

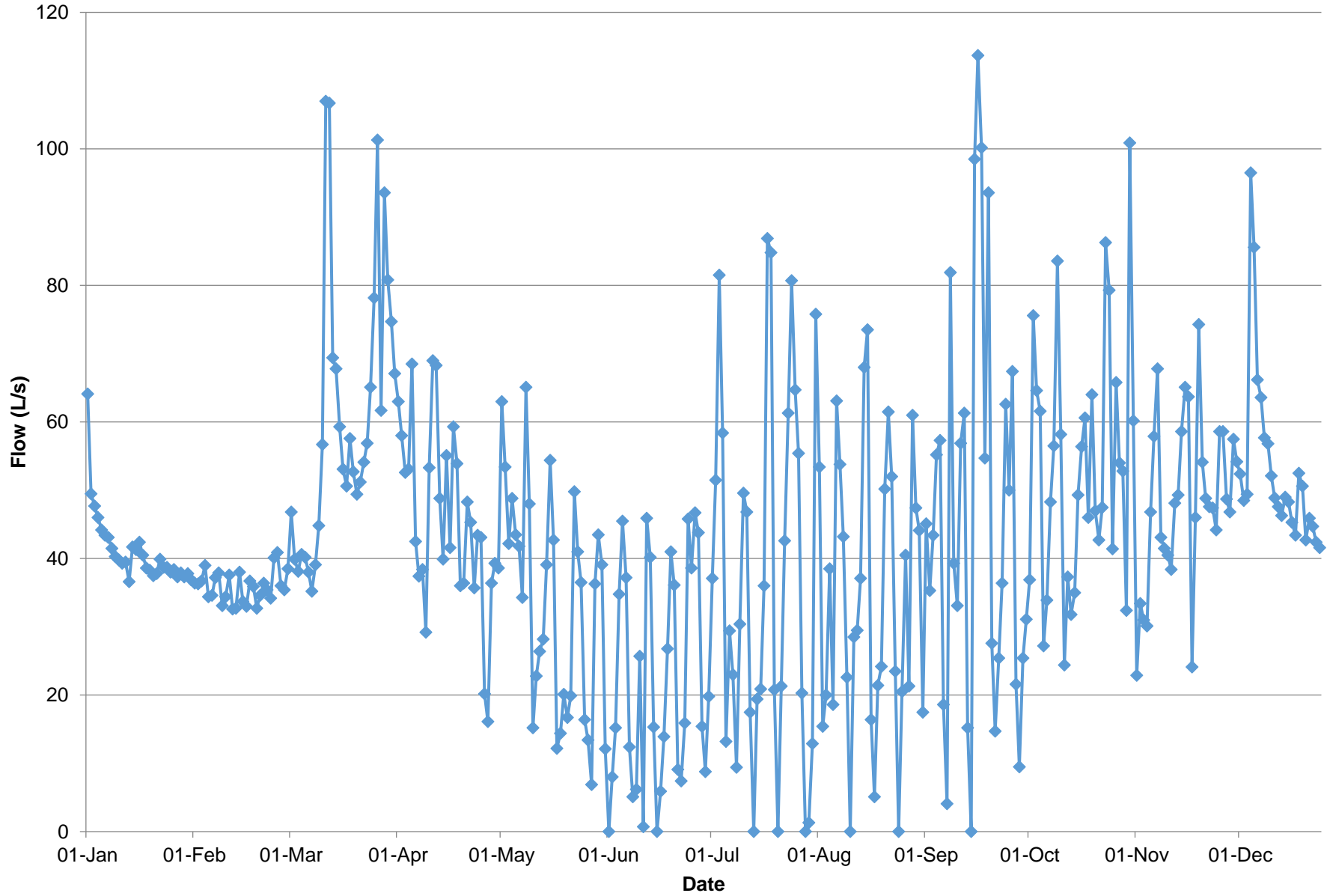
# APPENDIX

# E

## EFFLUENT MONITORING



# Figure E-1 Duntroon Quarry Discharge 2021



**TABLE E-1  
QUARRY DISCHARGE SUMMARY (FLOW METER)**

DATE	DAILY AVERAGE DISCHARGE RATE (L/s)	DISCHARGE VOLUME BASED ON DAILY AVERAGE (L)	MAXIMUM DISCHARGE RATE (L/S)	MAX DISCHARGE RATE EXCEEDED?
1-Jan-21	64.1	5538240	250	NO
2-Jan-21	49.5	4276800	250	NO
3-Jan-21	47.7	4121280	250	NO
4-Jan-21	46	3974400	250	NO
5-Jan-21	44.2	3818880	250	NO
6-Jan-21	43.4	3749760	250	NO
7-Jan-21	43.1	3723840	250	NO
8-Jan-21	41.5	3585600	250	NO
9-Jan-21	40.3	3481920	250	NO
10-Jan-21	39.8	3438720	250	NO
11-Jan-21	39.3	3395520	250	NO
12-Jan-21	39.5	3412800	250	NO
13-Jan-21	36.6	3162240	250	NO
14-Jan-21	41.7	3602880	250	NO
15-Jan-21	41.3	3568320	250	NO
16-Jan-21	42.4	3663360	250	NO
17-Jan-21	40.5	3499200	250	NO
18-Jan-21	38.6	3335040	250	NO
19-Jan-21	38.3	3309120	250	NO
20-Jan-21	37.5	3240000	250	NO
21-Jan-21	37.8	3265920	250	NO
22-Jan-21	39.9	3447360	250	NO
23-Jan-21	38.7	3343680	250	NO
24-Jan-21	38.7	3343680	250	NO
25-Jan-21	38	3283200	250	NO
26-Jan-21	38.4	3317760	250	NO
27-Jan-21	37.3	3222720	250	NO
28-Jan-21	37.9	3274560	250	NO
29-Jan-21	37.3	3222720	250	NO
30-Jan-21	37.8	3265920	250	NO
31-Jan-21	36.9	3188160	250	NO
1-Feb-21	36.4	3144960	250	NO
2-Feb-21	36.3	3136320	250	NO
3-Feb-21	36.7	3170880	250	NO
4-Feb-21	39	3369600	250	NO
5-Feb-21	34.4	2972160	250	NO
6-Feb-21	34.6	2989440	250	NO
7-Feb-21	37.2	3214080	250	NO
8-Feb-21	37.9	3274560	250	NO
9-Feb-21	33.1	2859840	250	NO
10-Feb-21	34.4	2972160	250	NO
11-Feb-21	37.6	3248640	250	NO
12-Feb-21	32.6	2816640	250	NO
13-Feb-21	32.7	2825280	250	NO
14-Feb-21	38	3283200	250	NO
15-Feb-21	33.7	2911680	250	NO
16-Feb-21	33	2851200	250	NO
17-Feb-21	36.7	3170880	250	NO
18-Feb-21	35.9	3101760	250	NO
19-Feb-21	32.7	2825280	250	NO
20-Feb-21	34.6	2989440	250	NO
21-Feb-21	36.4	3144960	250	NO
22-Feb-21	35.4	3058560	250	NO
23-Feb-21	34.2	2954880	250	NO
24-Feb-21	40.1	3464640	250	NO
25-Feb-21	40.9	3533760	250	NO
26-Feb-21	36	3110400	250	NO
27-Feb-21	35.4	3058560	250	NO
28-Feb-21	38.5	3326400	250	NO
1-Mar-21	46.8	4043520	250	NO

**TABLE E-1  
QUARRY DISCHARGE SUMMARY (FLOW METER)**

DATE	DAILY AVERAGE DISCHARGE RATE (L/s)	DISCHARGE VOLUME BASED ON DAILY AVERAGE (L)	MAXIMUM DISCHARGE RATE (L/S)	MAX DISCHARGE RATE EXCEEDED?
2-Mar-21	39.9	3447360	250	NO
3-Mar-21	38.1	3291840	250	NO
4-Mar-21	40.6	3507840	250	NO
5-Mar-21	40.2	3473280	250	NO
6-Mar-21	38	3283200	250	NO
7-Mar-21	35.2	3041280	250	NO
8-Mar-21	39.1	3378240	250	NO
9-Mar-21	44.8	3870720	250	NO
10-Mar-21	56.7	4898880	250	NO
11-Mar-21	107	9244800	250	NO
12-Mar-21	106.7	9218880	250	NO
13-Mar-21	69.4	5996160	250	NO
14-Mar-21	67.8	5857920	250	NO
15-Mar-21	59.3	5123520	250	NO
16-Mar-21	53.1	4587840	250	NO
17-Mar-21	50.6	4371840	250	NO
18-Mar-21	57.6	4976640	250	NO
19-Mar-21	52.7	4553280	250	NO
20-Mar-21	49.4	4268160	250	NO
21-Mar-21	51.2	4423680	250	NO
22-Mar-21	54.1	4674240	250	NO
23-Mar-21	56.9	4916160	250	NO
24-Mar-21	65.1	5624640	250	NO
25-Mar-21	78.2	6756480	250	NO
26-Mar-21	101.3	8752320	250	NO
27-Mar-21	61.7	5330880	250	NO
28-Mar-21	93.6	8087040	250	NO
29-Mar-21	80.8	6981120	250	NO
30-Mar-21	74.7	6454080	250	NO
31-Mar-21	67.1	5797440	250	NO
1-Apr-21	63	5443200	250	NO
2-Apr-21	58	5011200	250	NO
3-Apr-21	52.6	4544640	250	NO
4-Apr-21	53.1	4587840	250	NO
5-Apr-21	68.5	5918400	250	NO
6-Apr-21	42.5	3672000	250	NO
7-Apr-21	37.4	3231360	250	NO
8-Apr-21	38.4	3317760	250	NO
9-Apr-21	29.2	2522880	250	NO
10-Apr-21	53.3	4605120	250	NO
11-Apr-21	69	5961600	250	NO
12-Apr-21	68.3	5901120	250	NO
13-Apr-21	48.8	4216320	250	NO
14-Apr-21	39.9	3447360	250	NO
15-Apr-21	55.1	4760640	250	NO
16-Apr-21	41.6	3594240	250	NO
17-Apr-21	59.3	5123520	250	NO
18-Apr-21	53.9	4656960	250	NO
19-Apr-21	36	3110400	250	NO
20-Apr-21	36.4	3144960	250	NO
21-Apr-21	48.3	4173120	250	NO
22-Apr-21	45.3	3913920	250	NO
23-Apr-21	35.7	3084480	250	NO
24-Apr-21	43.4	3749760	250	NO
25-Apr-21	43.1	3723840	250	NO
26-Apr-21	20.2	1745280	250	NO
27-Apr-21	16.1	1391040	250	NO
28-Apr-21	36.4	3144960	250	NO
29-Apr-21	39.3	3395520	250	NO
30-Apr-21	38.6	3335040	250	NO
1-May-21	63	5443200	250	NO

**TABLE E-1  
QUARRY DISCHARGE SUMMARY (FLOW METER)**

DATE	DAILY AVERAGE DISCHARGE RATE (L/s)	DISCHARGE VOLUME BASED ON DAILY AVERAGE (L)	MAXIMUM DISCHARGE RATE (L/S)	MAX DISCHARGE RATE EXCEEDED?
2-May-21	53.4	4613760	250	NO
3-May-21	42.2	3646080	250	NO
4-May-21	48.8	4216320	250	NO
5-May-21	43.5	3758400	250	NO
6-May-21	41.8	3611520	250	NO
7-May-21	34.3	2963520	250	NO
8-May-21	65.1	5624640	250	NO
9-May-21	48	4147200	250	NO
10-May-21	15.2	1313280	250	NO
11-May-21	22.8	1969920	250	NO
12-May-21	26.4	2280960	250	NO
13-May-21	28.2	2436480	250	NO
14-May-21	39.1	3378240	250	NO
15-May-21	54.4	4700160	250	NO
16-May-21	42.7	3689280	250	NO
17-May-21	12.2	1054080	250	NO
18-May-21	14.4	1244160	250	NO
19-May-21	20.1	1736640	250	NO
20-May-21	16.7	1442880	250	NO
21-May-21	19.9	1719360	250	NO
22-May-21	49.8	4302720	250	NO
23-May-21	41	3542400	250	NO
24-May-21	36.5	3153600	250	NO
25-May-21	16.4	1416960	250	NO
26-May-21	13.4	1157760	250	NO
27-May-21	6.9	596160	250	NO
28-May-21	36.3	3136320	250	NO
29-May-21	43.5	3758400	250	NO
30-May-21	39.1	3378240	250	NO
31-May-21	12.1	1045440	250	NO
1-Jun-21	0	0	250	NO
2-Jun-21	8	691200	250	NO
3-Jun-21	15.2	1313280	250	NO
4-Jun-21	34.8	3006720	250	NO
5-Jun-21	45.5	3931200	250	NO
6-Jun-21	37.2	3214080	250	NO
7-Jun-21	12.4	1071360	250	NO
8-Jun-21	5.1	440640	250	NO
9-Jun-21	6.2	535680	250	NO
10-Jun-21	25.7	2220480	250	NO
11-Jun-21	0.7	60480	250	NO
12-Jun-21	45.9	3965760	250	NO
13-Jun-21	40.2	3473280	250	NO
14-Jun-21	15.3	1321920	250	NO
15-Jun-21	0	0	250	NO
16-Jun-21	5.9	509760	250	NO
17-Jun-21	13.9	1200960	250	NO
18-Jun-21	26.8	2315520	250	NO
19-Jun-21	41	3542400	250	NO
20-Jun-21	36.1	3119040	250	NO
21-Jun-21	9.1	786240	250	NO
22-Jun-21	7.4	639360	250	NO
23-Jun-21	15.9	1373760	250	NO
24-Jun-21		0	250	NO
25-Jun-21		0	250	NO
26-Jun-21		0	250	NO
27-Jun-21		0	250	NO
28-Jun-21		0	250	NO
29-Jun-21		0	250	NO
30-Jun-21		0	250	NO
1-Jul-21	45.8	3957120	250	NO

**TABLE E-1  
QUARRY DISCHARGE SUMMARY (FLOW METER)**

DATE	DAILY AVERAGE DISCHARGE RATE (L/s)	DISCHARGE VOLUME BASED ON DAILY AVERAGE (L)	MAXIMUM DISCHARGE RATE (L/S)	MAX DISCHARGE RATE EXCEEDED?
2-Jul-21	38.6	3335040	250	NO
3-Jul-21	46.7	4034880	250	NO
4-Jul-21	43.8	3784320	250	NO
5-Jul-21	15.4	1330560	250	NO
6-Jul-21	8.8	760320	250	NO
7-Jul-21	19.8	1710720	250	NO
8-Jul-21	37.1	3205440	250	NO
9-Jul-21	51.5	4449600	250	NO
10-Jul-21	81.5	7041600	250	NO
11-Jul-21	58.4	5045760	250	NO
12-Jul-21	13.2	1140480	250	NO
13-Jul-21	29.4	2540160	250	NO
14-Jul-21	23	1987200	250	NO
15-Jul-21	9.4	812160	250	NO
16-Jul-21	30.4	2626560	250	NO
17-Jul-21	49.6	4285440	250	NO
18-Jul-21	46.8	4043520	250	NO
19-Jul-21	17.5	1512000	250	NO
20-Jul-21	0	0	250	NO
21-Jul-21	19.4	1676160	250	NO
22-Jul-21	20.9	1805760	250	NO
23-Jul-21	36	3110400	250	NO
24-Jul-21	86.9	7508160	250	NO
25-Jul-21	84.8	7326720	250	NO
26-Jul-21	20.8	1797120	250	NO
27-Jul-21	0	0	250	NO
28-Jul-21	21.3	1840320	250	NO
29-Jul-21	42.6	3680640	250	NO
30-Jul-21	61.3	5296320	250	NO
31-Jul-21	80.7	6972480	250	NO
1-Aug-21	64.7	5590080	250	NO
2-Aug-21	55.4	4786560	250	NO
3-Aug-21	20.3	1753920	250	NO
4-Aug-21	0	0	250	NO
5-Aug-21	1.3	112320	250	NO
6-Aug-21	12.9	1114560	250	NO
7-Aug-21	75.8	6549120	250	NO
8-Aug-21	53.4	4613760	250	NO
9-Aug-21	15.4	1330560	250	NO
10-Aug-21	20	1728000	250	NO
11-Aug-21	38.5	3326400	250	NO
12-Aug-21	18.6	1607040	250	NO
13-Aug-21	63.1	5451840	250	NO
14-Aug-21	53.8	4648320	250	NO
15-Aug-21	43.2	3732480	250	NO
16-Aug-21	22.6	1952640	250	NO
17-Aug-21	0	0	250	NO
18-Aug-21	28.5	2462400	250	NO
19-Aug-21	29.5	2548800	250	NO
20-Aug-21	37.1	3205440	250	NO
21-Aug-21	68	5875200	250	NO
22-Aug-21	73.5	6350400	250	NO
23-Aug-21	16.4	1416960	250	NO
24-Aug-21	5.1	440640	250	NO
25-Aug-21	21.4	1848960	250	NO
26-Aug-21	24.2	2090880	250	NO
27-Aug-21	50.2	4337280	250	NO
28-Aug-21	61.5	5313600	250	NO
29-Aug-21	52	4492800	250	NO
30-Aug-21	23.5	2030400	250	NO
31-Aug-21	0	0	250	NO
1-Sep-21	20.5	1771200	250	NO

**TABLE E-1  
QUARRY DISCHARGE SUMMARY (FLOW METER)**

DATE	DAILY AVERAGE DISCHARGE RATE (L/s)	DISCHARGE VOLUME BASED ON DAILY AVERAGE (L)	MAXIMUM DISCHARGE RATE (L/S)	MAX DISCHARGE RATE EXCEEDED?
2-Sep-21	40.5	3499200	250	NO
3-Sep-21	21.3	1840320	250	NO
4-Sep-21	61	5270400	250	NO
5-Sep-21	47.4	4095360	250	NO
6-Sep-21	44.1	3810240	250	NO
7-Sep-21	17.5	1512000	250	NO
8-Sep-21	45.1	3896640	250	NO
9-Sep-21	35.3	3049920	250	NO
10-Sep-21	43.4	3749760	250	NO
11-Sep-21	55.2	4769280	250	NO
12-Sep-21	57.3	4950720	250	NO
13-Sep-21	18.6	1607040	250	NO
14-Sep-21	4.1	354240	250	NO
15-Sep-21	81.9	7076160	250	NO
16-Sep-21	39.3	3395520	250	NO
17-Sep-21	33.1	2859840	250	NO
18-Sep-21	56.9	4916160	250	NO
19-Sep-21	61.3	5296320	250	NO
20-Sep-21	15.2	1313280	250	NO
21-Sep-21	0	0	250	NO
22-Sep-21	98.5	8510400	250	NO
23-Sep-21	113.7	9823680	250	NO
24-Sep-21	100.2	8657280	250	NO
25-Sep-21	54.7	4726080	250	NO
26-Sep-21	93.6	8087040	250	NO
27-Sep-21	27.6	2384640	250	NO
28-Sep-21	14.7	1270080	250	NO
29-Sep-21	25.4	2194560	250	NO
30-Sep-21	36.4	3144960	250	NO
1-Oct-21	62.6	5408640	250	NO
2-Oct-21	50	4320000	250	NO
3-Oct-21	67.4	5823360	250	NO
4-Oct-21	21.6	1866240	250	NO
5-Oct-21	9.5	820800	250	NO
6-Oct-21	25.4	2194560	250	NO
7-Oct-21	31.1	2687040	250	NO
8-Oct-21	36.9	3188160	250	NO
9-Oct-21	75.6	6531840	250	NO
10-Oct-21	64.6	5581440	250	NO
11-Oct-21	61.6	5322240	250	NO
12-Oct-21	27.2	2350080	250	NO
13-Oct-21	33.9	2928960	250	NO
14-Oct-21	48.3	4173120	250	NO
15-Oct-21	56.5	4881600	250	NO
16-Oct-21	83.6	7223040	250	NO
17-Oct-21	58.2	5028480	250	NO
18-Oct-21	24.4	2108160	250	NO
19-Oct-21	37.3	3222720	250	NO
20-Oct-21	31.8	2747520	250	NO
21-Oct-21	35	3024000	250	NO
22-Oct-21	49.3	4259520	250	NO
23-Oct-21	56.4	4872960	250	NO
24-Oct-21	60.6	5235840	250	NO
25-Oct-21	46	3974400	250	NO
26-Oct-21	64	5529600	250	NO
27-Oct-21	47	4060800	250	NO
28-Oct-21	42.7	3689280	250	NO
29-Oct-21	47.5	4104000	250	NO
30-Oct-21	86.3	7456320	250	NO
31-Oct-21	79.3	6851520	250	NO
1-Nov-21	41.4	3576960	250	NO

**TABLE E-1  
QUARRY DISCHARGE SUMMARY (FLOW METER)**

DATE	DAILY AVERAGE DISCHARGE RATE (L/s)	DISCHARGE VOLUME BASED ON DAILY AVERAGE (L)	MAXIMUM DISCHARGE RATE (L/S)	MAX DISCHARGE RATE EXCEEDED?
2-Nov-21	65.8	5685120	250	NO
3-Nov-21	54	4665600	250	NO
4-Nov-21	52.8	4561920	250	NO
5-Nov-21	32.4	2799360	250	NO
6-Nov-21	100.9	8717760	250	NO
7-Nov-21	60.2	5201280	250	NO
8-Nov-21	22.9	1978560	250	NO
9-Nov-21	33.4	2885760	250	NO
10-Nov-21	31	2678400	250	NO
11-Nov-21	30.1	2600640	250	NO
12-Nov-21	46.8	4043520	250	NO
13-Nov-21	57.9	5002560	250	NO
14-Nov-21	67.8	5857920	250	NO
15-Nov-21	43.1	3723840	250	NO
16-Nov-21	41.5	3585600	250	NO
17-Nov-21	40.5	3499200	250	NO
18-Nov-21	38.4	3317760	250	NO
19-Nov-21	48.1	4155840	250	NO
20-Nov-21	49.3	4259520	250	NO
21-Nov-21	58.6	5063040	250	NO
22-Nov-21	65.1	5624640	250	NO
23-Nov-21	63.7	5503680	250	NO
24-Nov-21	24.1	2082240	250	NO
25-Nov-21	46	3974400	250	NO
26-Nov-21	74.3	6419520	250	NO
27-Nov-21	54.1	4674240	250	NO
28-Nov-21	48.8	4216320	250	NO
29-Nov-21	47.6	4112640	250	NO
30-Nov-21	47.4	4095360	250	NO
1-Dec-21	44.2	3818880	250	NO
2-Dec-21	58.6	5063040	250	NO
3-Dec-21	58.6	5063040	250	NO
4-Dec-21	48.7	4207680	250	NO
5-Dec-21	46.8	4043520	250	NO
6-Dec-21	57.5	4968000	250	NO
7-Dec-21	54.2	4682880	250	NO
8-Dec-21	52.4	4527360	250	NO
9-Dec-21	48.5	4190400	250	NO
10-Dec-21	49.4	4268160	250	NO
11-Dec-21	96.5	8337600	250	NO
12-Dec-21	85.6	7395840	250	NO
13-Dec-21	66.2	5719680	250	NO
14-Dec-21	63.6	5495040	250	NO
15-Dec-21	57.7	4985280	250	NO
16-Dec-21	56.8	4907520	250	NO
17-Dec-21	52.1	4501440	250	NO
18-Dec-21	48.9	4224960	250	NO
19-Dec-21	47.6	4112640	250	NO
20-Dec-21	46.3	4000320	250	NO
21-Dec-21	49	4233600	250	NO
22-Dec-21	48.3	4173120	250	NO
23-Dec-21	45.3	3913920	250	NO
24-Dec-21	43.4	3749760	250	NO
25-Dec-21	52.5	4536000	250	NO
26-Dec-21	50.6	4371840	250	NO
27-Dec-21	42.7	3689280	250	NO
28-Dec-21	45.9	3965760	250	NO
29-Dec-21	44.7	3862080	250	NO
30-Dec-21	42.4	3663360	250	NO
31-Dec-21	41.6	3594240	250	NO



TABLE E-2 - ECA EFFLUENT LIMITS

Parameters	Units	ECA Effluent Limits	13-Jan-21	23-Feb-21	15-Mar-21	7-Apr-21	27-May-21	29-Jun-21
			Discharge Line	Discharge Line	Discharge Line	Discharge Line	Discharge Line	Discharge Line
Total Suspended Solids	mg/L	25	<3	<10	<10	<10	<10	<10
Oil & Grease (total)	mg/L	15	2.5	<0.50	<0.50	<0.50	<0.50	<0.50
pH (field)	pH units	6.0 - 9.5	7.55	7.99	7.90	7.43	8.08	7.81
pH (lab)	pH units	6.0 - 9.5	7.95	7.99	8.22	8.24	8.04	8.16

Parameters	Units	ECA Effluent Limits	8-Jul-21	26-Jul-21	11-Aug-21	8-Sep-21	7-Oct-21	15-Nov-21	9-Dec-21
			Discharge Line	Re-Sample	Discharge Line	Discharge Line	Discharge Line	Discharge Line	Discharge Line
Total Suspended Solids	mg/L	25	<b>52</b>	19	<10	13	<10	<10	<10
Oil & Grease (total)	mg/L	15	<0.50	<0.50	<0.50	0.90	<0.50	<0.50	<0.50
pH (field)	pH units	6.0 - 9.5	7.83	7.83	7.99	7.91	7.84	7.87	7.72
pH (lab)	pH units	6.0 - 9.5	8.11	8.24	8.14	8.14	8.01	8.25	8.08

Notes:

- Grey text indicates parameter not detected above laboratory reported detection limit (RDL)
- ECA - Environmental Compliance Approval No. 1521-A4j4X
- BOLD** - Exceeds ECA Effluent Limits

TABLE E-3 - QUARRY DISCHARGE MONTHLY MONITORING

Parameters	Units	ECA Effluent Limit	PWQO	13-Jan-21	23-Feb-21	15-Mar-21	7-Apr-21	27-May-21	29-Jun-21
				Discharge Line	Discharge Line	Discharge Line	Discharge Line	Discharge Line	Discharge Line
Total Suspended Solids	mg/L	25		<3	<10	<10	<10	<10	<10
Oil & Grease (total)	mg/L	15		2.5	<0.50	<0.50	<0.50	<0.50	<0.50
Nitrite Nitrogen	mg/L			<0.1	<0.010	<0.010	<0.010	<0.010	0.014
Nitrate Nitrogen	mg/L			2.2	1.52	1.7	1.36	1.22	1.84
Total Ammonia Nitrogen	mg/L			0.11	0.059	0.08	0.051	<0.050	<0.050
pH (field)	pH units	6.0 - 9.5	6.5 - 8.5	7.55	7.99	7.90	7.43	8.08	7.81
pH (lab)	pH units	6.0 - 9.5	6.5 - 8.5	7.95	7.99	8.22	8.24	8.04	8.16
Temperature (field)	°C			4.70	4.10	6.40	12.8	15.9	20.8
Un-ionized ammonia (calculated)	mg/L		0.02	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001
Total Phosphorus	mg/L		0.03	<0.01	<0.004	<0.004	0.01	0.005	<0.004
Conductivity (lab)	µmho/cm			759	740	680	600	800	790
Chloride	mg/L			96.6	85	69	49	120	130
Sulphate	mg/L			9	7.7	7.6	6.6	8.1	8.3
Potassium	mg/L			2.5	2.3	1.9	1.7	3.1	3.3
Sodium	mg/L			24	24	21	17	30	29
Boron	mg/L		0.2	0.033	0.028	0.023	0.029	0.040	0.058
Cadmium	mg/L		0.0002	<0.000015	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009
Total Chromium	mg/L		0.0089	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L			<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper	mg/L		0.005	0.0005	0.0012	<0.0009	<0.0009	<0.0009	<0.0009
Iron	mg/L		0.3	0.06	<0.1	<0.1	<0.1	<0.1	<0.1
Lead	mg/L		0.025	0.00006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Nickel	mg/L			<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
Silicon	mg/L			1.65	2.00	1.60	1.30	1.50	1.50
Silver	mg/L			<0.0001	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009
Zinc	mg/L		0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Alkalinity	mg/L		210 *	212	250	220	220	230	210
Total Dissolved Solids	mg/L			376	350	265	325	420	435
Phenols (4AAP)	mg/L			<0.002	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Hardness	mg/L			334	330	290	270	350	300
Turbidity (lab)	NTU			0.5	1.3	1	1.1	0.5	1.2

Notes: - Grey text indicates parameter not detected above laboratory reported detection limit (RDL)

ECA - Environmental Compliance Approval No. 1521-A4j4X

PWQO - Provincial Water Quality Objectives (MECP 1994 and updates)

- Exceeds PWQO

**BOLD** - Exceeds ECA Effluent Limits

PWQO indicates that the alkalinity should not be decreased by more than 25% of the natural concentration.

\* Alkalinity was measured at 280 mg/L at upstream station SW2 in May 2021. 25% of 280 mg/L is 70 mg/L, so the Alkalinity must stay above 210 mg/L.

TABLE E-3 - QUARRY DISCHARGE MONTHLY MONITORING

Parameters	Units	ECA Effluent Limit	PWQO	8-Jul-21	26-Jul-21	11-Aug-21	8-Sep-21	7-Oct-21	15-Nov-21	9-Dec-21
				Discharge Line	Re-Sample	Discharge Line	Discharge Line	Discharge Line	Discharge Line	Discharge Line
Total Suspended Solids	mg/L	25		<b>52</b>	19	<10	13	<10	<10	<10
Oil & Grease (total)	mg/L	15		<0.50	<0.50	<0.50	0.90	<0.50	<0.50	<0.50
Nitrite Nitrogen	mg/L			0.022	0.02	0.019	0.02	0.02	0.01	0.02
Nitrate Nitrogen	mg/L			1.47	1.48	0.96	1.59	1.4	1.88	2.07
Total Ammonia Nitrogen	mg/L			0.12	0.08	0.10	0.16	0.140	0.10	0.13
pH (field)	pH units	6.0 - 9.5	6.5 - 8.5	7.83	7.83	7.99	7.91	7.84	7.87	7.72
pH (lab)	pH units	6.0 - 9.5	6.5 - 8.5	8.11	8.24	8.14	8.14	8.01	8.25	8.08
Temperature (field)	°C			21.7	21.7	19.2	18.2	16.0	5.8	4.6
Un-ionized ammonia (calculated)	mg/L		0.02	0.004	0.002	0.004	0.004	0.003	<0.001	<0.001
Total Phosphorus	mg/L		0.03	0.008	<0.004	<0.004	0.01	0.01	<0.004	0.01
Conductivity (lab)	µmho/cm			740	820	790	710	820	860	760
Chloride	mg/L			120	140	140	120	130	130	100
Sulphate	mg/L			6.8	7.5	7.4	7.1	6.7	8.10	8
Potassium	mg/L			3.7	3.8	4.3	4.1	4.4	3.7	3.3
Sodium	mg/L			28	32	34	27	33	28	27
Boron	mg/L		0.2	0.048	0.052	0.060	0.050	0.056	0.044	0.039
Cadmium	mg/L		0.0002	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009
Total Chromium	mg/L		0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt	mg/L			<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper	mg/L		0.005	<0.0009	<b>0.0013</b>	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009
Iron	mg/L		0.3	<b>0.17</b>	<b>0.15</b>	<0.1	<b>0.16</b>	<0.1	<0.1	<0.1
Lead	mg/L		<b>0.025</b>	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Nickel	mg/L			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silicon	mg/L			1.40	1.60	1.40	1.50	1.50	1.70	2.00
Silver	mg/L			<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009
Zinc	mg/L		0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Alkalinity	mg/L		210 *	<b>180</b>	210	<b>190</b>	<b>170</b>	<b>200</b>	230	240
Total Dissolved Solids	mg/L			<b>405</b>	410	<b>525</b>	430	<b>435</b>	470	450
Phenols (4AAP)	mg/L			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Hardness	mg/L			300	320	310	280	350	350	330
Turbidity (lab)	NTU			27	3.4	1.3	3.7	1.1	2.5	0.3

Notes: - Grey text indicates parameter not detected above laboratory reported detection limit (RDL)

ECA - Environmental Compliance Approval No. 1521-A4j4X

PWQO - Provincial Water Quality Objectives (MECP 1994 and updates)

- Exceeds PWQO

**BOLD** - Exceeds ECA Effluent Limits

\* PWQO indicates that the alkalinity should not be decreased by more than 25% of the natural concentration. Alkalinity was measured at 280 mg/L at upstream station SW2 in May 2021. 25% of 280 mg/L is 70 mg/L, so the Alkalinity must stay above 210 mg/L.