

Appendix I

Faecal indicator flux and stream discharge data for each site

In Tables E1 to N2 of this Appendix:

Concentration	= geometric mean value in cfu 100 ml ⁻¹ ;
Flux	= total organisms, or m ³ of water, passing the monitoring point in the measurement period;
% total	= percentage of the total faecal indicator or water flux split by high and low flow conditions; and
n	= the total number of 15 minute stream level recordings and those allocated to low and high flow conditions

The flux assessments presented in Tables E1 to N2 in this Appendix were calculated by:

1. Stream stage traces were constructed for each site using the record from the pressure transducers or gauged discharges from an adjacent site scaled by catchment area
2. The stage traces were allocated to high and low flow conditions using an automatic routine for checking for rates of increase or decrease in discharge over a given threshold r , such that, for $(dQ/dt > r)$ the flow is assigned to high flow, this was then checked against field team observations.
3. Geometric means were calculated for each faecal indicator and for each flow condition (i.e. low flow and high flow).
4. Stream velocity and cross section measurements were used to calculate a discharge for a range of stage readings as outlined in Section 1.2 of this report. Stage discharge relationships were calculated for each site using these data. Generally a power law relationship $Q=a.H^b$ was used for the low flows because this better represents the decline in water level as flow decreases than a straight line. Where the upper part of the stage discharge relationship did not extend as high as the observed maximum stage a straight line was fitted extending the upper end of the relationship. This was done to avoid over-estimating peak flows where the power law relationship might rise unrealistically high. Flow time-series were cross-checked from site to site, in some cases the power law did give an upper estimate of flow consistent with other sites and where this was the case a power law only stage discharge relationship was used.
5. The Nairn hydrology/hydrometry was more difficult to quantify because the stage changes in the Nairn side streams in response to rainfall were minimal. In addition, during the winter pre-remediation phase the stream flows varied in response to freeze/thaw diurnal cycles. The flow event in winter was associated with a period of warming above freezing conditions and associated snow-melt. The high degree of noise, generally low flows and minimal stage response prompted the application of a simple rainfall-runoff model to estimate flows. The gauged flows for each side stream were used in the model output plots to calibrate the models during the pre-treatment phase. Later updates and modifications to the model were made to provide additional smoothing of the input component and a temperature driven snow-melt component was added and found to simulate the snow-melt episodes satisfactorily. For the post-treatment period the same model parameters were used directly with the new driving variables (Table A1). Main channel flows at various locations in the River Nairn were estimated from SEPA gauge data at Firhall and Balnafoich. The two gauges are conveniently sited at the upper and lower end of the study area. A central point was assumed to be represented by the mean of the two data series. Local sampling point flows were simply estimated by area weighting the closest gauge time series.

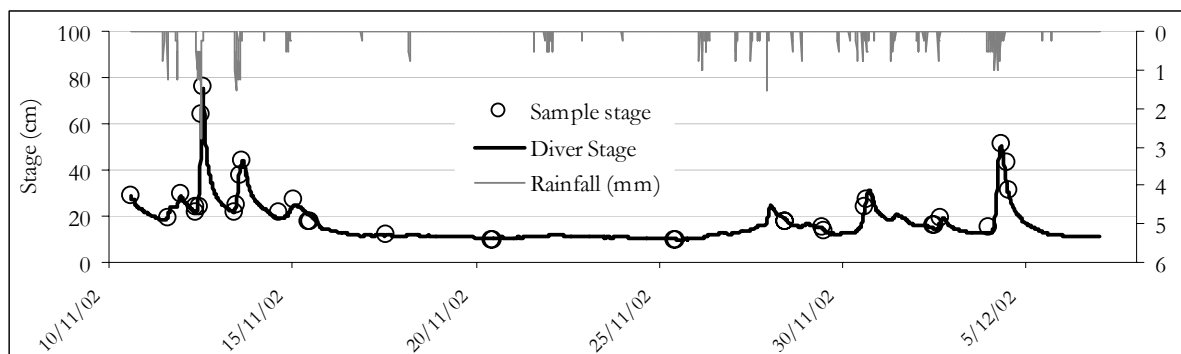
Table A1 Model parameters and initial conditions for pre-treatment model calibration

Site	T _{wet} (days)	T _{max} °C	Initial soil moisture	Initial snow store	Snow rate	Input smoothing	T _{quick} (hours)	T _{slow} (days)	Quick flow proportion	Initial slow flow
N02	12.0	20	0.016	0.05	0.0100	0.97	6	40	0.100	0.070
N03	12.0	20	0.016	0.10	0.0100	0.93	9	40	0.100	0.030
N05	50.0	20	0.008	<i>8.00</i>	<i>0.0006</i>	0.92	15	25	0.020	0.003
N06	12.0	20	0.016	0.05	0.0200	0.95	6	50	0.070	0.007
N07	100.0	25	0.016	0	n/a	0.8	7	60	0.005	0.005
N11	22.5	20	0.016	0	n/a	0.85	7	8	0.100	0.005
N13	100.0	25	0.016	<i>40.00</i>	<i>0.0020</i>	0.96	4	40	0.120	0.007
N14	12.0	20	0.016	0.22	0.0250	0.98	10	50	0.400	0.020
N15	22.5	20	0.016	<i>4.00</i>	<i>0.0007</i>	0.85	12	15	0.050	0.010
N16	22.5	20	0.016	<i>1.60</i>	<i>0.0020</i>	0.85	36	20	0.050	0.002
N17	12.0	20	0.016	<i>2.50</i>	<i>0.0025</i>	0.95	15	50	0.350	0.010
N18	12.0	20	0.016	<i>5.50</i>	<i>0.0007</i>	0.95	15	15	0.350	0.100

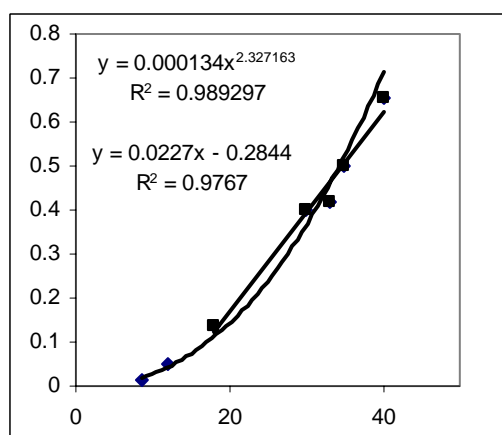
Note: Two different configurations of snowmelt model component were used, the values in italics are for the alternative.

- The flow for each site and the calculated geometric mean values were used to derive the site flux estimates in Table E1 to N2 below. This is illustrated graphically for Site 2002 for the pre- and post-remediation periods.

Site 2002: NGR 50380 31550

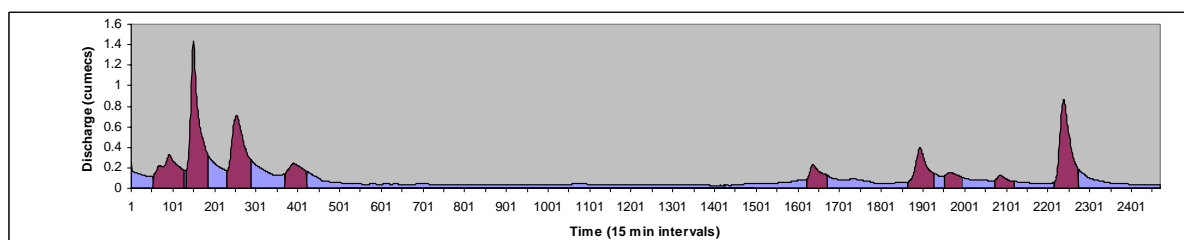


Diver stage, rainfall and manual staff gauge readings.

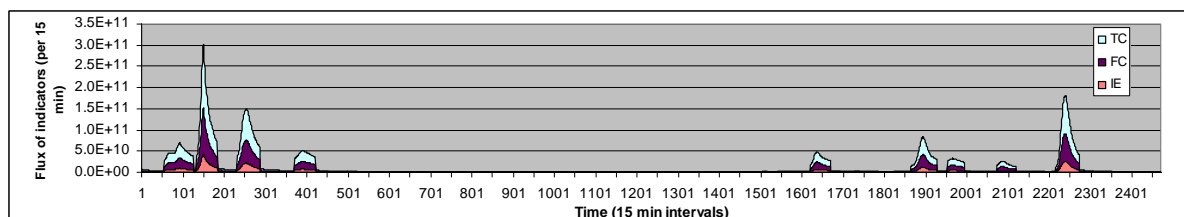


Stage (x-axis, cm), discharge (y-axis, cumeecs) relationship.

	Low	High
Discharge	1.13E+05	1.31E+05
% volume	46.3	53.7
Conc. TC	3233	23365
Flux, TC	3.65E+12	3.06E+13
% flux, TC	10.7	89.3
Conc. FC	1765	11768
Flux, FC	1.99E+12	1.54E+13
% flux, FC	11.4	88.6
Conc. IE	381	3350
Flux, IE	4.30E+11	4.39E+12
% flux, IE	8.9	91.1

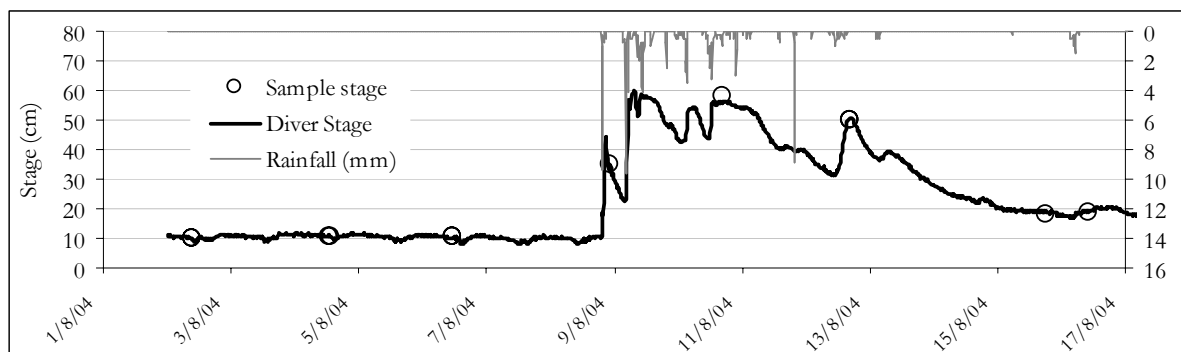


Discharge high/low flow separation for indicator flux estimation.

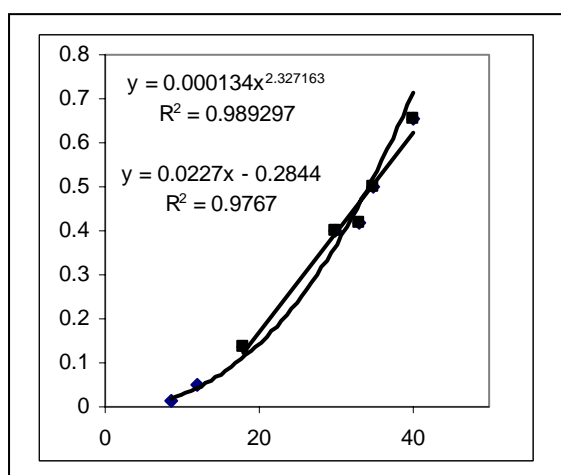


Fluxes of indicator organisms.

Site 2002: NGR 50380 31550

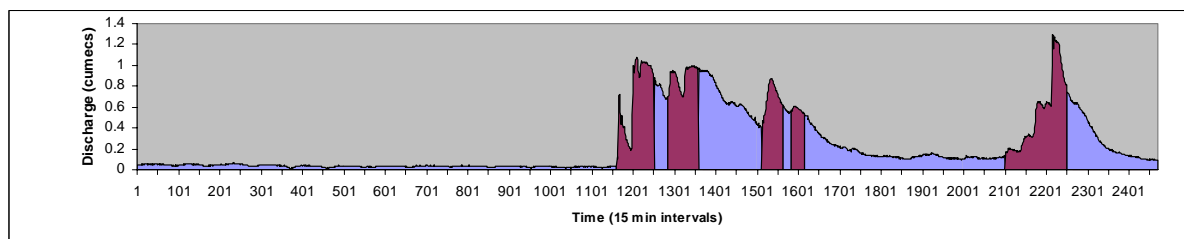


Diver stage, rainfall and manual staff gauge readings.

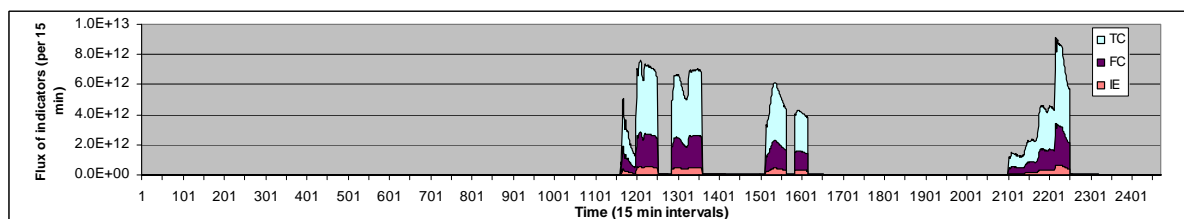


	Low	High
Discharge	2.98E+05	2.41E+05
% volume	55.3	44.7
Conc. TC	13335	783427
Flux, TC	3.97E+13	1.88E+15
% flux, TC	2.1	97.9
Conc. FC	6223	293572
Flux, FC	1.85E+13	7.06E+14
% flux, FC	2.6	97.4
Conc. IE	701	57196
Flux, IE	2.09E+12	1.38E+14
% flux, IE	1.5	98.5

Stage (x-axis, cm), discharge (y-axis, cumecs) relationship



Discharge high/low flow separation for indicator flux estimation.



Fluxes of indicator organisms.

Table E1 Flows and fluxes for Ettrick – Pre-treatment

Pre-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
1001												
Concentration		4212	125810		610	31183		163	30233			
Flux	4.36E+13	2.96E+12	4.07E+13	1.05E+13	4.28E+11	1.01E+13	9.88E+12	1.14E+11	9.76E+12	1.02E+05	7.02E+04	3.23E+04
% total		6.8	93.2		4.1	95.9		1.2	98.8		68.5	31.5
n	2400	2059	341									
1002												
Concentration		2934	73230		1008	29868		77	4152			
Flux	3.23E+13	1.06E+12	3.12E+13	1.31E+13	3.65E+11	1.27E+13	1.80E+12	2.80E+10	1.77E+12	7.89E+04	3.63E+04	4.26E+04
% total		3.3	96.7		2.8	97.2		1.6	98.4		46.0	54.0
n	2400	2058	342									
1003												
Concentration		1846	21052		571	11943		86	2532			
Flux	1.75E+14	1.08E+13	1.65E+14	9.68E+13	3.34E+12	9.34E+13	2.03E+13	5.05E+11	1.98E+13	1.37E+06	5.86E+05	7.82E+05
% total		6.2	93.8		3.5	96.5		2.5	97.5		42.8	57.2
n	2400	1977	423									
1004												
Concentration		3524	152792		1249	56439		109	8468			
Flux	4.43E+13	8.95E+11	4.34E+13	1.64E+13	3.17E+11	1.60E+13	2.43E+12	2.78E+10	2.41E+12	5.38E+04	2.54E+04	2.84E+04
% total		2.0	98.0		1.9	98.1		1.1	98.9		47.2	52.8
n	2400	2043	357									
1005												
Concentration		9550	122250		1537	34650		303	11377			
Flux	3.09E+14	2.90E+13	2.80E+14	8.40E+13	4.67E+12	7.93E+13	2.69E+13	9.20E+11	2.60E+13	5.33E+05	3.04E+05	2.29E+05
% total		9.4	90.6		5.6	94.4		3.4	96.6		57.1	42.9
n	2400	2062	338									
1006												
Concentration		12210	182505		3730	75839		733	20424			

Pre-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
Flux	6.22E+13	7.13E+12	5.51E+13	2.51E+13	2.18E+12	2.29E+13	6.59E+12	4.28E+11	6.17E+12	8.86E+04	5.84E+04	3.02E+04
% total		11.5	88.5		8.7	91.3		6.5	93.5		65.9	34.1
n	2400	2089	311									
1007												
Concentration		2275	72728		872	27040		269	6770			
Flux	1.53E+14	1.78E+12	1.51E+14	5.69E+13	6.82E+11	5.62E+13	1.43E+13	2.11E+11	1.41E+13	2.86E+05	7.83E+04	2.08E+05
% total		1.2	98.8		1.2	98.8		1.5	98.5		27.4	72.6
n	2400	1894	506									
1008												
Concentration		3234	39010		612	14279		94	2212			
Flux	1.52E+13	1.13E+12	1.41E+13	5.38E+12	2.14E+11	5.17E+12	8.33E+11	3.28E+10	8.00E+11	7.12E+04	3.50E+04	3.62E+04
% total		7.4	92.6		4.0	96.0		3.9	96.1		49.2	50.8
n	2400	1986	414									
1009												
Concentration		853	22516		279	9836		119	3385			
Flux	7.18E+13	1.80E+12	7.00E+13	3.12E+13	5.90E+11	3.06E+13	1.08E+13	2.52E+11	1.05E+13	5.22E+05	2.11E+05	3.11E+05
% total		2.5	97.5		1.9	98.1		2.3	97.7		40.5	59.5
n	2400	1944	456									

Table E2 Flows and fluxes for Ettrick – Post-treatment

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
1001												
Concentration		2829	238171		1769	215274		136	34955			
Flux	7.14E+13	4.45E+11	7.10E+13	6.91E+13	2.78E+11	6.88E+13	9.75E+12	2.15E+10	9.73E+12	1.12E+05	7.88E+04	3.28E+04
% total		0.6	99.4		0.4	99.6		0.2	99.8		68.5	31.5
n	2400	2133	267									
1002												
Concentration		857	48180		428	36628		57	14302			
Flux	1.03E+13	6.38E+10	1.02E+13	7.78E+12	3.18E+10	7.75E+12	3.03E+12	4.24E+09	3.03E+12	2.86E+04	7.45E+03	2.12E+04
% total		0.6	99.4		0.4	99.6		0.1	99.9		26.0	74.0
n	2400	2108	292									
1003												
Concentration		857	417900		428	31148		57	6339			
Flux	3.06E+14	5.30E+12	3.01E+14	2.31E+14	2.65E+12	2.29E+14	8.96E+13	3.52E+11	8.93E+13	1.24E+06	6.19E+05	6.24E+05
% total		1.7	98.3		1.1	98.9		0.4	99.6		49.8	50.2
n	2400	2146	254									
1004												
Concentration		2829	100885		1769	97802		136	13835			
Flux	7.14E+13	4.45E+11	7.10E+13	6.91E+13	2.78E+11	6.88E+13	9.75E+12	2.15E+10	9.73E+12	8.61E+04	1.57E+04	7.03E+04
% total		0.6	99.4		0.4	99.6		0.2	99.8		18.3	81.7
n	2400	2133	267									
1005												
Concentration		1937	42943		854	35907		57	7264			
Flux	9.07E+13	4.79E+12	8.59E+13	7.39E+13	2.11E+12	7.18E+13	1.47E+13	1.42E+11	1.45E+13	4.47E+05	2.47E+05	2.00E+05
% total		5.3	94.7		2.9	97.1		1.0	99.0		55.3	44.7
n	2400	2138	262							25		
1006												
Concentration		2256	249056		1165	171827		149	45832			

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
Flux	6.74E+13	1.27E+11	6.72E+13	4.64E+13	6.54E+10	4.64E+13	1.24E+13	8.35E+09	1.24E+13	3.26E+04	5.61E+03	2.70E+04
% total		0.2	99.8		0.1	99.9		0.1	99.9		17.2	82.8
n	2400	2095	305									
1007												
Concentration		2598	121837		1361	93435		347	17793			
Flux	1.30E+14	5.96E+11	1.29E+14	9.93E+13	3.13E+11	9.90E+13	1.89E+13	7.96E+10	1.88E+13	1.29E+05	2.30E+04	1.06E+05
% total		0.5	99.5		0.3	99.7		0.4	99.6		17.8	82.2
n	2400	2041	359									
1008												
Concentration		5730	130412		2120	59703		549	32563			
Flux	5.07E+13	9.36E+11	4.98E+13	2.31E+13	3.46E+11	2.28E+13	1.25E+13	8.97E+10	1.24E+13	5.05E+04	1.52E+04	3.53E+04
% total		1.8	98.2		1.5	98.5		0.7	99.3		30.1	69.9
n	2400	2021	379									
1009												
Concentration		616	56958		415	52239		83	16145			
Flux	1.02E+14	1.69E+12	1.00E+14	9.31E+13	1.14E+12	9.19E+13	2.86E+13	2.27E+11	2.84E+13	4.50E+05	2.74E+05	1.76E+05
% total		1.7	98.3		1.2	98.8		0.8	99.2		60.9	39.1
n	2400	2203	197									
1010												
Concentration		1761	17167		1140	15472		114	2674			
Flux	5.31E+13	5.55E+12	4.75E+13	4.64E+13	3.59E+12	4.28E+13	7.76E+12	3.59E+11	7.40E+12	5.92E+05	3.15E+05	2.77E+05
% total		10.5	89.5		7.7	92.3		4.6	95.4		53.2	46.8
n	2400	2182	218									

Table K1 flows and fluxes for Killoch – Pre-treatment

Pre-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low	High	Total	Low	High	Total	Low	High	Total	Low	High
2001												
Concentration		3527	21344		1695	10523		1066	4259			
Flux	7.29E+13	7.15E+12	6.57E+13	3.58E+13	3.44E+12	3.24E+13	1.53E+13	2.16E+12	1.31E+13	5.11E+05	2.03E+05	3.08E+05
% total		9.8	90.2		9.6	90.4		14.2	85.8		39.7	60.3
n	2496	1976	520									
2002												
Concentration		3233	23365		1765	11768		381	3350			
Flux	3.43E+13	3.65E+12	3.06E+13	1.74E+13	1.99E+12	1.54E+13	4.82E+12	4.30E+11	4.39E+12	2.44E+05	1.13E+05	1.31E+05
% total		10.7	89.3		11.4	88.6		8.9	91.1		46.3	53.7
n	2496	2000	496									
2003												
Concentration		1934	22095		1005	12798		271	5821			
Flux	5.10E+12	5.74E+11	4.52E+12	2.92E+12	2.98E+11	2.62E+12	1.27E+12	8.04E+10	1.19E+12	5.01E+04	2.97E+04	2.05E+04
% total		11.3	88.7		10.2	89.8		6.3	93.7		59.2	40.8
n	2494	2081	413									
2004												
Concentration		1885	27907		785	13918		199	5291			
Flux	3.95E+12	2.76E+11	3.68E+12	1.95E+12	1.15E+11	1.83E+12	7.26E+11	2.91E+10	6.97E+11	2.78E+04	1.46E+04	1.32E+04
% total		7.0	93.0		5.9	94.1		4.0	96.0		52.6	47.4
n	2494	2143	351									
2005												
Concentration		5190	22131		3738	6146		747	2533			
Flux	2.17E+13	5.56E+12	1.62E+13	8.50E+12	4.01E+12	4.49E+12	2.65E+12	8.01E+11	1.85E+12	1.80E+05	1.07E+05	7.31E+04
% total		25.6	74.4		47.1	52.9		30.2	69.8		59.5	40.5
n	2494	1993	501									
2006												
Concentration		2555	19724		1132	7450		1053	2587			
Flux	1.46E+13	2.30E+12	1.23E+13	5.65E+12	1.02E+12	4.63E+12	2.56E+12	9.47E+11	1.61E+12	1.52E+05	8.99E+04	6.22E+04

Pre-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low	High	Total	Low	High	Total	Low	High	Total	Low	High
% total		15.8	84.2		18.0	82.0		37.0	63.0		59.1	40.9
n	2494	1996	498									
2007												
Concentration		3142	19180		1103	6750		1430	2736			
Flux	1.30E+13	2.55E+12	1.04E+13	4.56E+12	8.96E+11	3.67E+12	2.65E+12	1.16E+12	1.49E+12	1.36E+05	8.13E+04	5.43E+04
% total		19.7	80.3		19.6	80.4		43.9	56.1		59.9	40.1
n	2493	2005	488									
2008												
Concentration		3572	15387		1517	5532		112	802			
Flux	7.08E+12	1.63E+12	5.45E+12	2.65E+12	6.93E+11	1.96E+12	3.36E+11	5.13E+10	2.84E+11	8.11E+04	4.57E+04	3.54E+04
% total		23.0	77.0		26.1	73.9		15.3	84.7		56.3	43.7
n	2496	2019	477									
2009												
Concentration		5850	22871		2535	10437		1112	3661			
Flux	1.57E+13	2.72E+12	1.29E+13	7.09E+12	1.18E+12	5.91E+12	2.59E+12	5.18E+11	2.07E+12	1.03E+05	4.66E+04	5.66E+04
% total		17.4	82.6		16.6	83.4		20.0	80.0		45.1	54.9
n	2495	2014	481									
2010												
Concentration		3047	14889		1473	6975		2265	4344			
Flux	3.09E+12	7.74E+11	2.28E+12	1.44E+12	3.78E+11	1.06E+12	1.24E+12	5.77E+11	6.65E+11	4.08E+04	2.55E+04	1.532E+04
% total		25.4	74.6		26.0	74.0		46.5	53.5		62.5	37.5
n	2496	2102	394									

Table K2 Flows and fluxes for Killoch – Post-treatment

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
2001												
Concentration		1761	702417		1140	256045		114	68905			
Flux	3.40E+15	1.12E+14	3.28E+15	1.25E+15	5.03E+13	1.20E+15	3.25E+14	2.75E+12	3.22E+14	7.69E+05	3.02E+05	4.67E+05
% total		3.3	96.7		4.0	96.0		0.8	99.2		39.2	60.8
n	2400	2182	218									
2002												
Concentration		13335	783427		6223	293572		701	57196			
Flux	1.92E+15	3.97E+13	1.88E+15	7.25E+14	1.85E+13	7.06E+14	1.40E+14	2.09E+12	1.38E+14	5.38E+05	2.98E+05	2.41E+05
% total		2.1	97.9		2.6	97.4		1.5	98.5		55.3	44.7
n	2496	2097	399									
2003												
Concentration		10970	636048		3002	166234		96	15835			
Flux	2.33E+14	5.70E+12	2.27E+14	6.10E+13	1.56E+12	5.95E+13	5.71E+12	5.00E+10	5.66E+12	8.78E+04	5.20E+04	3.58E+04
% total		2.4	97.6		2.6	97.4		0.9	99.1		59.2	40.8
n	2494	2184	310									
2004												
Concentration		38605	637159		17291	153098		340	22869			
Flux	1.70E+14	1.56E+13	1.55E+14	4.41E+13	6.98E+12	3.72E+13	5.69E+12	1.37E+11	5.55E+12	6.46E+04	4.04E+04	2.43E+04
% total		9.2	90.8		15.8	84.2		2.4	97.6		62.4	37.6
n	2496	2211	285									
2005												
Concentration		141081	714371		79318	178114		6875	55751			
Flux	4.75E+14	1.37E+14	3.38E+14	1.61E+14	7.71E+13	8.42E+13	3.30E+13	6.68E+12	2.64E+13	1.45E+05	9.72E+04	4.73E+04
% total		28.9	71.1		47.8	52.2		20.2	79.8		67.3	32.7
n	2496	2203	293									
2006												
Concentration		8136	486148		3026	149620		720	22764			

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
Flux	2.01E+14	6.77E+12	1.94E+14	6.22E+13	2.52E+12	5.97E+13	9.68E+12	5.99E+11	9.08E+12	1.23E+05	8.32E+04	3.99E+04
% total		3.4	96.6		4.0	96.0		6.2	93.8		67.6	32.4
n	2496	2209	287									
2007												
Concentration		33401	587547		15538	156985		987	23384			
Flux	4.97E+14	5.02E+13	4.47E+14	1.43E+14	2.34E+13	1.19E+14	1.93E+13	1.48E+12	1.78E+13	2.26E+05	1.50E+05	7.60E+04
% total		10.1	89.9		16.4	83.6		7.7	92.3		66.4	33.6
n	2496	2137	359									
2008												
Concentration		30010	361943		10872	184684		271	7247			
Flux	1.85E+14	6.02E+12	1.79E+14	9.36E+13	2.18E+12	9.14E+13	3.64E+12	5.43E+10	3.59E+12	6.95E+04	2.01E+04	4.95E+04
% total		3.3	96.7		2.3	97.7		1.5	98.5		28.8	71.2
n	2496	2143	353									
2009												
Concentration		21774	686017		4161	149168		633	33820			
Flux	5.58E+14	1.36E+13	5.44E+14	1.21E+14	2.59E+12	1.18E+14	2.72E+13	3.94E+11	2.68E+13	1.42E+05	6.23E+04	7.93E+04
% total		2.4	97.6		2.1	97.9		1.4	98.6		44.0	56.0
n	2496	2175	321									
2010												
Concentration		10488	283579		2079	113438		212	33984			
Flux	7.66E+13	2.16E+12	7.45E+13	3.02E+13	4.28E+11	2.98E+13	8.97E+12	4.38E+10	8.92E+12	4.69E+04	2.06E+04	2.63E+04
% total		2.8	97.2		1.4	98.6		0.5	99.5		44.0	56.0
n	2496	2175	321									
2011												
Concentration		14193	427481		8512	121147		388	23730			
Flux	7.69E+14	1.75E+13	7.52E+14	2.24E+14	1.05E+13	2.13E+14	4.22E+13	4.79E+11	4.17E+13	2.99E+05	1.24E+05	1.76E+05
% total		2.3	97.7		4.7	95.3		1.1	98.9		41.3	58.7
n	2496	2147	349									
2012												

Post-treatment	Total coliform			E. coli		Intestinal enterococci			Discharge volume m ³			
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
Concentration		95086	395276		13263	197431		196	39117			
Flux	9.90E+14	1.42E+14	8.48E+14	4.43E+14	1.98E+13	4.24E+14	8.42E+13	2.92E+11	8.39E+13	3.64E+05	1.49E+05	2.15E+05
% total		14.3	85.7		4.5	95.5		0.3	99.7		41.0	59.0
n	2496	2144	352									

Table S1 Flows and fluxes for Sandyhills – Pre-treatment

Pre-treatment	Total Coliforms			E.coli			Intestinal Enterococci			Discharge volume m ³		
	Total	Low	High	Total	Low	High	Total	Low	High	Total	Low	High
3001												
Concentration		630	1406		112	431		124	183			
Flux	9.44E+12	4.69E+12	4.75E+12	2.29E+12	8.31E+11	1.46E+12	1.54E+12	9.23E+11	6.19E+11	1.08E+06	7.44E+05	3.38E+05
% total		49.6	50.4		36.3	63.7		59.8	40.2		68.8	31.2
n	4032	3461	571									
3002												
Concentration		947	7082		259	3607		110	1507			
Flux	4.58E+12	8.45E+11	3.74E+12	2.13E+12	2.31E+11	1.90E+12	8.93E+11	9.84E+10	7.95E+11	1.42E+05	8.92E+04	5.27E+04
% total		18.4	81.6		10.8	89.2		11.0	89.0		62.8	37.2
n	4032	3318	714									
3003												
Concentration		187	473		59	101		25	36			
Flux	1.83E+12	5.22E+11	1.30E+12	4.42E+11	1.64E+11	2.78E+11	1.68E+11	6.99E+10	9.82E+10	5.56E+05	2.80E+05	2.76E+05
% total		28.6	71.4		37.1	62.9		41.6	58.4		50.3	49.7
n	4032	3125	907									
3004												
Concentration		200	1222		42	422		28	87			
Flux	4.51E+11	9.67E+10	3.54E+11	1.42E+11	2.01E+10	1.22E+11	3.88E+10	1.36E+10	2.52E+10	7.73E+04	4.83E+04	2.90E+04
% total		21.4	78.6		14.1	85.9		35.1	64.9		62.5	37.5
n	4032	3261	771									
3005												
Concentration		3750	22631		1997	4408		751	1499			
Flux	1.50E+13	1.95E+12	1.30E+13	3.57E+12	1.04E+12	2.54E+12	1.25E+12	3.90E+11	8.62E+11	1.10E+05	5.20E+04	5.75E+04
% total		13.0	87.0		29.0	71.0		31.2	68.8		47.5	52.5
n	4032	3065	967									
3006												
Concentration		298	2417		63	789		33	666			
Flux	8.52E+12	1.29E+12	7.23E+12	2.64E+12	2.73E+11	2.36E+12	2.14E+12	1.43E+11	1.99E+12	7.32E+05	4.33E+05	2.99E+05

Pre-treatment	Total Coliforms			E.coli			Intestinal Enterococci			Discharge volume m ³		
	Total	Low	High	Total	Low	High	Total	Low	High	Total	Low	High
% total		15.1	84.9		10.4	89.6		6.7	93.3		59.1	40.9
n	4032	3229	803									
3007												
Concentration		387	3436		173	1683		22	154			
Flux	2.26E+12	1.96E+11	2.06E+12	1.10E+12	8.78E+10	1.01E+12	1.04E+11	1.13E+10	9.24E+10	1.11E+05	5.07E+04	6.00E+04
% total		8.7	91.3		8.0	92.0		10.9	89.1		45.8	54.2
n	4032	3252	780									
3008												
Concentration		1203	7775		585	2508		556	1670			
Flux	4.01E+13	7.26E+12	3.28E+13	1.41E+13	3.53E+12	1.06E+13	1.04E+13	3.35E+12	7.05E+12	1.03E+06	6.04E+05	4.22E+05
% total		18.1	81.9		25.0	75.0		32.2	67.8		58.9	41.1
n	4032	3229	803									
3009												
Concentration		362	3868		115	794		54	1083			
Flux	9.25E+12	1.12E+12	8.13E+12	2.02E+12	3.54E+11	1.67E+12	2.44E+12	1.66E+11	2.28E+12	5.18E+05	3.08E+05	2.10E+05
% total		12.1	87.9		17.5	82.5		6.8	93.2		59.4	40.6
n	4032	3280	752									
3010												
Concentration		814	5788		303	2221		278	2010			
Flux	4.76E+13	1.08E+13	3.69E+13	1.82E+13	4.01E+12	1.41E+13	1.65E+13	3.68E+12	1.28E+13	1.96E+06	1.32E+06	6.37E+05
% total		22.6	77.4		22.1	77.9		22.3	77.7		67.5	32.5
n	4032	3425	607									
3011												
Concentration		837	1656		101	79		331	297			
Flux	2.00E+13	7.04E+12	1.30E+13	1.47E+12	8.49E+11	6.20E+11	5.12E+12	2.79E+12	2.33E+12	1.63E+06	8.42E+05	7.84E+05
% total		35.2	64.8		57.8	42.2		54.4	45.6		51.8	48.2
n	4032	3392	640									
3012												

Pre-treatment	Total Coliforms			E.coli			Intestinal Enterococci			Discharge volume m ³		
	Total	Low	High	Total	Low	High	Total	Low	High	Total	Low	High
Concentration		987	3357		113	359		29	175			
Flux	1.34E+13	3.48E+12	9.91E+12	1.46E+12	3.98E+11	1.06E+12	6.19E+11	1.02E+11	5.17E+11	6.48E+05	3.53E+05	2.95E+05
% total		26.0	74.0		27.3	72.7		16.5	83.5		54.5	45.5
n	4032	3482	550									
3013												
Concentration		1094	4832		189	1095		246	1238			
Flux	1.15E+14	2.48E+13	9.07E+13	2.48E+13	4.28E+12	2.05E+13	2.88E+13	5.56E+12	2.32E+13	4.14E+06	2.26E+06	1.88E+06
% total		21.4	78.6		17.2	82.8		19.3	80.7		54.7	45.3
n	4032	3249	783									
3014												
Concentration		441	6039		135	3881		39	4386			
Flux	1.68E+12	1.28E+11	1.55E+12	1.03E+12	3.94E+10	9.94E+11	1.13E+12	1.14E+10	1.12E+12	5.47E+04	2.91E+04	2.56E+04
% total		7.7	92.3		3.8	96.2		1.0	99.0		53.2	46.8
n	4032	3211	821									
3015												
Concentration		4547	22395		1161	4068		426	5955			
Flux	1.43E+14	2.56E+13	1.17E+14	2.79E+13	6.54E+12	2.13E+13	3.36E+13	2.40E+12	3.12E+13	1.09E+06	5.63E+05	5.25E+05
% total		17.9	82.1		23.5	76.5		7.1	92.9		51.8	48.2
n	4032	3392	640									
3016												
Concentration		2124	7073		393	1422		247	1159			
Flux	1.85E+14	4.93E+13	1.36E+14	3.65E+13	9.12E+12	2.74E+13	2.80E+13	5.73E+12	2.23E+13	4.24E+06	2.32E+06	1.92E+06
% total		26.6	73.4		25.0	75.0		20.4	79.6		54.7	45.3
n	4032	3249	783									
3017												
Concentration		636	6985		146	2420		113	2633			
Flux	1.83E+13	1.73E+12	1.66E+13	6.13E+12	3.96E+11	5.74E+12	6.55E+12	3.07E+11	6.24E+12	5.09E+05	2.72E+05	2.37E+05

Pre-treatment	Total Coliforms			E.coli			Intestinal Enterococci			Discharge volume m ³		
	Total	Low	High	Total	Low	High	Total	Low	High	Total	Low	High
% total		9.5	90.5		6.5	93.5		4.7	95.3		53.4	46.6
n	4032	3452	580									
3018												
Concentration		307	2077		43	711		19	181			
Flux	3.27E+12	4.48E+11	2.82E+12	1.03E+12	6.21E+10	9.66E+11	2.74E+11	2.82E+10	2.46E+11	2.81E+05	1.46E+05	1.36E+05
% total		13.7	86.3		6.0	94.0		10.3	89.7		51.7	48.3
n	4032	3391	641									
3019												
Concentration		142	329		54	28		139	37			
Flux	1.87E+12	6.03E+11	1.26E+12	3.40E+11	2.31E+11	1.09E+11	7.36E+11	5.92E+11	1.43E+11	8.09E+05	4.25E+05	3.84E+05
% total		32.3	67.7		68.0	32.0		80.5	19.5		52.5	47.5
n	4032	3416	616									
3020												
Concentration		180	1384		14	135		11	14			
Flux	1.239E+12	1.438E+11	1.095E+12	1.183E+11	1.135E+10	1.069E+11	1.962E+10	8.764E+09	1.085E+10	1.58E+05	7.974E+04	7.912E+04
% total		11.6	88.4		9.6	90.4		44.7	55.3		50.2	49.8
n	4032	3378	654									

Table S2 Flows and fluxes for Sandyhills – Post-treatment

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
3001												
Concentration		2273	7472		1280	5300		375	1933			
Flux	1.66E+14	7.58E+13	9.01E+13	1.07E+14	4.27E+13	6.39E+13	3.58E+13	1.25E+13	2.33E+13	4.54E+06	3.34E+06	1.21E+06

Post-treatment	Total coliform			E. coli		Intestinal enterococci			Discharge volume m ³			
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
% total		45.7	54.3		40.1	59.9		34.9	65.1		73.5	26.5
n	8352	7473	879									
3002												
Concentration		295	11404		194	7476		166	2754			
Flux	1.38E+13	1.11E+12	1.27E+13	9.06E+12	7.28E+11	8.33E+12	3.69E+12	6.24E+11	3.07E+12	4.86E+05	3.75E+05	1.11E+05
% total		8.0	92.0		8.0	92.0		16.9	83.1		77.1	22.9
n	8352	7725	627									
3003												
Concentration		1863	6053		1283	5872		349	1801			
Flux	6.25E+13	3.11E+13	3.14E+13	5.19E+13	2.14E+13	3.05E+13	1.52E+13	5.81E+12	9.35E+12	2.19E+06	1.67E+06	5.19E+05
% total		49.7	50.3		41.2	58.8		38.3	61.7		76.3	23.7
n	8352	7521	831									
3004												
Concentration		175	12355		130	10192		16	477			
Flux	9.24E+12	3.43E+11	8.90E+12	7.59E+12	2.54E+11	7.34E+12	3.76E+11	3.23E+10	3.43E+11	2.68E+05	1.96E+05	7.20E+04
% total		3.7	96.3		3.3	96.7		8.6	91.4		73.1	26.9
n	8352	7535	817									
3005												
Concentration		2059	9324		747	5054		158	701			
Flux	1.25E+13	3.09E+12	9.39E+12	6.21E+12	1.12E+12	5.09E+12	9.44E+11	2.38E+11	7.06E+11	2.51E+05	1.50E+05	1.01E+05
% total		24.8	75.2		18.1	81.9		25.2	74.8		59.9	40.1
n	8352	7432	920									
3006												
Concentration		903	7445		692	4948		99	504			
Flux	4.71E+13	9.93E+12	3.71E+13	3.23E+13	7.61E+12	2.47E+13	3.61E+12	1.09E+12	2.51E+12	1.60E+06	1.10E+06	4.99E+05
% total		21.1	78.9		23.6	76.4		30.3	69.7		68.8	31.2
n	8352	7502	850									
3007												
Concentration		557	8508		416	5608		164	1231			

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
Flux	9.67E+12	1.37E+12	8.30E+12	6.49E+12	1.02E+12	5.47E+12	1.60E+12	4.03E+11	1.20E+12	3.43E+05	2.46E+05	9.75E+04
% total		14.2	85.8		15.7	84.3		25.1	74.9		71.6	28.4
n	8352	7782	570									
3008												
Concentration		1422	15949		956	11212		169	1073			
Flux	2.00E+14	2.94E+13	1.71E+14	1.40E+14	1.98E+13	1.20E+14	1.50E+13	3.50E+12	1.15E+13	3.14E+06	2.07E+06	1.07E+06
% total		14.7	85.3		14.1	85.9		23.4	76.6		65.9	34.1
n	8352	7398	954									
3009												
Concentration		435	13379		279	7184		145	936			
Flux	6.13E+13	3.23E+12	5.81E+13	3.33E+13	2.07E+12	3.12E+13	5.14E+12	1.08E+12	4.06E+12	1.18E+06	7.42E+05	4.34E+05
% total		5.3	94.7		6.2	93.8		21.0	79.0		63.1	36.9
n	8352	7210	1142									
3010												
Concentration		1104	15229		511	10330		114	1267			
Flux	2.05E+14	2.59E+13	1.79E+14	1.34E+14	1.20E+13	1.22E+14	1.76E+13	2.69E+12	1.49E+13	3.53E+06	2.35E+06	1.18E+06
% total		12.6	87.4		9.0	91.0		15.3	84.7		66.6	33.4
n	8352	7436	916									
3011												
Concentration		1433	4664		615	2722		229	358			
Flux	7.60E+13	1.87E+13	5.73E+13	4.15E+13	8.02E+12	3.34E+13	7.38E+12	2.99E+12	4.39E+12	2.53E+06	1.31E+06	1.23E+06
% total		24.6	75.4		19.4	80.6		40.5	59.5		51.5	48.5
n	8352	7613	739									
3012												
Concentration		796	3187		325	2305		75	232			
Flux	2.01E+13	4.02E+12	1.61E+13	1.33E+13	1.64E+12	1.16E+13	1.55E+12	3.77E+11	1.17E+12	1.01E+06	5.06E+05	5.04E+05
% total		20.0	80.0		12.4	87.6		24.4	75.6		50.1	49.9

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
n	8352	7558	794									
3013												
Concentration		1308	10139		899	7088		296	977			
Flux	3.27E+14	4.63E+13	2.81E+14	2.28E+14	3.18E+13	1.97E+14	3.76E+13	1.05E+13	2.71E+13	6.31E+06	3.54E+06	2.77E+06
% total		14.1	85.9		13.9	86.1		27.9	72.1		56.1	43.9
n	8352	7332	1020									
3014												
Concentration		1010	60764		423	35931		179	6448			
Flux	2.59E+14	4.24E+12	2.54E+14	1.52E+14	1.77E+12	1.50E+14	2.77E+13	7.52E+11	2.70E+13	8.38E+05	4.19E+05	4.19E+05
% total		1.6	98.4		1.2	98.8		2.7	97.3		50.0	50.0
n	8352	7556	796									
3015												
Concentration		2962	28612		1332	13325		259	2934			
Flux	2.70E+14	2.48E+13	2.45E+14	1.25E+14	1.11E+13	1.14E+14	2.73E+13	2.17E+12	2.52E+13	1.69E+06	8.37E+05	8.57E+05
% total		9.2	90.8		8.9	91.1		7.9	92.1		49.4	50.6
n	8352	7520	832									
3016												
Concentration		4523	11741		1469	7620		418	1077			
Flux	5.00E+14	1.72E+14	3.29E+14	2.69E+14	5.57E+13	2.13E+14	4.60E+13	1.59E+13	3.02E+13	6.59E+06	3.79E+06	2.80E+06
% total		34.3	65.7		20.7	79.3		34.5	65.5		57.5	42.5
n	8352	7406	946									
3017												
Concentration		2962	28612		1332	13325		259	2934			
Flux	1.22E+14	1.21E+13	1.10E+14	5.65E+13	5.46E+12	5.10E+13	1.23E+13	1.06E+12	1.12E+13	7.93E+05	4.10E+05	3.83E+05
% total		10.0	90.0		9.7	90.3		8.6	91.4		51.7	48.3
n	8352	7619	733									
3018												

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
Concentration		720	1950		370	1098		186	1919			
Flux	5.87E+12	1.57E+12	4.31E+12	3.23E+12	8.04E+11	2.43E+12	4.64E+12	4.05E+11	4.24E+12	4.38E+05	2.18E+05	2.21E+05
% total		26.7	73.3		24.9	75.1		8.7	91.3		49.6	50.4
n	8352	7532	820									
3019												
Concentration		335	5250		211	3755		155	1241			
Flux	3.60E+13	2.06E+12	3.40E+13	2.56E+13	1.29E+12	2.43E+13	8.98E+12	9.50E+11	8.03E+12	1.26E+06	6.13E+05	6.47E+05
% total		5.7	94.3		5.0	95.0		10.6	89.4		48.6	51.4
n	8352	7479	873									
3020												
Concentration		419	946		254	605		116	121			
Flux	1.56E+12	6.21E+11	9.37E+11	9.76E+11	3.77E+11	5.99E+11	2.92E+11	1.72E+11	1.20E+11	2.47E+05	1.48E+05	9.90E+04
% total		39.9	60.1		38.6	61.4		59.0	41.0		60.0	40.0
n	8352	7833	519									

Table N1 Flows and fluxes for Nairn – Pre-treatment

Pre-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low	High	Total	Low	High	Total	Low	High	Total	Low	High
4001												
Concentration		2822	17515		253	259		261	317			
Flux	1.57E+15	3.32E+14	1.24E+15	4.80E+13	2.98E+13	1.82E+13	5.30E+13	3.06E+13	2.24E+13	1.88E+07	1.18E+07	7.06E+06
% total		21.2	78.8		62.0	38.0		57.8	42.2		62.5	37.5
n	3115	2620	495									
4002												
Concentration		1867	3419		640	739		428	527			
Flux	6.11E+12	5.47E+12	6.40E+11	2.01E+12	1.88E+12	1.38E+11	1.35E+12	1.26E+12	9.86E+10	3.12E+05	2.93E+05	1.87E+04
% total		89.5	10.5		93.1	6.9		92.7	7.3		94.0	6.0
n	3115	3025	90									
4003												
Concentration		1301	1288		319	317		53	136			
Flux	1.32E+12	1.23E+12	9.05E+10	3.24E+11	3.02E+11	2.23E+10	5.96E+10	5.00E+10	9.56E+09	1.02E+05	9.47E+04	7.03E+03
% total		93.2	6.8		93.1	6.9		84.0	16.0		93.1	6.9
n	3115	3001	114									
4004												
Concentration		3751	3200		1254	614		9091	22055			
Flux	5.10E+12	4.98E+12	1.20E+11	1.69E+12	1.67E+12	2.31E+10	1.29E+13	1.21E+13	8.29E+11	1.37E+05	1.33E+05	3.76E+03
% total		97.6	2.4		98.6	1.4		93.6	6.4		97.2	2.8
n	3115	3052	63									
4005												
Concentration		464	447		25	17		21	51			
Flux	4.04E+10	3.88E+10	1.66E+09	2.15E+09	2.09E+09	6.43E+07	1.97E+09	1.78E+09	1.90E+08	8.73E+03	8.36E+03	3.71E+02
% total		95.9	4.1		97.0	3.0		90.4	9.6		95.8	4.2
n	3115	3026	89									
4006												
Concentration		3062	5674		737	2955		610	2437			

Pre-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low	High	Total	Low	High	Total	Low	High	Total	Low	High
Flux	1.03E+12	9.33E+11	9.65E+10	2.75E+11	2.25E+11	5.02E+10	2.27E+11	1.86E+11	4.14E+10	3.22E+04	3.05E+04	1.70E+03
% total		90.6	9.4		81.7	18.3		81.8	18.2		94.7	5.3
n	3115	3044	71									
4007												
Concentration		20300	303473		2009	3374		36	2121			
Flux	3.85E+12	2.88E+12	9.69E+11	2.96E+11	2.85E+11	1.08E+10	1.19E+10	5.16E+09	6.77E+09	1.45E+04	1.42E+04	3.19E+02
% total		74.9	25.1		96.4	3.6		43.3	56.7		97.8	2.2
n	3115	3056	59									
4008												
Concentration		2683	15230		152	291		134	333			
Flux	1.30E+15	2.95E+14	1.00E+15	3.60E+13	1.68E+13	1.92E+13	3.67E+13	1.47E+13	2.20E+13	1.76E+07	1.10E+07	6.60E+06
% total		22.7	77.3		46.6	53.4		40.1	59.9		62.5	37.5
n	3115	2621	494									
4009												
Concentration		2483	17869		311	442		120	403			
Flux	1.46E+15	2.48E+14	1.21E+15	6.10E+13	3.11E+13	2.99E+13	3.92E+13	1.20E+13	2.73E+13	1.68E+07	1.00E+07	6.76E+06
% total		17.0	83.0		51.0	49.0		30.5	69.5		59.6	40.4
n	3115	2619	496									
4010												
Concentration		3954	16998		243	439		125	506			
Flux	1.53E+15	3.92E+14	1.14E+15	5.34E+13	2.41E+13	2.93E+13	4.62E+13	1.24E+13	3.38E+13	1.66E+07	9.91E+06	6.68E+06
% total		25.7	74.3		45.1	54.9		26.8	73.2		59.7	40.3
n	3115	2621	494									
4011												
Concentration		5464	5148		828	1775		849	1730			
Flux	1.21E+12	1.14E+12	7.40E+10	1.98E+11	1.73E+11	2.55E+10	2.02E+11	1.77E+11	2.49E+10	2.23E+04	2.09E+04	1.44E+03
% total		93.9	6.1		87.1	12.9		87.7	12.3		93.6	6.4
n	3115	3058	57									
4012												

Pre-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low	High	Total	Low	High	Total	Low	High	Total	Low	High
Concentration		615	3672		41	238		41	210			
Flux	2.58E+14	5.14E+13	2.06E+14	1.68E+13	3.45E+12	1.34E+13	1.52E+13	3.43E+12	1.18E+13	1.40E+07	8.37E+06	5.62E+06
% total		20.0	80.0		20.6	79.4		22.6	77.4		59.8	40.2
n	3115	2624	491									
4013												
Concentration		7218	802344		4199	57899		1312	77634			
Flux	8.19E+12	2.04E+12	6.15E+12	1.63E+12	1.19E+12	4.43E+11	9.66E+11	3.71E+11	5.95E+11	2.91E+04	2.83E+04	7.66E+02
% total		24.9	75.1		72.8	27.2		38.4	61.6		97.4	2.6
n	3115	3054	61									
4014												
Concentration		1618	2799		326	772		37	37			
Flux	2.24E+12	1.70E+12	5.41E+11	4.91E+11	3.42E+11	1.49E+11	4.60E+10	3.89E+10	7.13E+09	1.24E+05	1.05E+05	1.93E+04
% total		75.8	24.2		69.6	30.4		84.5	15.5		84.4	15.6
n	3115	2973	142									
4015												
Concentration		2909	67112		115	805		11	1248			
Flux	3.46E+12	1.05E+12	2.41E+12	7.02E+10	4.14E+10	2.89E+10	4.87E+10	3.95E+09	4.47E+10	3.97E+04	3.61E+04	3.58E+03
% total		30.4	69.6		58.9	41.1		8.1	91.9		91.0	9.0
n	3115	2980	135									
4016												
Concentration		87	1535		14	10		19	49			
Flux	1.42E+10	5.48E+09	8.74E+09	9.22E+08	8.65E+08	5.69E+07	1.46E+09	1.18E+09	2.79E+08	6.83E+03	6.26E+03	5.69E+02
% total		38.5	61.5		93.8	6.2		80.9	19.1		91.7	8.3
n	3115	2982	133									
4017												
Concentration		133	661		17	79		14	16			
Flux	1.18E+11	5.80E+10	6.04E+10	1.48E+10	7.59E+09	7.22E+09	7.75E+09	6.31E+09	1.43E+09	5.28E+04	4.37E+04	9.14E+03

Pre-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low	High	Total	Low	High	Total	Low	High	Total	Low	High
% total		49.0	51.0		51.2	48.8		81.5	18.5		82.7	17.3
n	3115	2977	138									
4018												
Concentration		87	770		15	14		11	10			
Flux	9.98E+11	3.85E+11	6.13E+11	7.88E+10	6.76E+10	1.13E+10	5.47E+10	4.68E+10	7.97E+09	5.22E+05	4.43E+05	7.97E+04
% total		38.6	61.4		85.7	14.3		85.4	14.6		84.7	15.3
n	3115	2967	148									
4019												
Concentration		353	2701		42	104		39	45			
Flux	1.82E+14	3.30E+13	1.49E+14	9.66E+12	3.93E+12	5.74E+12	6.09E+12	3.63E+12	2.46E+12	1.49E+07	9.36E+06	5.52E+06
% total		18.1	81.9		40.6	59.4		59.7	40.3		62.9	37.1
n	3115	2733	382									

Table N2 Flows and fluxes for Nairn – Post-treatment

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m ³		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
4001												
Concentration		2411	8655		986	3599		373	1461			
Flux	6.56E+14	2.49E+14	4.06E+14	2.71E+14	1.02E+14	1.69E+14	1.07E+14	3.86E+13	6.85E+13	1.50E+07	1.03E+07	4.69E+06
% total		38.1	61.9		37.7	62.3		36.0	64.0		68.8	31.2
n	3937	3396	541									
4002												
Concentration		837	4602		484	1608		82	2854			
Flux	2.76E+12	1.87E+12	8.91E+11	1.39E+12	1.08E+12	3.12E+11	7.36E+11	1.84E+11	5.53E+11	2.43E+05	2.23E+05	1.94E+04
% total		67.7	32.3		77.6	22.4		24.9	75.1		92.0	8.0

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m3		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
n	4032	3821	211									
4003												
Concentration		1867	3419		640	739		428	527			
Flux	1.21E+12	1.07E+12	1.44E+11	3.97E+11	3.66E+11	3.12E+10	2.67E+11	2.45E+11	2.22E+10	6.13E+04	5.71E+04	4.22E+03
% total		88.1	11.9		92.1	7.9		91.7	8.3		93.1	6.9
n	4032	3828	204									
4004												
Concentration		335	470		123	285		99	313			
Flux	3.02E+12	2.79E+12	2.32E+11	1.16E+12	1.02E+12	1.40E+11	9.77E+11	8.23E+11	1.54E+11	8.81E+05	8.32E+05	4.92E+04
% total		92.3	7.7		87.9	12.1		84.2	15.8		94.4	5.6
n	4032	3828	204									
4005												
Concentration		233	411		198	343		100	438			
Flux	1.09E+10	8.28E+09	2.60E+09	9.20E+09	7.03E+09	2.17E+09	6.32E+09	3.54E+09	2.78E+09	4.18E+03	3.55E+03	6.33E+02
% total		76.1	23.9		76.4	23.6		56.1	43.9		84.9	15.1
n	4032	3658	374									
4006												
Concentration		10806	155308		5791	91683		1780	24861			
Flux	7.57E+12	3.13E+12	4.44E+12	4.30E+12	1.68E+12	2.62E+12	1.23E+12	5.16E+11	7.11E+11	3.18E+04	2.90E+04	2.86E+03
% total		41.4	58.6		39.0	61.0		42.0	58.0		91.0	9.0
n	4032	3827	205									
4007												
Concentration		101425	713459		38217	80836		6568	185643			
Flux	2.37E+13	1.52E+13	8.58E+12	6.69E+12	5.71E+12	9.72E+11	3.21E+12	9.82E+11	2.23E+12	1.62E+04	1.50E+04	1.20E+03
% total		63.9	36.1		85.5	14.5		30.6	69.4		92.6	7.4
n	4032	3812	220									
4008												
Concentration		1738	11195		659	3638		179	1414			
Flux	6.58E+14	1.69E+14	4.90E+14	2.23E+14	6.39E+13	1.59E+14	7.92E+13	1.73E+13	6.18E+13	1.41E+07	9.69E+06	4.37E+06

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m3		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
% total		25.6	74.4		28.7	71.3		21.9	78.1		68.9	31.1
n	3937	3399	538									
4009												
Concentration		1306	17598		801	5526		179	2078			
Flux	1.05E+15	1.03E+14	9.44E+14	3.60E+14	6.34E+13	2.96E+14	1.26E+14	1.42E+13	1.11E+14	1.33E+07	7.91E+06	5.36E+06
% total		9.9	90.1		17.6	82.4		11.3	88.7		59.6	40.4
n	3937	3308	629									
4010												
Concentration		2080	11472		884	4891		240	2416			
Flux	7.70E+14	1.63E+14	6.07E+14	3.28E+14	6.93E+13	2.59E+14	1.47E+14	1.88E+13	1.28E+14	1.31E+07	7.84E+06	5.29E+06
% total		21.2	78.8		21.1	78.9		12.8	87.2		59.7	40.3
n	3937	3311	626									
4011												
Concentration		1512	84323		846	29788		520	52548			
Flux	2.24E+12	2.87E+11	1.96E+12	8.51E+11	1.61E+11	6.91E+11	1.32E+12	9.87E+10	1.22E+12	2.13E+04	1.90E+04	2.32E+03
% total		12.8	87.2		18.9	81.1		7.5	92.5		89.1	10.9
n	4032	3816	216									
4012												
Concentration		1161	6883		665	4441		147	1604			
Flux	3.55E+14	8.26E+13	2.72E+14	2.23E+14	4.73E+13	1.76E+14	7.39E+13	1.05E+13	6.35E+13	1.11E+07	7.11E+06	3.96E+06
% total		23.3	76.7		21.2	78.8		14.2	85.8		64.2	35.8
n	3937	3423	514									
4013												
Concentration		1706	329714		773	190964		200	157144			
Flux	2.36E+12	1.95E+11	2.16E+12	1.34E+12	8.83E+10	1.25E+12	1.05E+12	2.28E+10	1.03E+12	1.21E+04	1.14E+04	6.55E+02
% total		8.3	91.7		6.6	93.4		2.2	97.8		94.6	5.4
n	4032	3828	204									

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m3		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
4014												
Concentration		3402	10334		842	4813		46	4639			
Flux	1.88E+12	1.17E+12	7.08E+11	6.19E+11	2.89E+11	3.30E+11	3.34E+11	1.57E+10	3.18E+11	4.12E+04	3.43E+04	6.85E+03
% total		62.2	37.8		46.7	53.3		4.7	95.3		83.4	16.6
n	4032	3821	211									
4015												
Concentration		182	16068		47	11286		23	1769			
Flux	4.01E+11	5.17E+10	3.50E+11	2.59E+11	1.32E+10	2.46E+11	4.51E+10	6.62E+09	3.85E+10	3.06E+04	2.85E+04	2.18E+03
% total		12.9	87.1		5.1	94.9		14.7	85.3		92.9	7.1
n	4032	3871	161									
4016												
Concentration		95	5130		43	4012		11	1089			
Flux	2.11E+10	4.40E+09	1.67E+10	1.50E+10	2.00E+09	1.30E+10	4.06E+09	5.29E+08	3.53E+09	4.95E+03	4.63E+03	3.25E+02
% total		20.9	79.1		13.3	86.7		13.0	87.0		93.4	6.6
n	4032	3872	160									
4017												
Concentration		225	5694		190	4775		19	458			
Flux	4.82E+11	1.03E+11	3.79E+11	4.04E+11	8.67E+10	3.18E+11	3.90E+10	8.53E+09	3.05E+10	5.23E+04	4.57E+04	6.65E+03
% total		21.3	78.7		21.4	78.6		21.9	78.1		87.3	12.7
n	4032	3851	181									
4018 10_2												
Concentration		371	2517		180	2335		49	362			
Flux	3.06E+12	1.45E+12	1.61E+12	2.20E+12	7.02E+11	1.50E+12	4.23E+11	1.91E+11	2.32E+11	4.54E+05	3.90E+05	6.41E+04
% total		47.3	52.7		31.9	68.1		45.1	54.9		85.9	14.1
n	4032	3811	221									
4019 10_2												
Concentration		1025	3000		572	2750		101	810			

Post-treatment	Total coliform			E. coli			Intestinal enterococci			Discharge volume m3		
	Total	Low flow	High flow	Total	Low	High	Total	Low	High	Total	Low	High
Flux	2.25E+14	6.30E+13	1.62E+14	1.83E+14	3.52E+13	1.48E+14	4.98E+13	6.21E+12	4.36E+13	1.15E+07	6.15E+06	5.39E+06
% total		28.1	71.9		19.2	80.8		12.5	87.5		53.3	46.7
n	3937	3365	572									
4020												
Concentration		1390	9997		644	4433		229	1451			
Flux	7.18E+14	1.56E+14	5.61E+14	3.21E+14	7.25E+13	2.49E+14	1.07E+14	2.57E+13	8.15E+13	1.69E+07	1.13E+07	5.62E+06
% total		21.8	78.2		22.6	77.4		24.0	76.0		66.7	33.3
n	3937	3337	600									
4021												
Concentration		62	40		51	29		22	28			
Flux	4.13E+10	3.94E+10	1.90E+09	3.40E+10	3.26E+10	1.41E+09	1.51E+10	1.38E+10	1.33E+09	6.84E+04	6.36E+04	4.79E+03
% total		95.4	4.6		95.9	4.1		91.2	8.8		93.0	7.0
n	4032	3824	208									
4022												
Concentration		453	1540		178	538		63	572			
Flux	1.01E+12	8.07E+11	2.03E+11	3.88E+11	3.17E+11	7.08E+10	1.87E+11	1.11E+11	7.54E+10	1.91E+05	1.78E+05	1.32E+04
% total		79.9	20.1		81.8	18.2		59.6	40.4		93.1	6.9
n	4032	3828	204									