



# APPENDIX G

## Surface Water Flow Statistics



**APPENDIX G**  
Receiving waters residual flow statistics

**Table 1: Calculated surface water flow statistics for current conditions.**

Site	Catchment area (km <sup>2</sup> )	Records used for flows statistics <sup>(1)</sup>	Mean	Median	98 <sup>th</sup> percentile	90 <sup>th</sup> percentile	80 <sup>th</sup> percentile	MAM <sup>(2)</sup> (1 day)	MAM <sup>(2)</sup> (7 Day)
DC07	51.6	1985-2010 pre-mining and existing	121.4	37.9	0.7	4.4	9.5	3.7	5.0
DC08	56.8	1985-2010 pre-mining and existing	133.6	41.8	0.8	4.9	10.4	4.1	5.5
TC01	6.0	1985-2010 pre-mining and existing	14.1	4.4	0.1	0.5	1.1	0.4	0.6
C-J01	5.1	1985-2010 pre-mining and existing	12.0	3.8	0.1	0.4	0.9	0.4	0.5
Loop Road	263.3	1989-2010 pre-mining and existing	1,314	465	54	125	192	133	149
McCormicks	345.3	1989-2010 pre-mining and existing	1,723	609	70	164	252	174	196
NBWRRB	3.4	1976-1987 pre mining	21.3	6.7	0.4	1.0	2.0	0.8	1.0
NBWRRF	27.0	1976-1987 pre mining	169.4	53.5	3.3	8.3	15.7	6.1	8.2
MC100	2.6	1976-1987 pre mining	16.3	5.2	0.3	0.8	1.5	0.6	0.8
MC01	4.9	1976-1987 pre mining	30.7	9.7	0.6	1.5	2.9	1.1	1.5
NB03	44.9	1976-1987 pre mining	282	89	5.4	13.8	26.2	10.2	13.6

**Note:** 1) All values in L/s unless otherwise stated.

2) MAM = Mean Annual Minimum flow



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**Table 2: During Macraes Phase III operations with no water quality mitigation measures applied.**

Site	Catchment area change relative to current		Mean	Median	98th	90th	80th	MAM <sup>(1)</sup> (1 day)	MAM <sup>(1)</sup> (7 Day)
	km <sup>2</sup>	Comment							
DC07	-2.3	Loss of catchments for Lone Pine, MTG and SPI already occurring and partly included in flow statistics. Maximum possible change included for Macraes Phase III to be conservative.	116.0	36.2	0.7	4.2	9.1	3.5	4.8
DC08	-2.3	As for DC07	128.2	40.1	0.8	4.7	10.0	3.9	5.3
TC01	-2.5	Decrease due to Top Tipperary TSF.	8.2	2.6	0.1	0.3	0.6	0.2	0.4
CJ01	0	No change.	12.0	3.8	0.1	0.4	0.9	0.4	0.5
Loop Road	-2.3	As for DC07	1302.5	460.9	53.5	123.9	190.3	131.8	147.7
McCormicks	-4.8	Combined from DC07 and TC01.	1699.0	600.5	69.0	161.7	248.5	171.6	193.3
NBWRRB	0.5	Fraser's waste rock stack increases catchment area	24.2	7.6	0.5	1.1	2.3	0.9	1.1
NBWRRF	0.5	As for NBWRRB	172.3	54.4	3.4	8.4	16.0	6.2	8.3
MC100	0	Fraser's West WRS in catchment alters flow paths but does not change catchment area	16.3	5.2	0.3	0.8	1.5	0.6	0.8
MC01	0	As for MC100	30.7	9.7	0.6	1.5	2.9	1.1	1.5
NB03	0.5	As for NBWRRB	284.7	89.9	5.5	13.9	26.4	10.3	13.7

Note: 1) MAM = Mean Annual Minimum flow



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**Table 3: Following MGP closure and site rehabilitation with TSF discharges pumped to Frasers Pit and no other water quality mitigation measures.**

Site	Catchment area change relative to current		Mean	Median	98th	90th	80th	MAM <sup>(1)</sup> (1 day)	MAM <sup>(1)</sup> (7 Day)
	km <sup>2</sup>	Comment							
DC07	0	Lone Pine catchment, MTI and MTG will be rehabilitated. Flows assumed to return to pre-mining situation. Assumed that initial flow statistics predominantly predate mining.	121.4	37.9	0.7	4.4	9.5	3.7	5.0
DC08	0	As for DC07.	133.6	41.8	0.8	4.9	10.4	4.1	5.5
TC01	0	Top Tipperary TSF rehabilitated.	14.1	4.4	0.1	0.5	1.1	0.4	0.6
CJ01	0	No change.	12.0	3.8	0.1	0.4	0.9	0.4	0.5
Loop Road	0	As for DC07.	1314.0	465.0	54.0	125.0	192.0	133.0	149.0
McCormicks	0	Combined from DC07 and TC01.	1723.0	609.0	70.0	164.0	252.0	174.0	196.0
NBWRRB	0.5	Frasers waste rock stack rehabilitation increases catchment area.	24.2	7.6	0.5	1.1	2.3	0.9	1.1
NBWRRF	0.5	As for NBWRRB.	172.3	54.4	3.4	8.4	16.0	6.2	8.3
MC100	0	Frasers West WRS in catchment alters flow paths but does not change catchment area.	16.3	5.2	0.3	0.8	1.5	0.6	0.8
MC01	0	As for MC100.	30.7	9.7	0.6	1.5	2.9	1.1	1.5
NB03	0.5	As for NBWRRB.	284.7	89.9	5.5	13.9	26.4	10.3	13.7

Note: 1) MAM = Mean Annual Minimum flow