroethane	mg/l	--	--	--	--	--	<0.00020
1,1,1-Trichloroethane	mg/l	--	--	--	--	--	<0.00010
1,1,2,2-Tetrachloroethane	mg/l	--	--	--	--	--	<0.00020
1,1,2-Trichloroethane	mg/l	--	--	--	--	--	<0.00020
1,1-Dichloroethane	mg/l	--	--	--	--	--	<0.00010
1,1-Dichloroethylene	mg/l	0.014	--	--	--	--	<0.00010
1,2-Dibromoethane	mg/l	--	--	--	--	--	<0.00020
1,2-Dichlorobenzene	mg/l	0.2	0.003	--	--	--	<0.00020
1,2-Dichloroethane	mg/l	0.005	--	--	--	--	<0.00020
1,2-Dichloropropane	mg/l	--	--	--	--	--	<0.00010
1,3-Dichlorobenzene	mg/l	--	--	--	--	--	<0.00020
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00020	--	<0.00020
Methyl Ethyl Ketone	mg/l	--	--	--	--	--	<0.0050
Acetone	mg/l	--	--	--	--	--	<0.01
Bromodichloromethane	mg/l	--	--	--	--	--	<0.00010
Bromoform	mg/l	--	--	--	--	--	<0.00020
Bromomethane	mg/l	--	--	--	--	--	<0.00050
Carbon Tetrachloride	mg/l	0.005	--	--	--	--	<0.00010
Chlorobenzene	mg/l	0.08	0.03	--	--	--	<0.00010
Chloroform	mg/l	--	--	--	--	--	<0.00010
cis-1,2-Dichloroethene	mg/l	--	--	--	--	--	<0.00010
cis-1,3-Dichloropropene	mg/l	--	--	--	--	--	<0.00020
Dibromochloromethane	mg/l	--	--	--	--	--	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1) ODWQS(169/0 3)-Health	(4) (3) ODWQS- AO	12-3-6	12-3-6	12-3-6	12-3-6
				11-Jan-2013	19-Jun-2013	30-Oct-2013	12-Nov-2013
				B-4	12-3-6	12-3-6	12-3-6
Dichlorodifluoromethane	mg/l	--	--	--	--	--	<0.00050
Methyl tert-Butyl Ether	mg/l	--	--	--	--	--	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.00050	--	<0.00050
n-Hexane	mg/l	--	--	--	--	--	<0.00050
Tetrachloroethylene	mg/l	0.03	--	--	--	--	<0.00010
trans-1,2-Dichloroethene	mg/l	--	--	--	--	--	<0.00010
trans-1,3-Dichloropropene	mg/l	--	--	--	--	--	<0.00020
Trichloroethene	mg/l	0.005	--	--	--	--	<0.00010
Trichlorofluoromethane	mg/l	--	--	--	--	--	<0.00020
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00020	--	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	12-4-3	12-4-3	12-4-3
		ODWQS(169 /03)-Health	ODWQS- AO	03-Apr-2013 (20) BH12-04-3	04-Jul-2013 (21) 12-4-3	13-Nov-2013 (22) 12-4-3
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	220	65	55
Ammonia Nitrogen	mg/l	--	--	28	23 ⁽¹¹⁾	21
Biologic Oxygen Demand, Five Day	mg/l	--	--	34	14	19
Chemical Oxygen Demand	mg/l	--	--	210	150	210
Chloride, dissolved	mg/l	--	250	7200	9600	10000
Conductivity	uS/cm	--	--	23000	27000	30000
Conductivity (Field)	uS/cm	--	--	>3999	>3999	>3999
Dissolved Organic Carbon	mg/l	--	5	47	15	19
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.050	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	28	23 ⁽¹¹⁾	24
pH	-	--	--	11.1	9.51	9.17
pH (Field)	-	--	--	7.69	8.01	10.85
Phosphorus	mg/l	--	--	0.59	1.7	0.27
Sulfate, dissolved	mg/l	--	500 ⁽⁸⁾	32	23	9
Temperature (Field)	deg c	--	15	6.2	8.2	8.1
Total Dissolved Solids	mg/l	--	500	13600	17700	18400
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.01	<0.02	<0.02
Barium, dissolved	mg/l	1	--	16	12	20
Boron, dissolved	mg/l	5	--	0.29	0.32	0.46
Cadmium, dissolved	mg/l	0.005	--	<0.0010	<0.0010	<0.0020
Calcium, dissolved	mg/l	--	--	910	1100	1100
Chromium, dissolved	mg/l	0.05	--	<0.05	<0.05	<0.1
Copper, dissolved	mg/l	--	1	<0.01	<0.01	<0.02
Iron, dissolved	mg/l	--	0.3	<1	<1	<2
Lead, dissolved	mg/l	0.01	--	<0.0050	<0.0050	<0.01
Magnesium, dissolved	mg/l	--	--	2.2	86	200
Manganese, dissolved	mg/l	--	0.05	<0.02	<0.02	<0.04
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	110	100	89
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	4000	5300	5400
Zinc, dissolved	mg/l	--	5	<0.05	<0.05	<0.1
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.0050	<0.00020	<0.0020
Toluene	mg/l	--	0.024	<0.01	0.00047	<0.0040
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	0.0086 ⁽¹⁹⁾	<0.0010	0.0052
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.01	<0.00040	<0.0040
Methane	l/m3	--	3	16	39	24
Methane	mg/l	--	3 ⁽⁶⁾	10	25	16
Methylene Chloride	mg/l	0.05	--	<0.025	<0.0010	<0.01
Vinyl Chloride	mg/l	0.002	--	<0.01	<0.00040	<0.0040

TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE

Parameter	Unit	(2) (1)	(4) (3)	12-4-4A	12-4-4A	12-4-4A
		ODWQS(169/ 03)-Health	ODWQS- AO	03-Apr-2013 ⁽⁹⁾ BH12-04-4A	04-Jul-2013 ⁽²³⁾ 12-4-4B	13-Nov-2013 ⁽²³⁾ 12-4-4A
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	630	670	710
Ammonia Nitrogen	mg/l	--	--	6.5	6.7	6.6
Biologic Oxygen Demand, Five Day	mg/l	--	--	3.0	2.0	<2.0
Chemical Oxygen Demand	mg/l	--	--	72	62	71
Chloride, dissolved	mg/l	--	250	3800	4100	4100
Conductivity	uS/cm	--	--	12000	13000	14000
Conductivity (Field)	uS/cm	--	--	136	3168	2289
Dissolved Organic Carbon	mg/l	--	5	7.7	8.5	8.5
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	6.8	7.3	7.4
pH	-	--	--	8.18	8.13	8.21
pH (Field)	-	--	--	8.03	7.81	8.11
Phosphorus	mg/l	--	--	0.11	1.3	0.058
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	11	10	9
Temperature (Field)	deg c	--	15	4.5	9.3	7.1
Total Dissolved Solids	mg/l	--	500	6350	6860	7560
Metals						
Arsenic, dissolved	mg/l	0.025	--	0.0054	<0.0050	<0.01
Barium, dissolved	mg/l	1	--	4	4.5	4.8
Boron, dissolved	mg/l	5	--	1.4	1.5	1.5
Cadmium, dissolved	mg/l	0.005	--	<0.00050	<0.00050	<0.0010
Calcium, dissolved	mg/l	--	--	24	21	23
Chromium, dissolved	mg/l	0.05	--	<0.025	<0.025	<0.05
Copper, dissolved	mg/l	--	1	<0.0050	<0.0050	<0.01
Iron, dissolved	mg/l	--	0.3	<0.5	<0.5	<1
Lead, dissolved	mg/l	0.01	--	<0.0025	<0.0025	<0.0050
Magnesium, dissolved	mg/l	--	--	97	110	120
Manganese, dissolved	mg/l	--	0.05	0.068	0.032	0.035
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	50	53	53
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	2600	2900	2800
Zinc, dissolved	mg/l	--	5	<0.025	<0.025	<0.05
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	0.00014	<0.00020	<0.00010
Toluene	mg/l	--	0.024	0.0029	<0.00040	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	<0.0020 ⁽¹⁹⁾
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00040	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.0010	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00040	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1) ODWQS(169/ 03)-Health	(4) (3) ODWQS- AO	12-4-5B	12-4-5B	12-4-5B
				03-Apr-2013 BH12-04-5B	04-Jul-2013 12-4-5B	13-Nov-2013 (24) 12-4-5B
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	580	620	630
Ammonia Nitrogen	mg/l	--	--	1.4	1.3	1.2
Biologic Oxygen Demand, Five Day	mg/l	--	--	3.0	<2.0	2.0
Chemical Oxygen Demand	mg/l	--	--	66	30	73
Chloride, dissolved	mg/l	--	250	620	640	660
Conductivity	uS/cm	--	--	3100	3100	3200
Conductivity (Field)	uS/cm	--	--	2562	3314	3159
Dissolved Organic Carbon	mg/l	--	5	6.6	6.0	7.2
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.50
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.050
Nitrogen, Total Kjeldahl	mg/l	--	--	3.5	2.8	4.5
pH	-	--	--	8.01	8.00	7.91
pH (Field)	-	--	--	7.71	7.66	8.01
Phosphorus	mg/l	--	--	13	22	19
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	36	13	14
Temperature (Field)	deg c	--	15	6.2	12.1	8.2
Total Dissolved Solids	mg/l	--	500	1630	1650	1730
Metals						
Arsenic, dissolved	mg/l	0.025	--	0.0037	0.0012	0.0014
Barium, dissolved	mg/l	1	--	0.16	0.12	0.13
Boron, dissolved	mg/l	5	--	0.21	0.22	0.21
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.00010	<0.00010
Calcium, dissolved	mg/l	--	--	80	69	66
Chromium, dissolved	mg/l	0.05	--	0.02	<0.0050	<0.0050
Copper, dissolved	mg/l	--	1	<0.0010	<0.0010	0.0014
Iron, dissolved	mg/l	--	0.3	0.19	0.28	<0.1
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.00050	<0.00050
Magnesium, dissolved	mg/l	--	--	74	81	80
Manganese, dissolved	mg/l	--	0.05	0.79	0.31	0.24
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	13	13	13
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	510	530	510
Zinc, dissolved	mg/l	--	5	<0.0050	<0.0050	<0.0050
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00010	<0.00020	<0.00010
Toluene	mg/l	--	0.024	0.0022	<0.00040	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	<0.0010
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00040	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.0010	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00040	<0.00020

TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE

Parameter	Unit	(2) (1)	(4) (3)	12-4-6	12-4-6	12-4-6
		ODWQS(169/03)-Health	ODWQS-AO	24-Apr-2013 (25) 12-04-6	04-Jul-2013 12-4-6	13-Nov-2013 12-4-6
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	220	340	390
Ammonia Nitrogen	mg/l	--	--	0.21	0.27	0.050
Biologic Oxygen Demand, Five Day	mg/l	--	--	43	<2.0	<2.0
Chemical Oxygen Demand	mg/l	--	--	270	100	140
Chloride, dissolved	mg/l	--	250	36	81	120
Conductivity	uS/cm	--	--	770	1100	1300
Conductivity (Field)	uS/cm	--	--	694	3212	1594
Dissolved Organic Carbon	mg/l	--	5	32	12	15
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	6.8	3.9	7.5
pH	-	--	--	7.60	7.55	7.74
pH (Field)	-	--	--	7.00	7.84	7.25
Phosphorus	mg/l	--	--	3.5	3.2	3.3
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	120	150	130
Temperature (Field)	deg c	--	15	8.7	14.1	6.2
Total Dissolved Solids	mg/l	--	500	466	684	808
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.0010	0.0011	<0.0010
Barium, dissolved	mg/l	1	--	0.078	0.11	0.14
Boron, dissolved	mg/l	5	--	0.044	0.054	0.03
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.00010	<0.00010
Calcium, dissolved	mg/l	--	--	73	100	97
Chromium, dissolved	mg/l	0.05	--	<0.0050	<0.0050	<0.0050
Copper, dissolved	mg/l	--	1	0.0031	0.0016	0.0036
Iron, dissolved	mg/l	--	0.3	0.16	<0.1	<0.1
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.00050	<0.00050
Magnesium, dissolved	mg/l	--	--	24	37	37
Manganese, dissolved	mg/l	--	0.05	0.86	0.88	0.49
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	3	4.3	5.1
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	59	100	140
Zinc, dissolved	mg/l	--	5	0.0059	<0.0050	<0.0050
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00050	<0.00020	<0.00010
Toluene	mg/l	--	0.024	0.0011	<0.00040	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	0.0042	<0.0010	<0.0010
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.0010	<0.00040	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.0025	<0.0010	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.0010	<0.00040	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1) ODWQS(169/0 3)-Health	(4) (3) ODWQS- AO	13-5-3	13-5-3	13-5-3
				05-Jul-2013 BH13-5-3	15-Jul-2013 13-5-3	13-Nov-2013 (22) 13-5-3
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	710	--	770
Ammonia Nitrogen	mg/l	--	--	5.8	--	5.7
Biologic Oxygen Demand, Five Day	mg/l	--	--	--	<2.0	12
Chemical Oxygen Demand	mg/l	--	--	67	--	65
Chloride, dissolved	mg/l	--	250	3700	--	3700
Conductivity	uS/cm	--	--	11000	--	12000
Conductivity (Field)	uS/cm	--	--	>3999	--	1376
Dissolved Organic Carbon	mg/l	--	5	7.0	--	7.9
Nitrate as N	mg/l	10	--	<0.10	--	<0.10
Nitrite as N	mg/l	1	--	<0.010	--	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	8.1	--	8.1
pH	-	--	--	--	8.11	8.28
pH (Field)	-	--	--	7.84	--	8.18
Phosphorus	mg/l	--	--	0.068	--	0.14
Sulfate, dissolved	mg/l	--	500 (6)	22	--	10
Temperature (Field)	deg c	--	15	8.4	--	7.5
Total Dissolved Solids	mg/l	--	500	6270	--	6790
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.005	--	<0.0050
Barium, dissolved	mg/l	1	--	14	--	14
Boron, dissolved	mg/l	5	--	1.6	--	1.5
Cadmium, dissolved	mg/l	0.005	--	<0.0001	--	<0.00050
Calcium, dissolved	mg/l	--	--	16	--	24
Chromium, dissolved	mg/l	0.05	--	<0.005	--	<0.025
Copper, dissolved	mg/l	--	1	<0.001	--	<0.0050
Iron, dissolved	mg/l	--	0.3	<0.1	--	<0.5
Lead, dissolved	mg/l	0.01	--	<0.0005	--	<0.0025
Magnesium, dissolved	mg/l	--	--	84	--	95
Manganese, dissolved	mg/l	--	0.05	0.006	--	0.014
Mercury, dissolved	mg/l	0.001	--	<0.00010	--	<0.00010
Potassium, dissolved	mg/l	--	--	52	--	56
Sodium, dissolved	mg/l	--	200 (7)	2500	--	2600
Zinc, dissolved	mg/l	--	5	<0.005	--	<0.025
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00010	--	<0.00025
Toluene	mg/l	--	0.024	<0.00020	--	<0.00050
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	0.042	--	0.016
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	--	<0.00050
Methane	l/m3	--	3	15	--	36
Methane	mg/l	--	3 (8)	9.8	--	24
Methylene Chloride	mg/l	0.05	--	<0.00050	--	<0.0013
Vinyl Chloride	mg/l	0.002	--	<0.00020	--	<0.00050

TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE

Parameter	Unit	(2) (1)	(4) (3)	13-5-4A	13-5-4A	13-5-4A
		ODWQS(169/03)-Health	ODWQS-AO	09-Apr-2013 13-05-4A	09-Jul-2013 13-5-4A	13-Nov-2013 (22) 13-5-4A
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	850	860	950
Ammonia Nitrogen	mg/l	--	--	3.0	2.7	2.7
Biologic Oxygen Demand, Five Day	mg/l	--	--	6.0	7.0	18
Chemical Oxygen Demand	mg/l	--	--	210	180	180
Chloride, dissolved	mg/l	--	250	2300	2300	1900
Conductivity	uS/cm	--	--	8200	8100	7600
Conductivity (Field)	uS/cm	--	--	>3999	2894	>3999
Dissolved Organic Carbon	mg/l	--	5	14	15	25
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	8.1	5.2	8.0
pH	-	--	--	8.36	8.32	8.37
pH (Field)	-	--	--	8.05	7.84	8.59
Phosphorus	mg/l	--	--	9.8	11	18
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	36	5	1
Temperature (Field)	deg c	--	15	9.0	8.6	7.4
Total Dissolved Solids	mg/l	--	500	4620	4540	4290
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.0050	<0.0050	<0.0050
Barium, dissolved	mg/l	1	--	3	3.1	2.2
Boron, dissolved	mg/l	5	--	0.91	0.95	0.87
Cadmium, dissolved	mg/l	0.005	--	<0.00050	<0.00010	<0.00050
Calcium, dissolved	mg/l	--	--	21	17	21
Chromium, dissolved	mg/l	0.05	--	<0.025	<0.0050	<0.025
Copper, dissolved	mg/l	--	1	<0.0050	<0.0010	<0.0050
Iron, dissolved	mg/l	--	0.3	<0.5	<0.1	0.67
Lead, dissolved	mg/l	0.01	--	<0.0025	<0.00050	<0.0025
Magnesium, dissolved	mg/l	--	--	57	62	55
Manganese, dissolved	mg/l	--	0.05	0.053	0.043	0.1
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	39	39	33
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	1800	1900	1600
Zinc, dissolved	mg/l	--	5	<0.025	<0.0050	<0.025
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.0010	<0.00010	<0.00020
Toluene	mg/l	--	0.024	<0.0020	<0.00020	<0.00040
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	<0.0010
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.0020	<0.00020	<0.00040
Methane	l/m3	--	3	--	79	--
Methane	mg/l	--	3 ⁽⁸⁾	--	52	--
Methylene Chloride	mg/l	0.05	--	<0.0050	<0.00050	<0.0010
Vinyl Chloride	mg/l	0.002	--	<0.0020	<0.00020	<0.00040

TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE

Parameter	Unit	(2) (1)	(4) (3)	13-5-5	13-5-5	13-5-5	13-5-5
		ODWQS(169 /03)-Health	ODWQS- AO	09-Apr-2013 13-05-5	05-Jul-2013 BH13-5-5	15-Jul-2013 13-5-5	13-Nov-2013 13-5-5
General Chemistry							
Alkalinity (Total as CaCO3)	mg/l	--	--	470	480	--	450
Ammonia Nitrogen	mg/l	--	--	1.1	0.98	--	0.69
Biologic Oxygen Demand, Five Day	mg/l	--	--	<2.0	--	<2.0	4.0
Chemical Oxygen Demand	mg/l	--	--	95	94	--	82
Chloride, dissolved	mg/l	--	250	200	220	--	120
Conductivity	uS/cm	--	--	1500	1600	--	1300
Conductivity (Field)	uS/cm	--	--	1290	3000	--	1325
Dissolved Organic Carbon	mg/l	--	5	4.3	3.7	--	3.4
Nitrate as N	mg/l	10	--	<0.10	<0.10	--	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	--	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	4.6	3.9	--	5.5
pH	-	--	--	8.16	--	8.01	8.11
pH (Field)	-	--	--	7.73	7.91	--	8.08
Phosphorus	mg/l	--	--	62	18	--	29
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	11	5	--	35
Temperature (Field)	deg c	--	15	8.9	11.6	--	7.9
Total Dissolved Solids	mg/l	--	500	834	892	--	744
Metals							
Arsenic, dissolved	mg/l	0.025	--	0.0054	0.002	--	0.0015
Barium, dissolved	mg/l	1	--	0.1	0.072	--	0.065
Boron, dissolved	mg/l	5	--	0.18	0.23	--	0.13
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.0001	--	<0.00010
Calcium, dissolved	mg/l	--	--	52	42	--	46
Chromium, dissolved	mg/l	0.05	--	<0.0050	<0.005	--	<0.0050
Copper, dissolved	mg/l	--	1	<0.0010	<0.001	--	<0.0010
Iron, dissolved	mg/l	--	0.3	<0.1	0.1	--	<0.1
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.0005	--	<0.00050
Magnesium, dissolved	mg/l	--	--	42	37	--	29
Manganese, dissolved	mg/l	--	0.05	0.076	0.088	--	0.13
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	--	<0.00010
Potassium, dissolved	mg/l	--	--	8.9	7.7	--	5.7
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	260	240	--	200
Zinc, dissolved	mg/l	--	5	<0.0050	<0.005	--	<0.0050
Petroleum Hydrocarbons							
Benzene	mg/l	0.005	--	<0.00010	<0.00010	--	<0.00010
Toluene	mg/l	--	0.024	0.00023	<0.00020	--	<0.00020
Phenols							
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	--	<0.0010
VOCs							
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00020	--	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.00050	--	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00020	--	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	13-5-6	13-5-6	13-5-6	13-5-6
		ODWQS(169/ 03)-Health	ODWQS- AO	09-Apr-2013 13-05-6	05-Jul-2013 BH13-5-6	15-Jul-2013 13-5-6	13-Nov-2013 13-5-6
General Chemistry							
Alkalinity (Total as CaCO3)	mg/l	--	--	140	210	--	290
Ammonia Nitrogen	mg/l	--	--	0.13	0.081	--	0.063
Biologic Oxygen Demand, Five Day	mg/l	--	--	<2.0	--	<2.0	<2.0
Chemical Oxygen Demand	mg/l	--	--	26	21	--	26
Chloride, dissolved	mg/l	--	250	30	38	--	36
Conductivity	uS/cm	--	--	460	600	--	710
Conductivity (Field)	uS/cm	--	--	441	2814	--	699
Dissolved Organic Carbon	mg/l	--	5	4.5	2.3	--	1.9
Nitrate as N	mg/l	10	--	5.9	4.6	--	2.8
Nitrite as N	mg/l	1	--	<0.010	<0.010	--	0.042
Nitrogen, Total Kjeldahl	mg/l	--	--	3.3	0.80	--	2.1
pH	-	--	--	7.86	--	7.66	7.76
pH (Field)	-	--	--	7.84	7.91	--	7.43
Phosphorus	mg/l	--	--	25	27	--	11
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	25	30	--	18
Temperature (Field)	deg c	--	15	5.4	13.2	--	5.7
Total Dissolved Solids	mg/l	--	500	150	402	--	382
Metals							
Arsenic, dissolved	mg/l	0.025	--	<0.0010	<0.001	--	<0.0010
Barium, dissolved	mg/l	1	--	0.026	0.065	--	0.083
Boron, dissolved	mg/l	5	--	0.014	0.03	--	0.024
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.0001	--	<0.00010
Calcium, dissolved	mg/l	--	--	52	62	--	77
Chromium, dissolved	mg/l	0.05	--	<0.0050	<0.005	--	<0.0050
Copper, dissolved	mg/l	--	1	0.0013	0.001	--	0.0011
Iron, dissolved	mg/l	--	0.3	<0.1	<0.1	--	<0.1
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.0005	--	<0.00050
Magnesium, dissolved	mg/l	--	--	18	23	--	29
Manganese, dissolved	mg/l	--	0.05	0.0060	0.005	--	0.091
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	--	<0.00010
Potassium, dissolved	mg/l	--	--	2.1	3.6	--	2.7
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	23	29	--	27
Zinc, dissolved	mg/l	--	5	<0.0050	<0.005	--	<0.0050
Petroleum Hydrocarbons							
Benzene	mg/l	0.005	--	<0.00010	<0.00010	--	<0.00010
Toluene	mg/l	--	0.024	<0.00020	<0.00020	--	<0.00020
Phenols							
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	--	<0.0010
VOCs							
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00020	--	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.00050	--	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00020	--	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	13-6-3	13-6-3	13-6-3
		ODWQS(169/ 03)-Health	ODWQS- AO	18-Apr-2013 ⁽²⁾ 13-06-3	03-Jul-2013 13-6-3	05-Nov-2013 ⁽³⁾ 13-6-3
General Chemistry						
Alkalinity (Total as CaCO ₃)	mg/l	--	--	47	69	65
Ammonia Nitrogen	mg/l	--	--	7.8	8.0	7.8
Biologic Oxygen Demand, Five Day	mg/l	--	--	<2.0	2.0	5.0
Chemical Oxygen Demand	mg/l	--	--	130	140	130
Chloride, dissolved	mg/l	--	250	8700	9200	8200
Conductivity	uS/cm	--	--	25000	26000	25000
Conductivity (Field)	uS/cm	--	--	>3999	3964	>3999
Dissolved Organic Carbon	mg/l	--	5	4.2	4.2	5.5
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.10	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	9.9	9.2	7.9
pH	-	--	--	7.92	7.77	7.68
pH (Field)	-	--	--	8.80	7.96	7.63
Phosphorus	mg/l	--	--	0.67	3.0	3.0
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	98	82	98
Temperature (Field)	deg c	--	15	10.1	9.1	9.9
Total Dissolved Solids	mg/l	--	500	15000	19700	14900
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.01	<0.02	<0.01
Barium, dissolved	mg/l	1	--	4.1	15	2.9
Boron, dissolved	mg/l	5	--	0.58	0.67	0.64
Cadmium, dissolved	mg/l	0.005	--	<0.001	<0.00050	<0.0010
Calcium, dissolved	mg/l	--	--	540	750	540
Chromium, dissolved	mg/l	0.05	--	<0.05	<0.025	<0.05
Copper, dissolved	mg/l	--	1	<0.01	<0.0050	<0.01
Iron, dissolved	mg/l	--	0.3	<1	<0.5	<1
Lead, dissolved	mg/l	0.01	--	<0.005	<0.0025	<0.0050
Magnesium, dissolved	mg/l	--	--	270	350	260
Manganese, dissolved	mg/l	--	0.05	0.21	0.44	0.4
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	56	72	57
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	4900	5400	4700
Zinc, dissolved	mg/l	--	5	<0.05	<0.025	<0.05
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00010	<0.0020	<0.00010
Toluene	mg/l	--	0.024	0.00033	<0.0040	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	0.0054
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.0040	<0.00020
Methane	l/m3	--	3	2.5	2.3	3.8
Methane	mg/l	--	3 ⁽⁸⁾	1.7	1.5	2.5
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.01	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.0040	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1) ODWQS(169/03)-Health	(4) (3) ODWQS- AO	13-6-4A	13-6-4A	13-6-4A
				16-Apr-2013 ⁽¹⁵⁾ 13-06-4A	03-Jul-2013 13-6-4A	05-Nov-2013 ⁽⁹⁾ 13-6-4A
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	420	540	540
Ammonia Nitrogen	mg/l	--	--	6.1	7.0	6.3
Biologic Oxygen Demand, Five Day	mg/l	--	--	8.0	4.0	5.0
Chemical Oxygen Demand	mg/l	--	--	100	160	120
Chloride, dissolved	mg/l	--	250	4400	5600	5600
Conductivity	uS/cm	--	--	14000	17000	18000
Conductivity (Field)	uS/cm	--	--	>3999	>3999	>3999
Dissolved Organic Carbon	mg/l	--	5	11	9.7	16
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	9.4	9.8	6.9
pH	-	--	--	9.05	8.14	8.00
pH (Field)	-	--	--	7.75	7.79	8.25
Phosphorus	mg/l	--	--	7.5	6.5	3.6
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	84	50	23
Temperature (Field)	deg c	--	15	9.2	9.4	10.2
Total Dissolved Solids	mg/l	--	500	7700	9900	9920
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.01	<0.01	<0.01
Barium, dissolved	mg/l	1	--	0.46	0.47	1
Boron, dissolved	mg/l	5	--	1.2	1.3	1.4
Cadmium, dissolved	mg/l	0.005	--	<0.00050	<0.00050	<0.00050
Calcium, dissolved	mg/l	--	--	65	52	61
Chromium, dissolved	mg/l	0.05	--	<0.025	<0.025	<0.025
Copper, dissolved	mg/l	--	1	<0.0050	<0.0050	<0.0050
Iron, dissolved	mg/l	--	0.3	<0.5	<0.5	1.4
Lead, dissolved	mg/l	0.01	--	<0.0025	<0.0025	<0.0025
Magnesium, dissolved	mg/l	--	--	160	190	190
Manganese, dissolved	mg/l	--	0.05	0.097	0.099	0.17
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	56	65	60
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	3000	3500	3800
Zinc, dissolved	mg/l	--	5	<0.025	<0.025	0.057
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.0025	<0.00050	<0.00010
Toluene	mg/l	--	0.024	<0.0050	<0.0010	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	0.010	<0.0010	<0.0050 ⁽¹⁹⁾
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.0050	<0.0010	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.013	<0.0025	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.0050	<0.0010	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	13-6-5B	13-6-5B	13-6-5B
		ODWQS(169/ 03)-Health	ODWQS- AO	11-Apr-2013 13-06-5B	03-Jul-2013 13-6-5B	05-Nov-2013 13-6-5B
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	570	610	620
Ammonia Nitrogen	mg/l	--	--	1.7	1.7	1.7
Biologic Oxygen Demand, Five Day	mg/l	--	--	3.0	<2.0	3.0
Chemical Oxygen Demand	mg/l	--	--	22	80	75
Chloride, dissolved	mg/l	--	250	1100	1200	1100
Conductivity	uS/cm	--	--	4200	4500	4600
Conductivity (Field)	uS/cm	--	--	3945	3861	>3999
Dissolved Organic Carbon	mg/l	--	5	7.3	5.4	6.2
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	3.7	4.8	3.0
pH	-	--	--	8.19	8.08	8.02
pH (Field)	-	--	--	8.04	7.82	8.04
Phosphorus	mg/l	--	--	24	25	41
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	9	7	<1
Temperature (Field)	deg c	--	15	5.1	12.2	9.7
Total Dissolved Solids	mg/l	--	500	2280	2510	2420
Metals						
Arsenic, dissolved	mg/l	0.025	--	0.003	0.0033	0.0059
Barium, dissolved	mg/l	1	--	0.19	0.18	0.18
Boron, dissolved	mg/l	5	--	0.26	0.27	0.29
Cadmium, dissolved	mg/l	0.005	--	<0.0001	<0.00010	<0.00010
Calcium, dissolved	mg/l	--	--	55	53	53
Chromium, dissolved	mg/l	0.05	--	<0.005	<0.0050	<0.0050
Copper, dissolved	mg/l	--	1	<0.001	<0.0010	<0.0010
Iron, dissolved	mg/l	--	0.3	<0.1	<0.1	<0.1
Lead, dissolved	mg/l	0.01	--	<0.0005	<0.00050	<0.00050
Magnesium, dissolved	mg/l	--	--	75	87	83
Manganese, dissolved	mg/l	--	0.05	0.18	0.14	0.16
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	15	17	17
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	780	890	900
Zinc, dissolved	mg/l	--	5	0.015	<0.0050	<0.0050
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00010	<0.00025	<0.00010
Toluene	mg/l	--	0.024	0.00051	<0.00050	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	<0.0010
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00050	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.0013	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00050	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	13-6-6	13-6-6	13-6-6
		ODWQS(169/03)-Health	ODWQS-AO	10-Apr-2013 13-06-6	03-Jul-2013 13-6-6	05-Nov-2013 13-6-6
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	280	370	470
Ammonia Nitrogen	mg/l	--	--	0.23	0.18	0.076
Biologic Oxygen Demand, Five Day	mg/l	--	--	<2.0	<2.0	<2.0
Chemical Oxygen Demand	mg/l	--	--	56	51	45
Chloride, dissolved	mg/l	--	250	210	200	190
Conductivity	uS/cm	--	--	1300	1400	1500
Conductivity (Field)	uS/cm	--	--	1249	3049	1572
Dissolved Organic Carbon	mg/l	--	5	2.3	2.0	2.2
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	0.024	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	4.1	4.9	2.6
pH	-	--	--	8.14	7.79	7.71
pH (Field)	-	--	--	7.40	7.94	7.50
Phosphorus	mg/l	--	--	9.5	12	7.4
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	45	42	40
Temperature (Field)	deg c	--	15	5.3	12.6	10.5
Total Dissolved Solids	mg/l	--	500	724	802	760
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.0010	<0.0010	0.0012
Barium, dissolved	mg/l	1	--	0.033	0.047	0.067
Boron, dissolved	mg/l	5	--	0.023	0.05	0.05
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.00010	<0.00010
Calcium, dissolved	mg/l	--	--	75	80	99
Chromium, dissolved	mg/l	0.05	--	<0.0050	<0.0050	<0.0050
Copper, dissolved	mg/l	--	1	0.0014	<0.0010	<0.0010
Iron, dissolved	mg/l	--	0.3	<0.1	<0.1	<0.1
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.00050	<0.00050
Magnesium, dissolved	mg/l	--	--	34	36	44
Manganese, dissolved	mg/l	--	0.05	0.013	0.11	0.076
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	2.9	3.8	4.7
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	140	190	200
Zinc, dissolved	mg/l	--	5	0.011	<0.0050	<0.0050
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00010	<0.00010	<0.00010
Toluene	mg/l	--	0.024	<0.00020	<0.00020	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	<0.0010
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00020	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.00050	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00020	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	13-7-2	13-7-2
		ODWQS(169/ 03)-Health	ODWQS- AO	02-Jul-2013 13-7-2	13-Nov-2013 (6) 13-7-2
General Chemistry					
Alkalinity (Total as CaCO3)	mg/l	--	--	370	390
Ammonia Nitrogen	mg/l	--	--	6.3	6.3
Biologic Oxygen Demand, Five Day	mg/l	--	--	<2.0	5.0
Chemical Oxygen Demand	mg/l	--	--	80	71
Chloride, dissolved	mg/l	--	250	5600	6000
Conductivity	uS/cm	--	--	17000	18000
Conductivity (Field)	uS/cm	--	--	>3999	>3999
Dissolved Organic Carbon	mg/l	--	5	3.7	4.0
Nitrate as N	mg/l	10	--	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	6.7	7.8
pH	-	--	--	7.96	7.90
pH (Field)	-	--	--	7.84	7.99
Phosphorus	mg/l	--	--	0.94	1.2
Sulfate, dissolved	mg/l	--	500 (6)	7	7
Temperature (Field)	deg c	--	15	8.2	8.1
Total Dissolved Solids	mg/l	--	500	10800	10100
Metals					
Arsenic, dissolved	mg/l	0.025	--	<0.01	<0.01
Barium, dissolved	mg/l	1	--	15	13
Boron, dissolved	mg/l	5	--	1.1	1.2
Cadmium, dissolved	mg/l	0.005	--	<0.00050	<0.0010
Calcium, dissolved	mg/l	--	--	200	190
Chromium, dissolved	mg/l	0.05	--	<0.025	<0.05
Copper, dissolved	mg/l	--	1	<0.0050	<0.01
Iron, dissolved	mg/l	--	0.3	<0.5	<1
Lead, dissolved	mg/l	0.01	--	<0.0025	<0.0050
Magnesium, dissolved	mg/l	--	--	160	160
Manganese, dissolved	mg/l	--	0.05	0.16	0.15
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	50	50
Sodium, dissolved	mg/l	--	200 (7)	3500	3600
Zinc, dissolved	mg/l	--	5	<0.025	<0.05
Petroleum Hydrocarbons					
Benzene	mg/l	0.005	--	<0.00050	<0.00025
Toluene	mg/l	--	0.024	<0.0010	<0.00050
Phenols					
Phenolics, Total Recoverable	mg/l	--	--	0.0034	0.012
VOCs					
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.0010	<0.00050
Methane	l/m3	--	3	32	36
Methane	mg/l	--	3 (8)	21	24
Methylene Chloride	mg/l	0.05	--	<0.0025	<0.0013
Vinyl Chloride	mg/l	0.002	--	<0.0010	<0.00050

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	13-7-3	13-7-3	13-7-3
		ODWQS(169/03)-Health	ODWQS-AO	24-Apr-2013 ⁽²⁷⁾ 13-07-3	04-Jul-2013 ⁽²³⁾ 13-7-3	13-Nov-2013 ⁽²³⁾ 13-7-3
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	340	430	440
Ammonia Nitrogen	mg/l	--	--	4.4	5.7	4.9
Biologic Oxygen Demand, Five Day	mg/l	--	--	<2.0	12	14
Chemical Oxygen Demand	mg/l	--	--	48	180	250
Chloride, dissolved	mg/l	--	250	4300	5400	5700
Conductivity	uS/cm	--	--	12000	17000	17000
Conductivity (Field)	uS/cm	--	--	>3999	3891	>3999
Dissolved Organic Carbon	mg/l	--	5	7.6	11	13
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	0.011
Nitrogen, Total Kjeldahl	mg/l	--	--	4.7	9.1	13
pH	-	--	--	8.18	8.11	8.00
pH (Field)	-	--	--	8.19	7.93	8.49
Phosphorus	mg/l	--	--	0.51	8.6	10
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	27	56	81
Temperature (Field)	deg c	--	15	9.8	8.6	6.7
Total Dissolved Solids	mg/l	--	500	7430	9490	9800
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.01 ⁽¹⁹⁾	<0.01	<0.01
Barium, dissolved	mg/l	1	--	3.3	4.3	3.8
Boron, dissolved	mg/l	5	--	0.8	1.1	1.1
Cadmium, dissolved	mg/l	0.005	--	<0.00050	<0.00050	<0.0010
Calcium, dissolved	mg/l	--	--	60	46	45
Chromium, dissolved	mg/l	0.05	--	<0.025	<0.025	<0.05
Copper, dissolved	mg/l	--	1	<0.0050	0.0087	<0.01
Iron, dissolved	mg/l	--	0.3	<0.5	<0.5	<1
Lead, dissolved	mg/l	0.01	--	<0.0025	0.0037	<0.0050
Magnesium, dissolved	mg/l	--	--	160	190	190
Manganese, dissolved	mg/l	--	0.05	0.057	0.06	0.097
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	47	51	52
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	2800	3000	3500
Zinc, dissolved	mg/l	--	5	<0.025	<0.025	<0.05
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00010	<0.00020	<0.00010
Toluene	mg/l	--	0.024	<0.00020	<0.00040	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	0.0036	<0.0010	0.0032
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00040	<0.00020
Methane	l/m3	--	3	38	--	--
Methane	mg/l	--	3 ⁽⁸⁾	25	--	--
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.0010	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00040	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	13-7-4-2	13-7-4-2	13-7-4-2
		ODWQS(169/03)-Health	ODWQS-AO	10-Apr-2013 13-07-4B	02-Jul-2013 13-7-4B	13-Nov-2013 (16) 13-7-4B
General Chemistry						
Alkalinity (Total as CaCO3)	mg/l	--	--	650	640	680
Ammonia Nitrogen	mg/l	--	--	2.2	2.1	1.9
Biologic Oxygen Demand, Five Day	mg/l	--	--	3.0	2.0	8.0
Chemical Oxygen Demand	mg/l	--	--	290	150	260
Chloride, dissolved	mg/l	--	250	1300	1300	1200
Conductivity	uS/cm	--	--	4900	4800	4900
Conductivity (Field)	uS/cm	--	--	>3999	3879	>3999
Dissolved Organic Carbon	mg/l	--	5	7.6	6.0	12
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	6.9	8.4	11
pH	-	--	--	8.21	7.96	8.08
pH (Field)	-	--	--	7.57	7.92	8.07
Phosphorus	mg/l	--	--	130	54	50
Sulfate, dissolved	mg/l	--	500 (6)	18	9	53
Temperature (Field)	deg c	--	15	8.8	11.1	7.3
Total Dissolved Solids	mg/l	--	500	2690	2680	2680
Metals						
Arsenic, dissolved	mg/l	0.025	--	0.0026	<0.0020	<0.0020 (28)
Barium, dissolved	mg/l	1	--	0.24	0.23	0.19
Boron, dissolved	mg/l	5	--	0.26	0.29	0.27
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.00010	<0.00010
Calcium, dissolved	mg/l	--	--	66	65	64
Chromium, dissolved	mg/l	0.05	--	0.012	<0.01 (19)	<0.01 (28)
Copper, dissolved	mg/l	--	1	<0.0010	<0.0010	<0.0010
Iron, dissolved	mg/l	--	0.3	<0.1	<0.1	0.62
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.00050	<0.00050
Magnesium, dissolved	mg/l	--	--	91	100	95
Manganese, dissolved	mg/l	--	0.05	0.25	0.28	0.58
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	19	19	17
Sodium, dissolved	mg/l	--	200 (7)	810	860	790
Zinc, dissolved	mg/l	--	5	<0.0050	<0.0050	<0.0050
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00010	<0.00050	<0.00025
Toluene	mg/l	--	0.024	0.00053	<0.0010	<0.00050
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	0.0016	<0.0010	0.0021
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.0010	<0.00050
Methane	l/m3	--	3	0.61	--	--
Methane	mg/l	--	3 (8)	0.40	--	--
Methylene Chloride	mg/l	0.05	--	0.0014	<0.0025	<0.0013
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.0010	<0.00050

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	13-7-5	13-7-5	13-7-5
		ODWQS(169/ 03)-Health	ODWQS- AO	10-Apr-2013 13-07-5	02-Jul-2013 13-7-5	13-Nov-2013 13-7-5
General Chemistry						
Alkalinity (Total as CaCO ₃)	mg/l	--	--	530	570	570
Ammonia Nitrogen	mg/l	--	--	0.52	0.15	0.074
Biologic Oxygen Demand, Five Day	mg/l	--	--	35	2.0	6.0
Chemical Oxygen Demand	mg/l	--	--	190	62	58
Chloride, dissolved	mg/l	--	250	170	180	170
Conductivity	uS/cm	--	--	1600	1700	1800
Conductivity (Field)	uS/cm	--	--	1565	3291	1708
Dissolved Organic Carbon	mg/l	--	5	18	2.6	2.3
Nitrate as N	mg/l	10	--	<0.10	<0.10	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	6.2	2.6	3.3
pH	-	--	--	8.02	7.68	7.88
pH (Field)	-	--	--	7.17	7.63	8.31
Phosphorus	mg/l	--	--	5.7	5.2	11
Sulfate, dissolved	mg/l	--	500 ⁽⁶⁾	72	75	98
Temperature (Field)	deg c	--	15	6.9	10.9	5.9
Total Dissolved Solids	mg/l	--	500	892	1020	1000
Metals						
Arsenic, dissolved	mg/l	0.025	--	<0.0010	0.0011	0.0010
Barium, dissolved	mg/l	1	--	0.093	0.11	0.11
Boron, dissolved	mg/l	5	--	0.039	0.048	0.035
Cadmium, dissolved	mg/l	0.005	--	<0.00010	<0.00010	<0.00010
Calcium, dissolved	mg/l	--	--	92	92	78
Chromium, dissolved	mg/l	0.05	--	0.0065	<0.0050	0.0052
Copper, dissolved	mg/l	--	1	0.0013	<0.0010	<0.0010
Iron, dissolved	mg/l	--	0.3	<0.1	0.11	0.39
Lead, dissolved	mg/l	0.01	--	<0.00050	<0.00050	<0.00050
Magnesium, dissolved	mg/l	--	--	52	49	44
Manganese, dissolved	mg/l	--	0.05	0.2	1.3	0.83
Mercury, dissolved	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium, dissolved	mg/l	--	--	3.6	4.2	3.5
Sodium, dissolved	mg/l	--	200 ⁽⁷⁾	210	250	270
Zinc, dissolved	mg/l	--	5	0.012	0.0061	<0.0050
Petroleum Hydrocarbons						
Benzene	mg/l	0.005	--	<0.00010	<0.00010	<0.00010
Toluene	mg/l	--	0.024	0.00021	<0.00020	<0.00020
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	<0.0010
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	0.00028	<0.00020	<0.00020
Methane	l/m3	--	3	0.005	--	--
Methane	mg/l	--	3 ⁽⁸⁾	0.003	--	--
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.00050	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00020	<0.00020

**TABLE O-1
BACKGROUND GROUNDWATER QUALITY
MONITORING WELLS
CRRRC SITE**

12-1125-0045

Footnotes:

Tables should be read in conjunction with the accompanying document.

< value = Indicates parameter not detected above laboratory method detection limit.

> value = Indicates parameter detected above equipment analytical range.

-- Chemical not analyzed or criteria not defined.

Grey background indicates exceedances.

(1) Ontario Drinking Water Quality Standards - Health Based Standards

(2) Underlined Font = Parameter concentration greater than ODWQS(169/03)-Health

(3) Ontario Drinking Water Quality Standards - Aesthetic Objectives. Aesthetic Objectives are established for parameters that may impair the taste, odour or colour of water or which may interfere with good water quality control practices. For certain parameters, both aesthetic objectives and health-related MACs have been derived.

(4) Italic Font = Parameter concentration greater than ODWQS-AO

(5) Metals Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly. VOC Analysis: Due to foaming and insufficient sample volume, sample required dilution. Detection limits were adjusted accordingly.

(6) There may be a laxative effect in some individuals when sulphate levels exceed 500 mg/L.

(7) The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

(8) Reporting units and Guideline units are not convertible into each other.

(9) Metal analysis: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

(10) VOC Water Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly. Metal analysis: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly. Nitrite/Nitrate: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

(11) TKN < NH4: Both values fall within acceptable RPD limits for duplicates and are likely equivalent.

(12) Monitoring location was frozen during this sampling event. No sample was collected.

(13) VOC Water Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly. Metal analysis: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

(14) Metal analysis: Detection Limit was raised due to matrix interferences.

(15) Result revised May 24, 2013

(16) VOC Water Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly.

(17) Metal analysis: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly. BOD Analysis: BOD was reported as ND due to unknown matrix interference

(18) VOC Analysis: Due to the foaming, sample required dilution. Detection limits were adjusted accordingly. Metals Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

(19) Detection Limit was raised due to matrix interferences.

(20) Metal analysis: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly. VOC Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

(21) Nitrite/Nitrate: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly. Metals Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

(22) Metals Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly. VOC Water Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly.

(23) Metals Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

(24) Nitrite/Nitrate: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

(25) VOC Analysis: Due to the foaming, sample required dilution. Detection limits were adjusted accordingly.

(26) Metal Analysis: Sample was diluted due to high concentrations of elements and are effecting Internal Standard. RDLs were adjusted accordingly. Nitrite/Nitrate: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

(27) Metal Analysis: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

(28) Metal Analysis: Detection Limit was raised due to matrix interferences.



O-II: Background Groundwater Quality (Residential and Commercial Water Supply Wells)

**TABLE O-2
BACKGROUND GROUNDWATER QUALITY
RESIDENTIAL AND COMMERCIAL WATER SUPPLY WELLS
CRRRC SITE**

Parameter	Unit	(2) (1)	(4) (3)	BOUNDARY-1 (7)	FRONTIER-1	FRONTIER-2
		ODWQS(169/03)-Health	ODWQS-AO	17-Jan-2013	18-Jan-2013	17-Jan-2013
General Chemistry						
Alkalinity, Carbonate as CaCO ₃	mg/l	--	--	370	220	220
Ammonia Nitrogen	mg/l	--	--	0.40	<0.050	<0.050
Biologic Oxygen Demand, Five Day	mg/l	--	--	<2.0	<2.0	<2.0
Chemical Oxygen Demand	mg/l	--	--	18	15	11
Chloride	mg/l	--	250	130	71	60
Conductivity	uS/cm	--	--	1200	830	690
Dissolved Organic Carbon	mg/l	--	5	<u>7.4</u>	<u>5.4</u>	<u>5.6</u>
Nitrate as N	mg/l	10	--	<0.10	2.5	<0.10
Nitrite as N	mg/l	1	--	<0.010	<0.010	<0.010
Nitrogen, Total Kjeldahl	mg/l	--	--	0.93	0.68	0.69
pH	-	--	--	7.83	7.65	7.73
Phosphorus	mg/l	--	--	0.058	<0.020	<0.020
Sulfate	mg/l	--	500 ⁽⁵⁾	74	81	37
Total Dissolved Solids	mg/l	--	500	<u>720</u>	374	422
Metals						
Arsenic	mg/l	0.025	--	<0.0010	<0.0010	<0.0010
Barium	mg/l	1	--	0.048	0.069	0.04
Boron	mg/l	5	--	0.11	0.18	0.016
Cadmium	mg/l	0.005	--	<0.00010	<0.00010	<0.00010
Calcium	mg/l	--	--	99	89	85
Chromium	mg/l	0.05	--	<0.0050	<0.0050	<0.0050
Copper	mg/l	--	1	0.0015	0.018	0.073
Iron	mg/l	--	0.3	<u>0.65</u>	<0.1	0.23
Lead	mg/l	0.01	--	<0.00050	<0.00050	<0.00050
Magnesium	mg/l	--	--	40	25	15
Manganese	mg/l	--	0.05	<u>1.2</u>	<u>0.13</u>	<u>0.094</u>
Mercury	mg/l	0.001	--	<0.00010	<0.00010	<0.00010
Potassium	mg/l	--	--	7.7	6.3	2.3
Sodium	mg/l	--	200 ⁽⁶⁾	100	55	30
Zinc	mg/l	--	5	<0.0050	0.019	0.0092
Phenols						
Phenolics, Total Recoverable	mg/l	--	--	<0.0010	<0.0010	<0.0010
VOCs						
1,4-Dichlorobenzene	mg/l	0.005	0.001	<0.00020	<0.00020	<0.00020
Methylene Chloride	mg/l	0.05	--	<0.00050	<0.00050	<0.00050
Vinyl Chloride	mg/l	0.002	--	<0.00020	<0.00020	<0.00020
Benzene	mg/l	0.005	--	<0.00010	<0.00010	<0.00010
Toluene	mg/l	--	0.024	<0.00020	<0.00020	<0.00020

Footnotes:

Tables should be read in conjunction with the accompanying document.

< value = Indicates parameter not detected above laboratory method detection limit

> value = Indicates parameter detected above equipment analytical range

-- Chemical not analyzed or criteria not defined

Grey background indicates exceedance of ODWQS

(1) Ontario Drinking Water Quality Standards - Health Based Standards

(2) Underlined Font = Parameter concentration greater than ODWQS(169/03)-Health

(3) Ontario Drinking Water Quality Standards - Aesthetic Objectives. Aesthetic Objectives are established for parameters that may impair the taste, odour or colour of water or which may interfere with good water quality control practices. For certain parameters, both aesthetic objectives and health-related MACs have been derived.

(4) Italic Font = Parameter concentration greater than ODWQS-AO

(5) There may be a laxative effect in some individuals when sulphate levels exceed 500 mg/L.

(6) The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

(7) Commercial water supply well.

**CRRRC PROJECT
WATER WELL AND SEWAGE DISPOSAL SYSTEM
SURVEY QUESTIONNAIRE**

PROPERTY IDENTIFICATION NUMBER (PIN): *Boundary-1*

TYPE OF DWELLING: Residential Commercial Institutional Other

I. OWNER / OCCUPANT INFORMATION AND GENERAL QUESTIONS:

OWNER:

Name: [REDACTED] Telephone No. (business) [REDACTED]
Address: [REDACTED] *Boundary Rd.* Telephone No. (home)
Number of Bedrooms Number of Occupants

OCCUPANT (if other than Owner):

Name: Telephone No. (business)
Address: Telephone No. (home)
Number of Bedrooms Number of Occupants

GENERAL QUESTIONS

How long have you owned/occupied this dwelling? *77 years*
Is well water used for drinking water supply? Yes No
If no, why not? *just to be safe*
If no, how long has it been since well water was used for drinking? *never*
If no, what is origin of drinking water?

II. WATER WELL

A. WELL CONSTRUCTION DETAILS:

Date or Year Constructed *50+ yrs* Contractor *Themselves*
Type of Well: Drilled Dug Well Diameter (inches) *36" +/-*
Present Well Depth: Original Well Depth *18-20'* Same as Present
Is Well Vented and How?:

PIN: [redacted] Boundary
Boundary - 1

Top of Well Casing is:

- 1) Above ground surface [x] 2) Buried inside a well pit [] 3) Buried, but not in a well pit []

The accurate location of well is known [x] Unknown []

Type of pump: Submersible [x] Jet pump [] Depth of Pump Intake (if known)

Well completed into: Bedrock Overburden (Soil) [x] Both

Do you have a copy of the MOE Water Well Record? [] Yes [x] No

ATTACH A COPY OF WATER WELL RECORD, IF POSSIBLE (WELL RECORD NO.)

B. WELL WATER LEVELS:

Indicate whether measured from [] ground level or [] from top of casing

Original water level depth metres on (date)

Subsequent water level measurements (give depths in metres and dates)

C. WATER QUANTITY

Does your well supply enough water for your use? Yes [x] No []

If no, is this the case: All the time [x] Some of the time [] Seasonally [] Other

Use: Domestic: No [] Yes [x] No. of persons using water from well

Livestock: No [] Yes [] Lawn Watering: No [x] Yes []

Other Uses washing equipment Daily Usage (if known)

Have you ever experienced any problems with your well? None

If so, when?

What was the cause of the problem? [] Drought [] Pump Failure [] Plugging

[] Increased Usage [] Interference [] Other (Please Specify)

Did you ever have your well deepened or cleaned, or a new well constructed? not that

If so, why? they could remember

PIN:  Boundary
Boundary -1

D. WATER QUALITY

Water Treatment (if any)..... none

Has your well recently been chlorinated and, if so, when?..... Ne

How would you describe quality of your water? Poor Good Excellent

Has your water quality previously been tested? No Yes

If yes, for what and how often? (bacteriological, chemical analyses, etc.) Bacti, monthly ago

ATTACH COPY OF ANY PREVIOUS CHEMICAL AND/OR BACTERIOLOGICAL ANALYSIS RESULTS ON THE WELL WATER, IF AVAILABLE

E. WATER SAMPLING INFORMATION

Water Quality Field Observations:

Appearance (clear, cloudy) clear Odour None

Field Measured Parameters:

Temperature 60c pH

Conductivity H₂S

Other Comments no sediments, no colour

Water Sample Collected No Yes If no, why?

Note: Collect Sample of "Untreated" Water only

Duplicate Water Sample Collected (10% of Locations for Project QA/QC) No Yes

III. SEWAGE DISPOSAL SYSTEM

SYSTEM DETAILS

What type of sewage disposal system do you have:

- Holding Tank
- Septic Tank and Inground Leaching Bed
- Septic Tank and Raised or Partially Raised Leaching Bed
- Other Treatment System (e.g. peat bed, peat filter, etc.) If so, specify
- Don't know

Date or year Constructed 30 yrs +/- Contractor Themselves

How often do you have the holding tank or septic tank pumped out? *N/A* PIN: *[Redacted]* *Bandy*
Bandy = 1

When was the last time? *N/A*

Is the septic tank comprised of one chamber 2 chambers don't know

Have you ever had any problems with your sewage disposal systems? (e.g. leaks from holding tank, failure of septic system including surficial release of sewage, visibly stained areas, unusual odours, soft ground, etc.) *None*

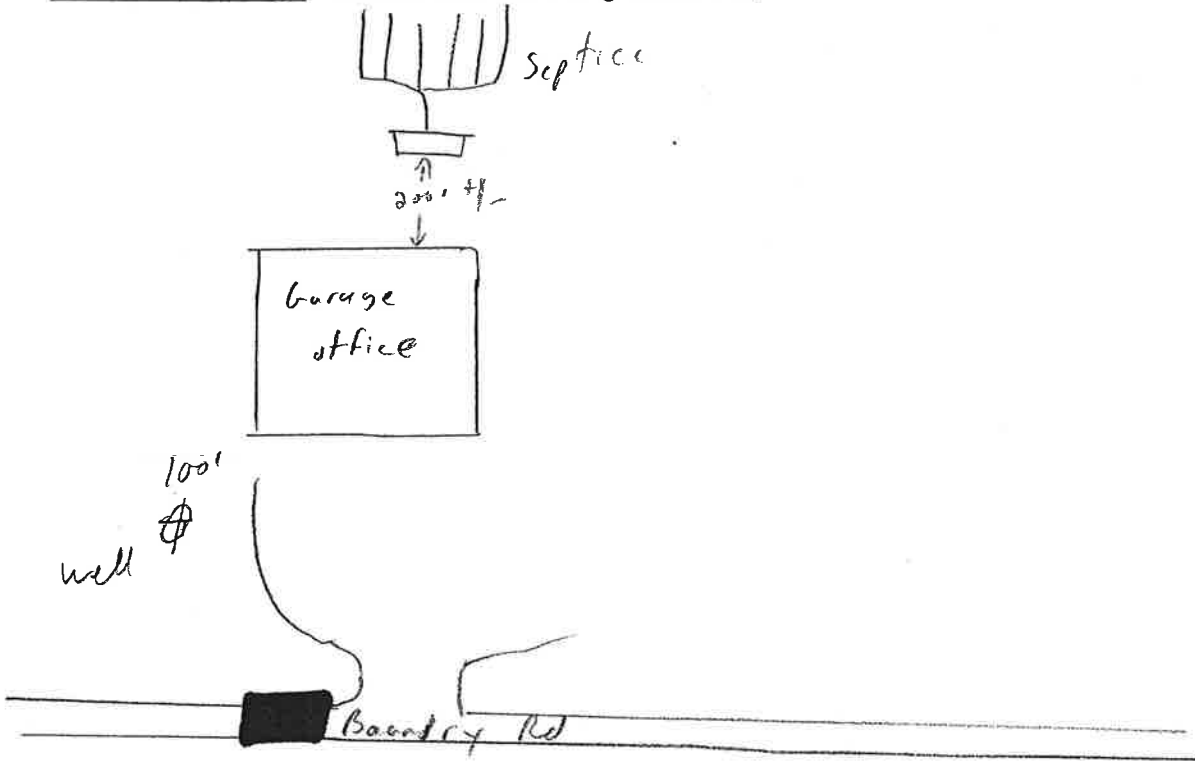
Technician Signature *[Signature]* Date *Jan 13*

PIN: [redacted] *Country*

IV. PROPERTY SKETCH

Boundary - 1

Sketch the location of the septic system (including approximate leaching bed area), the well and the house, giving the best approximated distance between each of them. Include any indication of soil types (e.g. gravel, sand, silt, clay); overburden thickness, and slope (in degrees or percentage). Note any indications of septic system failure such as stained areas, **surficial release of sewage**, unusual odours, soft ground, etc.



Indicate all dimensions in metres

Note distance between well and septic system(s), if possible

Was there any existing evidence of a surficial release of sewage? No Yes

Other Symbols - Please Specify

Drilled Well	Break of Slope	Tree
Dug Well	Minor	Underground Line
Septic Field	Steep	Drainage
Septic Tank	House	Ditch
Holding Tank	Road	Lot Line
Bedrock Outcrop	Shed	Sidewalk
		Fence

**CRRRC PROJECT
WATER WELL AND SEWAGE DISPOSAL SYSTEM
SURVEY QUESTIONNAIRE**

Frontier - 1

PROPERTY IDENTIFICATION NUMBER (PIN):

..... *Frontier Rd*

TYPE OF DWELLING: Residential Commercial Institutional Other

I. OWNER / OCCUPANT INFORMATION AND GENERAL QUESTIONS:

~~OWNER:~~ *Renters*

Name:

Telephone No. (business)

Address:

Telephone No. (home)

Number of Bedrooms: *3*

Number of Occupants: *3*

OCCUPANT (if other than Owner):

Name:

Telephone No. (business)

Address:

Telephone No. (home)

Number of Bedrooms:

Number of Occupants:

GENERAL QUESTIONS

How long have you owned/occupied this dwelling? *18 years*

Is well water used for drinking water supply? Yes No

If no, why not? *To be safe*

If no, how long has it been since well water was used for drinking?

If no, what is origin of drinking water?

II. WATER WELL

A. WELL CONSTRUCTION DETAILS:

house is 110 yrs old

Date or Year Constructed *20 yrs +*

Contractor

Type of Well: Drilled Dug

Well Diameter (inches) *36"*

Present Well Depth: *12'*

Original Well Depth

Same as Present

Is Well Vented and How?:

PIN: [redacted] *Frontier Rd*
Frontier - 1

Top of Well Casing is:

- 1) Above ground surface 2) Buried inside a well pit 3) Buried, but not in a well pit

The accurate location of well is known Unknown

Type of pump: Submersible Jet pump Depth of Pump Intake (if known)

Well completed into: Bedrock Overburden (Soil) Both

Do you have a copy of the MOE Water Well Record? Yes No

ATTACH A COPY OF WATER WELL RECORD, IF POSSIBLE (WELL RECORD NO.)

B. WELL WATER LEVELS:

Indicate whether measured from ground level or from top of casing

Original water level depth metres on (date)

Subsequent water level measurements (give depths in metres and dates)

C. WATER QUANTITY

Does your well supply enough water for your use? Yes No

This summer went dry once but usually lots of water

If no, is this the case: All the time Some of the time Seasonally Other

Use: Domestic: No Yes No. of persons using water from well *3*

Livestock: No Yes Lawn Watering: No Yes

Other Uses Daily Usage (if known)

Have you ever experienced any problems with your well? *No*

If so, when?

What was the cause of the problem? Drought Pump Failure Plugging

Increased Usage Interference Other (Please Specify)

Did you ever have your well deepened or cleaned, or a new well constructed? *No*

If so, why?

PIN: [redacted] Frontier Rd
Frontier - 1

D. WATER QUALITY

Water Treatment (if any) None
Has your well recently been chlorinated and, if so, when? No
How would you describe quality of your water? Poor Good Excellent
Has your water quality previously been tested? No Yes
If yes, for what and how often? (bacteriological, chemical analyses, etc.)

ATTACH COPY OF ANY PREVIOUS CHEMICAL AND/OR BACTERIOLOGICAL ANALYSIS RESULTS ON THE WELL WATER, IF AVAILABLE

E. WATER SAMPLING INFORMATION

Water Quality Field Observations:

Appearance (clear, cloudy) clear Odour none

Field Measured Parameters:

Temperature pH
Conductivity H₂S
Other Comments no sediments, no colour

Water Sample Collected No Yes If no, why?

Note: Collect Sample of "Untreated" Water only

Duplicate Water Sample Collected (10% of Locations for Project QA/QC) No Yes

III. SEWAGE DISPOSAL SYSTEM

SYSTEM DETAILS

What type of sewage disposal system do you have:

- Holding Tank
- Septic Tank and Inground Leaching Bed
- Septic Tank and Raised or Partially Raised Leaching Bed
- Other Treatment System (e.g. peat bed, peat filter, etc.) If so, specify
- Don't know

Date or year Constructed N/A Contractor N/A

PIN: [Redacted] Frontier Rd
Frontier-1

How often do you have the holding tank or septic tank pumped out? 4yrs

When was the last time? 4yrs

Is the septic tank comprised of one chamber 2 chambers don't know

Have you ever had any problems with your sewage disposal systems? (e.g. leaks from holding tank, failure of septic system including surficial release of sewage, visibly stained areas, unusual odours, soft ground, etc.) None

Technician Signature [Signature] Date Jan 18/13

* Note

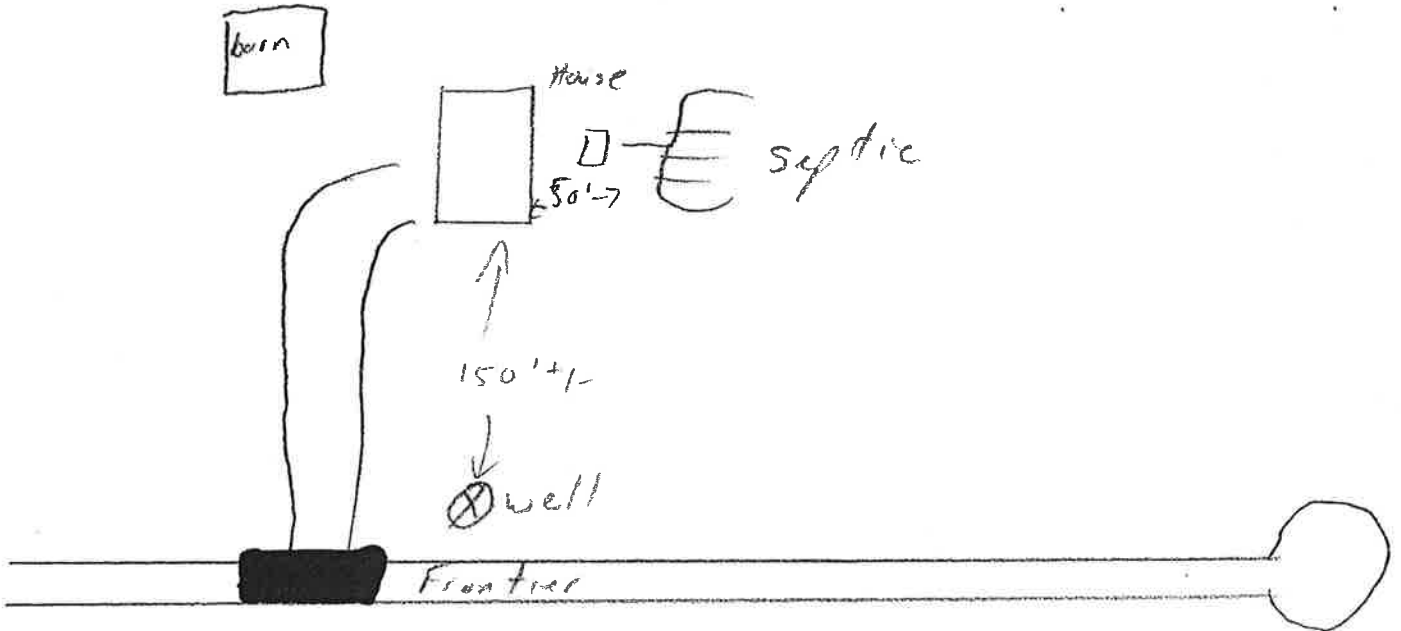
- Home owner mentions sulphur odor sometimes iron staining & some sediment periodically

PIN: [Redacted] Frontier

IV. PROPERTY SKETCH

Frontier - 1

Sketch the location of the septic system (including approximate leaching bed area), the well and the house, giving the best approximated distance between each of them. Include any indication of soil types (e.g. gravel, sand, silt, clay); overburden thickness, and slope (in degrees or percentage). Note any indications of septic system failure such as stained areas, surficial release of sewage, unusual odours, soft ground, etc.



Indicate all dimensions in metres

Note distance between well and septic system(s), if possible

Was there any existing evidence of a surficial release of sewage? No Yes

Other Symbols - Please Specify

- | | | |
|-----------------|----------------|------------------|
| Drilled Well | Break of Slope | Tree |
| Dug Well | Minor | Underground Line |
| Septic Field | Steep | Drainage |
| Septic Tank | House | Ditch |
| Holding Tank | Road | Lot Line |
| Bedrock Outcrop | Shed | Sidewalk |
| | | Fence |

**CRRRC PROJECT
WATER WELL AND SEWAGE DISPOSAL SYSTEM
SURVEY QUESTIONNAIRE**

Frontier - 2

PROPERTY IDENTIFICATION NUMBER (PIN):

.....  *Frontier Rd.*

TYPE OF DWELLING: Residential Commercial Institutional Other

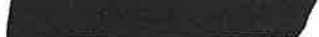
I. OWNER / OCCUPANT INFORMATION AND GENERAL QUESTIONS:

OWNER:

Name: 

Telephone No. (business)

Address:  *Frontier Rd.*

Telephone No. (home) 

Number of Bedrooms: *3*

Number of Occupants: *4*

OCCUPANT (if other than Owner):

Name:

Telephone No. (business)

Address:

Telephone No. (home)

Number of Bedrooms: *1*

Number of Occupants:

GENERAL QUESTIONS

How long have you owned/occupied this dwelling? *4 yrs*

Is well water used for drinking water supply? Yes No

If no, why not?

If no, how long has it been since well water was used for drinking?

If no, what is origin of drinking water?

II. WATER WELL

A. WELL CONSTRUCTION DETAILS: *house built in late 70's well to.*

Date or Year Constructed *late 70's* Contractor

Type of Well: Drilled Dug Well Diameter (inches)

Present Well Depth: Original Well Depth Same as Present

Is Well Vented and How?:

PIN:  Frontier

Frontier - 2

Top of Well Casing is:

- 1) Above ground surface
- 2) Buried inside a well pit
- 3) Buried, but not in a well pit

The accurate location of well is known Unknown

Type of pump: Submersible Jet pump Depth of Pump Intake (if known)

Well completed into: Bedrock Overburden (Soil) Both

Do you have a copy of the MOE Water Well Record? Yes No

ATTACH A COPY OF WATER WELL RECORD, IF POSSIBLE (WELL RECORD NO.)

B. WELL WATER LEVELS:

Indicate whether measured from ground level or from top of casing

Original water level depth metres on (date)

Subsequent water level measurements (give depths in metres and dates)

C. WATER QUANTITY

Does your well supply enough water for your use? Yes No

If no, is this the case: All the time Some of the time Seasonally Other

Use: Domestic: No Yes No. of persons using water from well ... 4

Livestock: No Yes Lawn Watering: No Yes

Other Uses Daily Usage (if known)

Have you ever experienced any problems with your well? ... No

If so, when?

What was the cause of the problem? Drought Pump Failure Plugging

Increased Usage Interference Other (Please Specify)

Did you ever have your well deepened or cleaned, or a new well constructed? ... No

If so, why?

PIN: [redacted] Frontier

Frontier-2

D. WATER QUALITY

Water Treatment (if any).....None.....

Has your well recently been chlorinated and, if so, when?.....possible iron & hardness in sinks

How would you describe quality of your water? Poor Good Excellent

to 1 liter's stained

Has your water quality previously been tested? No Yes

If yes, for what and how often? (bacteriological, chemical analyses, etc.).....

ATTACH COPY OF ANY PREVIOUS CHEMICAL AND/OR BACTERIOLOGICAL ANALYSIS RESULTS ON THE WELL WATER, IF AVAILABLE

E. WATER SAMPLING INFORMATION

Water Quality Field Observations:

Appearance (clear, cloudy).....clear..... Odour.....none.....

Field Measured Parameters:

Temperature.....70c..... pH.....

Conductivity..... H₂S.....

Other Comments.....no sediments, no colour.....

Water Sample Collected No Yes If no, why?.....

Note: Collect Sample of "Untreated" Water only

Duplicate Water Sample Collected (10% of Locations for Project QA/QC) No Yes

III. SEWAGE DISPOSAL SYSTEM

SYSTEM DETAILS

What type of sewage disposal system do you have:

- Holding Tank
 Septic Tank and Inground Leaching Bed
 Septic Tank and Raised or Partially Raised Leaching Bed
 Other Treatment System (e.g. peat bed, peat filter, etc.) If so, specify
 Don't know

Date or year Constructed.....N/A..... Contractor.....

How often do you have the holding tank or septic tank pumped out? *4 y/13* PIN: *[redacted]* *Frontier*
Frontier-2

When was the last time?..... *no yet*

Is the septic tank comprised of one chamber 2 chambers don't know

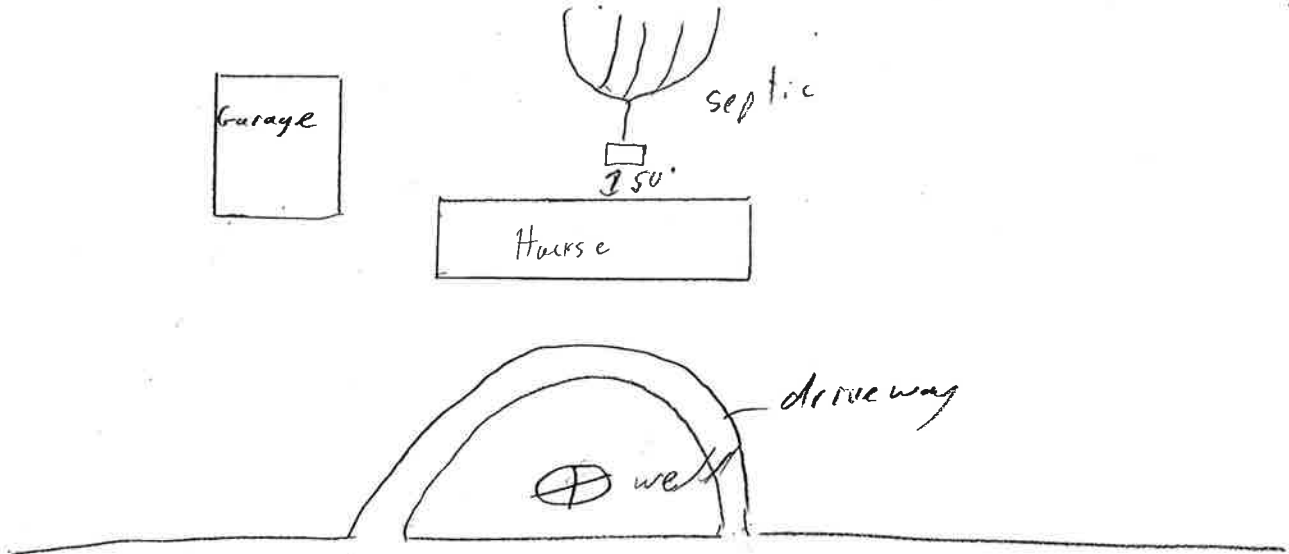
Have you ever had any problems with your sewage disposal systems? (e.g. leaks from holding tank, failure of septic system including surficial release of sewage, visibly stained areas, unusual odours, soft ground, etc.) *None*

Technician Signature *[Signature]* Date *Jun 17/13*

PIN: [REDACTED] Frontier
Frontier-2

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No Yes

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