





**Bowral Waste Centre**

EPA Licence No: 13366

**Monitoring Point 2**

(UTM Zone 56: 262080.407 East, 6180766.636 North)

Leachate Quality Monitoring

Leachate holding dam as identified in Licence Variation Application to the EPA on 10 February 2021 - Proposed monitoring points

Sampling frequency: Yearly

Pollutant	Unit of Measure	100 Percentile Concentration Limit	No. of Samples Required by Licence	Total no. of samples collected and analysed	Results
					14/05/2024
Alkalinity (as CaCO <sub>3</sub> )	mg/L	<i>No concentration limits apply - sampling for monitoring purposes only</i>	1	1	799
Aluminium (Al)	mg/L		1	1	0.71
Arsenic (As)	mg/L		1	1	0.01
Barium (Ba)	mg/L		1	1	0.358
Benzene	mg/L		1	1	0.05
Cadmium (Cd)	mg/L		1	1	0.00005
Calcium (Ca)	mg/L		1	1	161
Chemical Oxygen Demand	mg/L		1	1	220
Cobalt	mg/L		1	1	0.011
Chromium (total hexavalent)	mg/L		1	1	0.05
Chromium (total)	mg/L		1	1	0.042
Chloride (Cl)	mg/L		1	1	136
Conductivity	(µS/cm)		1	1	2240
Copper (Cu)	mg/L		1	1	0.025
Dissolved Organic Carbon	mg/L		1	1	75
Ethyl Benzene	mg/L		1	1	0.001
Fluoride (F)	mg/L		1	1	0.6
Lead (Pb)	mg/L		1	1	0.004
Magnesium (Mg)	mg/L		1	1	68
Manganese(Mn)	mg/L		1	1	1.06
Mercury (Hg)	mg/L		1	1	0.00005
Nitrate + Nitrite	mg/L		1	1	10.3
Nitrogen as Ammonia (NH <sub>3</sub> )	mg/L		1	1	80.1
Organochlorine Pesticides	mg/L		1	1	0.00025
Organophosphate Pesticides	mg/L		1	1	0.00025
pH	pH Units		1	1	7.97
Phosphate (PO <sub>4</sub> )	mg/L		1	1	0.2
Phosphorus (P)	mg/L		1	1	0.2
Polychlorinated biphenyls (mg/L)	mg/L		1	1	0.0005
Polycyclic Aromatic Hydrocarbons (mg/L)	mg/L		1	1	0.00025
Potassium (K)	mg/L		1	1	33
Sodium (Na)	mg/L		1	1	103
Sulfate (SO <sub>4</sub> )	mg/L		1	1	272
Toluene	mg/L	1	1	0.001	

Total Iron (Fe)	mg/L		1	1	2.58
Total Petroleum Hydrocarbons	mg/L		1	1	0.52
Total Phenolics	mg/L		1	1	0.025
Xylene	mg/L		1	1	0.001
Zinc (Zn)	mg/L		1	1	0.086

*BDL\*Below detection limit.*

**Bowral Waste Centre**

**EPA Licence No: 13366**

**Monitoring Point 3**

(Zone 56: 262079.587 East, 6180676.705 North)

Groundwater Quality Monitoring

Groundwater monitoring location P1-A as identified in Licence Variation Application to the EPA on 10 February 2021 - Proposed monitoring points - CM9 DOC 21/142907

Sampling frequency: Every 6 months

Pollutant	Unit of Measure	100 Percentile Concentration Limit	No. of Samples Required by Licence	Total no. of samples collected and analysed	Lowest sample value	Highest sample value	Mean of samples	Results	
								24/10/2023	24/04/2024
Alkalinity (as CaCO <sub>3</sub> )	mg/L	<i>No concentration limits apply - sampling for monitoring purposes only</i>	1	1	788	812	800	812	788
Aluminium (Al)	mg/L		1	1	0.005	0.005	0	0.005	0.005
Calcium (Ca)	mg/L		1	1	132	142	137	132	142
Chloride (Cl)	mg/L		1	1	84	125	105	125	84
Conductivity	(µS/cm)		1	1	1440	1470	1455	1470	1440
Copper (Cu)	mg/L		1	1	0.0005	0.0005	0	0.0005	0.0005
Fluoride (F)	mg/L		1	1	0.3	0.3	0	0.3	0.3
Iron	mg/L		1	1	0.025	0.54	0	0.54	0.025
Lead (Pb)	mg/L		1	1	0.0005	0.0005	0	0.0005	0.0005
Magnesium (Mg)	mg/L		1	1	96	100	98	100	96
Manganese (Mn)	mg/L		1	1	0.119	0.134	0	0.134	0.119
Nitrate	mg/L		1	1	0.07	0.07	0	0.07	0.07
Nitrogen as Ammonia (NH <sub>3</sub> )	mg/L		1	1	0.5	0.76	1	0.76	0.5
pH	pH Units		1	1	7.83	7.92	8	7.83	7.92
Potassium (K)	mg/L		1	1	9	10	10	9	10
Sodium (Na)	mg/L		1	1	63	96	80	96	63
Standing Water Level	metres		1	1	16	19.2	18	16	19.2
Sulfate (SO <sub>4</sub> )	mg/L		1	1	10	11	11	10	11
Total dissolved solids	mg/L		1	1	746	810	778	810	746
Total organic carbon	mg/L		1	1	0.5	0.5	1	0.5	0.5
Total Phenolics	mg/L	1	1	0.025	0.025	0	0.025	0.025	
Zinc (Zn)	mg/L	1	1	0.0025	0.028	0	0.0025	0.028	

*BDL \*Below detection limit.*

EPA Licence No: 13366

**Monitoring Point 4**

(Zone 56: 262079.587 East, 6180676.705 North)

Groundwater Quality Monitoring

Groundwater monitoring location P1-A as identified in Licence Variation Application to the EPA on 10 February 2021 - Proposed monitoring points - CM9 DOC 21/142907

Sampling frequency: Every 6 months

Pollutant	Unit of Measure	100 Percentile Concentration Limit	No. of Samples Required by Licence	Total no. of samples collected and analysed	Lowest sample value	Highest sample value	Mean of samples	Results	
								24/10/2023	14/04/2024
Alkalinity (as CaCO <sub>3</sub> )	mg/L	<i>No concentration limits apply - sampling for monitoring purposes only</i>	1	1	177	214	196	177	214
Aluminium (Al)	mg/L		1	1	0.005	0.005	0	0.005	0.005
Calcium (Ca)	mg/L		1	1	38	48	43	38	48
Chloride (Cl)	mg/L		1	1	103	110	107	110	103
Conductivity	(µS/cm)		1	1	615	690	653	615	690
Copper (Cu)	mg/L		1	1	0.0005	0.011	0.01	0.0005	0.011
Fluoride (F)	mg/L		1	1	0.1	0.2	0.2	0.2	0.1
Iron	mg/L		1	1	0.025	0.025	0.0	0.025	0.025
Lead (Pb)	mg/L		1	1	0.0005	0.0005	0.001	0.0005	0.0005
Magnesium (Mg)	mg/L		1	1	31	37	34	31	37
Manganese (Mn)	mg/L		1	1	0.01	0.01	0.010	0.01	0.01
Nitrate	mg/L		1	1	0.08	0.1	0.090	0.1	0.08
Nitrogen as Ammonia (NH <sub>3</sub> )	mg/L		1	1	0.01	0.07	0	0.01	0.07
pH	pH Units		1	1	7.15	7.54	7.35	7.15	7.54
Potassium (K)	mg/L		1	1	3	4	4	3	4
Sodium (Na)	mg/L		1	1	39	41	40	41	39
Standing Water Level	metres		1	1	31.64	32.85	32	31.64	32.85
Sulfate (SO <sub>4</sub> )	mg/L		1	1	10	13	12	13	10
Total dissolved solids	mg/L		1	1	353	376	365	353	376
Total organic carbon	mg/L		1	1	0	0	0.500	0.5	0.5
Total Phenolics	mg/L	1	1	0	0	0.025	0.025	0.025	
Zinc (Zn)	mg/L	1	1	0	0.0025	0.003	0.0025	0.0025	

*BDL\*Below detection limit.*

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**Monitoring Point 5**

(Zone 56: 262079.587 East, 6180676.705 North)

Groundwater Quality Monitoring

Groundwater monitoring location P1-A as identified in Licence Variation Application to the EPA on 10 February 2021 - Proposed monitoring points - CM9 DOC 21/142907

Sampling frequency: Every 6 months

Pollutant	Unit of Measure	100 Percentile Concentration Limit	No. of Samples Required by Licence	Total no. of samples collected and analysed	Lowest sample value	Highest sample value	Mean of samples	Results	
								24/10/2023	24/04/2024
Alkalinity (as CaCO <sub>3</sub> )	mg/L	<i>No concentration limits apply - sampling for monitoring purposes only</i>	1	2	212	220	216	220	212
Aluminium (Al)	mg/L		1	2	0.005	0.005	0	BDL	0.005
Calcium (Ca)	mg/L		1	2	55	57	56	57	55
Chloride (Cl)	mg/L		1	2	37	42	40	37	42
Conductivity	(µS/cm)		1	2	670	688	679	688	670
Copper (Cu)	mg/L		1	2	0.0005	0.0005	0.00	BDL	0.0005
Fluoride (F)	mg/L		1	2	0.05	0.05	0.1	0.05	0.05
Iron	mg/L		1	2	0.025	0.025	0.0	BDL	0.025
Lead (Pb)	mg/L		1	2	0.0005	0.0005	0.001	BDL	0.0005
Magnesium (Mg)	mg/L		1	2	39	40	40	40	39
Manganese (Mn)	mg/L		1	2	0.371	0.371	0.371	BDL	0.371
Nitrate	mg/L		1	2	0.005	0.06	0.033	0.005	0.06
Nitrogen as Ammonia (NH <sub>3</sub> )	mg/L		1	2	0.02	0.14	0	0.14	0.02
pH	pH Units		1	2	7.01	7.3	7.16	7.01	7.3
Potassium (K)	mg/L		1	2	4	4	4	4	4
Sodium (Na)	mg/L		1	2	31	33	32	33	31
Standing Water Level	metres		1	2	18.1	18.34	18	18.34	18.1
Sulfate (SO <sub>4</sub> )	mg/L		1	2	110	122	116	122	110
Total dissolved solids	mg/L		1	2	366	416	391	416	366
Total organic carbon	mg/L		1	2	2	2	2	2	2
Total Phenolics	mg/L	1	2	0.025	0.025	0	0.025	0.025	
Zinc (Zn)	mg/L	1	2	0.007	0.007	0.007	BDL	0.007	

BDL\*Below detection limit.

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**Monitoring Point 6**

(Zone 56: 262079.587 East, 6180676.705 North)

Groundwater Quality Monitoring

Groundwater monitoring location P1-A as identified in Licence Variation Application to the EPA on 10 February 2021 - Proposed monitoring points - CM9 DOC 21/142907

Sampling frequency: Every 6 months

Pollutant	Unit of Measure	100 Percentile Concentration Limit	No. of Samples Required by Licence	Total no. of samples collected and analysed	Lowest sample value	Highest sample value	Mean of samples	Results	
								24/10/2023	24/04/2024
Alkalinity (as CaCO <sub>3</sub> )	mg/L	<i>No concentration limits apply - sampling for monitoring purposes only</i>	1	2	163	168	166	168	163
Aluminium (Al)	mg/L		1	2	0.005	0.005	0	0.005	0.005
Calcium (Ca)	mg/L		1	2	37	38	38	38	37
Chloride (Cl)	mg/L		1	2	85	103	94	103	85
Conductivity	(µ/cm)		1	2	557	560	559	557	560
Copper (Cu)	mg/L		1	2	0.0005	0.0005	0.00	0.0005	0.0005
Fluoride (F)	mg/L		1	2	0.1	0.1	0.1	0.1	0.1
Iron	mg/L		1	2	0.025	30	15.0	0.025	30
Lead (Pb)	mg/L		1	2	0.0005	0.0005	0.001	0.0005	0.0005
Magnesium (Mg)	mg/L		1	2	29	30	30	29	30
Manganese (Mn)	mg/L		1	2	0.0005	0.0005	0.001	0.0005	0.0005
Nitrate	mg/L		1	2	0.16	0.16	0.160	0.16	0.16
Nitrogen as Ammonia (NH <sub>3</sub> )	mg/L		1	2	0.02	0.06	0	0.06	0.02
pH	pH Units		1	2	7.18	7.54	7.36	7.18	7.54
Potassium (K)	mg/L		1	2	3	3	3	3	3
Sodium (Na)	mg/L		1	2	34	35	35	35	34
Standing Water Level	metres		1	2	32	33.2	33	32	33.2
Sulfate (SO <sub>4</sub> )	mg/L		1	2	7	8	8	7	8
Total dissolved solids	mg/L		1	2	292	326	309	326	292
Total organic carbon	mg/L		1	2	0.5	0.5	1	0.5	0.5
Total Phenolics	mg/L	1	2	0.025	0.025	0	0.025	0.025	
Zinc (Zn)	mg/L	1	2	0.0025	0.0025	0.003	0.0025	0.0025	

*BDL\*Below detection limit.*



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**Monitoring Point 7**

(Zone 56: 262079.587 East, 6180676.705 North)

Groundwater Quality Monitoring

Groundwater monitoring location P1-A as identified in Licence Variation Application to the EPA on 10 February 2021 - Proposed monitoring points - CM9 DOC 21/142907

Sampling frequency: Every 6 months

Pollutant	Unit of Measure	100 Percentile Concentration Limit	No. of Samples Required by Licence	Total no. of samples collected and analysed	Lowest sample value	Highest sample value	Mean of samples	Results	
								24/10/2023	24/04/2024
Alkalinity (as CaCO <sub>3</sub> )	mg/L	<i>No concentration limits apply - sampling for monitoring purposes only</i>	1	2	198	220	209	198	220
Aluminium (Al)	mg/L		1	2	0.005	0.005	0	0.005	0.005
Calcium (Ca)	mg/L		1	2	51	54	53	54	51
Chloride (Cl)	mg/L		1	2	116	155	136	155	116
Conductivity	(µS/cm)		1	2	707	754	731	754	707
Copper (Cu)	mg/L		1	2	0.0005	0.0005	0.00	0.0005	0.0005
Fluoride (F)	mg/L		1	2	0.3	0.3	0.3	0.3	0.3
Iron	mg/L		1	2	0.025	0.025	0.0	0.025	0.025
Lead (Pb)	mg/L		1	2	0.0005	0.0005	0.001	0.0005	0.0005
Magnesium (Mg)	mg/L		1	2	34	35	35	35	34
Manganese (Mn)	mg/L		1	2	1.22	1.41	1.315	1.41	1.22
Nitrate	mg/L		1	2	0.02	0.03	0.025	0.03	0.02
Nitrogen as Ammonia (NH <sub>3</sub> )	mg/L		1	2	0.16	0.2	0	0.16	0.2
pH	pH Units		1	2	7.15	7.39	7.27	7.15	7.39
Potassium (K)	mg/L		1	2	6	6	6	6	6
Sodium (Na)	mg/L		1	2	45	46	46	46	45
Standing Water Level	metres		1	2	28.62	38.59	34	38.59	28.62
Sulfate (SO <sub>4</sub> )	mg/L		1	2	2	4	3	2	4
Total dissolved solids	mg/L		1	2	374	478	426	478	374
Total organic carbon	mg/L		1	2	0.5	0.5	1	0.5	0.5
Total Phenolics	mg/L	1	2	0.025	0.025	0	0.025	0.025	
Zinc (Zn)	mg/L	1	2	0.0025	0.0025	0.003	0.0025	0.0025	

\*Below detection limit.

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**Monitoring Point 8**

(Zone 56: 262079.587 East, 6180676.705 North)

Groundwater Quality Monitoring

Groundwater monitoring location P1-A as identified in Licence Variation Application to the EPA on 10 February 2021 - Proposed monitoring points - CM9 DOC 21/142907

Sampling frequency: Every 6 months

Pollutant	Unit of Measure	100 Percentile Concentration Limit	No. of Samples Required by Licence	Total no. of samples collected and analysed	Lowest sample value	Highest sample value	Mean of samples	Results	
								24/10/2023	24/04/2024
Alkalinity (as CaCO <sub>3</sub> )	mg/L	<i>No concentration limits apply - sampling for monitoring purposes only</i>	1	2	158	167	163	158	167
Aluminium (Al)	mg/L		1	2	0.005	0.01	0	0.005	0.01
Calcium (Ca)	mg/L		1	2	33	35	34	33	35
Chloride (Cl)	mg/L		1	2	65	82	74	82	65
Conductivity	(µS/cm)		1	2	497	497	497	497	497
Copper (Cu)	mg/L		1	2	0.0005	0.0005	0.00	0.0005	0.0005
Fluoride (F)	mg/L		1	2	0.1	0.1	0.1	0.1	0.1
Iron	mg/L		1	2	0.025	0.025	0.0	0.025	0.025
Lead (Pb)	mg/L		1	2	0.0005	0.0005	0.001	0.0005	0.0005
Magnesium (Mg)	mg/L		1	2	23	24	24	23	24
Manganese (Mn)	mg/L		1	2	0.022	0.026	0.024	0.026	0.022
Nitrate	mg/L		1	2	0.09	0.13	0.110	0.13	0.09
Nitrogen as Ammonia (NH <sub>3</sub> )	mg/L		1	2	0.04	0.07	0	0.04	0.07
pH	pH Units		1	2	6.97	7.15	7.06	6.97	7.15
Potassium (K)	mg/L		1	2	4	5	5	4	5
Sodium (Na)	mg/L		1	2	36	37	37	37	36
Standing Water Level	metres		1	2	33.78	34.7	34	33.78	34.7
Sulfate (SO <sub>4</sub> )	mg/L		1	2	3	4	4	3	4
Total dissolved solids	mg/L		1	2	250	272	261	272	250
Total organic carbon	mg/L		1	2	0	0	1	0.5	0.5
Total Phenolics	mg/L	1	2	0	0	0	0.025	0.025	
Zinc (Zn)	mg/L	1	2	0.014	0.014	0.014	0.014	0.014	

\*Below detection limit.

**Bowral Waste Centre**

**EPA Licence No: 13366**

**Monitoring Point 11**

(UTM Zone 56: 262045.431 East, 6180744.443 North)

Water Quality Monitoring

Stormwater holding dam (Quarry Void) as identified in Licence Variation Application to the EPA on 10 February 2021 - Proposed monitoring points - CM9 DOC 21/142907

Sampling frequency: Special Frequency 1 means prior to any water being pumped to the discharge pond (Point 1).

Date	Sample ID	Depth (m)	Description	pH	TSS	Turbidity	Ammonia	COD
			UNITS	pH	mg/L	NTU	mg/L	mg/L
			LOR	0.01	5	0.1	0.01	10
			LIMIT	6.5-8.5	30	150	TBD	50
			Max	8.3	13	21	2	13
			Min	7.6	3	4.6	0.2	5
			Average	7.9	9	11.8	0.9	7
30/01/2024	MP11_1	Surface		8.14	13	14.5	1.99	<10
30/01/2024	MP11_2	2		8.28	10	13.9	2.03	<10
21/03/2024	MP11_1	Surface		8.16	10	4.6	0.4	<10
	MP11_2	2						
27/03/2024	MP11_1	Surface		7.56	<5	4.6	0.15	<10
	MP11_2	2						
4/04/2024	MP11_1	Surface		8.31	10	7.6	0.51	<10
	MP11_2	2						
18/04/2024	MP11_1	Surface		7.97	<5	10.9	0.76	13
	MP11_2	2		7.99	<5	12.1	1.02	10
2/05/2024	MP11_1	Surface		7.96	6	7.2	0.7	<10
	MP11_2	2						
9/07/2024	MP11_1	Surface		7.61	8	13.8	1.34	5
9/07/2024	MP11_2	2		7.59	8	12.1	1.41	5
15/08/2024	MP11_1	Surface		7.62	12	19.5	0.49	5
15/08/2024	MP11_2	2		8.14	2.5	20.6	0.5	5
	MP11_1	Surface						
	MP11_2	2						
	MP11_1	Surface						
	MP11_2	2						
	MP11-1	Surface						
	MP11_2	2						
	MP11_1	Surface						
	MP11_2	2						
	MP11_1	Surface						
	MP11_2	2						
	MP11_1	Surface						
	MP11_2	2						

Comprehensive Discharge Study Test No.1  
 Not reqd to test  
 Comprehensive Discharge Study Test No.2  
 Not reqd to test  
 Comprehensive Discharge Study Test No.3  
 Not reqd to test  
 Comprehensive Discharge Study Test No.4  
 Not reqd to test