

Monthly Monitoring Data

Environmental Protection Licence Number: 12693

link to EPL12693 on EPA Public Register: [Click Here](#)

Licensee: Newcastle Coal Infrastructure Group Pty Ltd, Locked Bag 6003, Hunter Region Mail Centre NSW 2310

Premises: Newcastle Coal Infrastructure Group, Cormorant Road, Kooragang NSW 2304

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Note: On the 25th of August 2017 an amendment was made to the NCIG Environmental Protection Licence (EPL12693) which removed the requirement for ambient air quality monitoring at Points 7-10 and 14-15. However, NCIG will continue to publish ambient air quality data for these locations previously listed in EPL12693 for the interest of the public.

Depositional Dust Monitoring

Sample Period: 10 December 2021 – 10 January 2022

Units of Measure: Insoluble Solids (grams per square metre per month (g/m²/month))

Frequency: Monthly

	Monitoring Point 7 - DG3 (Kooragang Island)	Monitoring Point 8 - DG4 (Mayfield Sport Rec Club)	Monitoring Point 9 - DG5 (Mayfield West)	Monitoring Point 10 - DG6 (Sandgate)
Depositional Dust	0.4	0.7	0.7	0.7

High Volume Air Sampling

Units of measure: Micrograms per cubic metre (µg/m³)

Frequency: Weekly

	Monitoring Point 14 - HVAS 1 (Steel River, Mayfield West)				Monitoring Point 15 - HVAS 2 (Crebert Street, Mayfield)			
	TSP		PM10		TSP		PM10	
05-Dec-21	37	05-Dec-21	16	05-Dec-21	35	05-Dec-21	21	
11-Dec-21	30	11-Dec-21	13	11-Dec-21	21	11-Dec-21	11	
17-Dec-21	60	17-Dec-21	21	17-Dec-21	36	17-Dec-21	21	
23-Dec-21	38	23-Dec-21	21	23-Dec-21	40	23-Dec-21	21	
29-Dec-21	ND*	29-Dec-21	8	29-Dec-21	13	29-Dec-21	8	

NB: Sample period is a 24-hour period on each of the above dates | TSP = Total Suspended Particulates | PM10 = Particulate Matter <10 microns

*ND: No data due to a programming error

6 Monthly Groundwater Monitoring

Sampling Point 1, 38, 39 (Background Monitoring Wells)

Groundwater Sampling Point 1 (GW1)

Sample Date: 21 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value
pH	pH units	Every 6 Months	7.1
Conductivity	µS/cm	Every 6 Months	19200
Bromide	mg/L	Every 6 Months	16.8
Aluminium	mg/L	Every 6 Months	<0.01
Arsenic	mg/L	Every 6 Months	<0.001
Cadmium	mg/L	Every 6 Months	<0.0001
Copper	mg/L	Every 6 Months	<0.001
Manganese	mg/L	Every 6 Months	0.223
Nickel	mg/L	Every 6 Months	<0.001
Zinc	mg/L	Every 6 Months	<0.005
Iron	mg/L	Every 6 Months	1.84
Total PAH	µg/L	Every 6 Months	<0.5
TPH C6-9 Fraction	µg/L	Every 6 Months	<20
TPH C10-14 Fraction	µg/L	Every 6 Months	<50
TPH C15-28 Fraction	µg/L	Every 6 Months	<100
TPH C29-36 Fraction	µg/L	Every 6 Months	<50
Cyanide (free)	mg/L	Every 6 Months	<0.004
Cyanide (total)	mg/L	Every 6 Months	<0.004

Groundwater Sampling Point 38 (BH21S)

Sample Date: 17 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value
pH	pH units	Every 6 Months	10.88
Conductivity	µS/cm	Every 6 Months	1530
Bromide	mg/L	Every 6 Months	1.1
Aluminium	mg/L	Every 6 Months	0.22
Arsenic	mg/L	Every 6 Months	0.003
Cadmium	mg/L	Every 6 Months	<0.0001
Copper	mg/L	Every 6 Months	<0.001
Manganese	mg/L	Every 6 Months	<0.001
Nickel	mg/L	Every 6 Months	0.002
Zinc	mg/L	Every 6 Months	<0.005
Iron	mg/L	Every 6 Months	0.06
Total PAH	µg/L	Every 6 Months	193
TPH C6-9 Fraction	µg/L	Every 6 Months	20
TPH C10-14 Fraction	µg/L	Every 6 Months	240
TPH C15-28 Fraction	µg/L	Every 6 Months	220
TPH C29-36 Fraction	µg/L	Every 6 Months	50
Cyanide (free)	mg/L	Every 6 Months	<0.004
Cyanide (total)	mg/L	Every 6 Months	0.225

Groundwater Sampling Point 39 (BH21D)

Sample Date: 17 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value
pH	pH units	Every 6 Months	7.39
Conductivity	µS/cm	Every 6 Months	9600
Bromide	mg/L	Every 6 Months	8
Aluminium	mg/L	Every 6 Months	0.01
Arsenic	mg/L	Every 6 Months	0.001
Cadmium	mg/L	Every 6 Months	<0.0001
Copper	mg/L	Every 6 Months	<0.001
Manganese	mg/L	Every 6 Months	0.178
Nickel	mg/L	Every 6 Months	0.001
Zinc	mg/L	Every 6 Months	<0.005
Iron	mg/L	Every 6 Months	0.06
Total PAH	µg/L	Every 6 Months	102
TPH C6-9 Fraction	µg/L	Every 6 Months	<20
TPH C10-14 Fraction	µg/L	Every 6 Months	120
TPH C15-28 Fraction	µg/L	Every 6 Months	<100
TPH C29-36 Fraction	µg/L	Every 6 Months	<50
Cyanide (free)	mg/L	Every 6 Months	<0.004
Cyanide (total)	mg/L	Every 6 Months	0.078

Sampling Point 20,21,22,23,36,37,40,41 (Regular Monitoring Wells)

Groundwater Sampling Point 20 (K9/3N)

Sample Date: 20 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value	Exceedance (Yes/No)*
pH	pH units	Every 6 Months	6.99	No
Conductivity	µS/cm	Every 6 Months	20600	No
Bromide	mg/L	Every 6 Months	18.6	No
Aluminium	mg/L	Every 6 Months	<0.01	No
Arsenic	mg/L	Every 6 Months	<0.001	No
Cadmium	mg/L	Every 6 Months	<0.0001	No
Copper	mg/L	Every 6 Months	<0.001	No
Manganese	mg/L	Every 6 Months	0.861	No
Nickel	mg/L	Every 6 Months	<0.001	No
Zinc	mg/L	Every 6 Months	<0.005	No
Iron	mg/L	Every 6 Months	<0.05	No
Total PAH	µg/L	Every 6 Months	<0.5	No
TPH C6-9 Fraction	µg/L	Every 6 Months	<20	No
TPH C10-14 Fraction	µg/L	Every 6 Months	<50	No
TPH C15-28 Fraction	µg/L	Every 6 Months	<100	No
TPH C29-36 Fraction	µg/L	Every 6 Months	<50	No
Cyanide (free)	mg/L	Every 6 Months	<0.004	No
Cyanide (total)	mg/L	Every 6 Months	<0.004	No

Note: If trigger level is exceeded, actions listed in Condition E1.2 of EPL12693 are to be followed. These actions include notifying the EPA and resampling the location to confirm the elevated concentration.

* Trigger Condition 1 and 2 recalculated each sampling round.

Groundwater Sampling Point 21 (K9/3S)

Sample Date: 20 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value	Exceedance (Yes/No)*
pH	pH units	Every 6 Months	8	No
Conductivity	µS/cm	Every 6 Months	315	No
Bromide	mg/L	Every 6 Months	1.92	No
Aluminium	mg/L	Every 6 Months	0.01	No
Arsenic	mg/L	Every 6 Months	0.004	No
Cadmium	mg/L	Every 6 Months	<0.0001	No
Copper	mg/L	Every 6 Months	<0.001	No
Manganese	mg/L	Every 6 Months	0.084	No
Nickel	mg/L	Every 6 Months	0.001	No
Zinc	mg/L	Every 6 Months	<0.005	No
Iron	mg/L	Every 6 Months	<0.05	No
Total PAH	µg/L	Every 6 Months	<0.5	No
TPH C6-9 Fraction	µg/L	Every 6 Months	<20	No
TPH C10-14 Fraction	µg/L	Every 6 Months	<50	No
TPH C15-28 Fraction	µg/L	Every 6 Months	<100	No
TPH C29-36 Fraction	µg/L	Every 6 Months	<50	No
Cyanide (free)	mg/L	Every 6 Months	<0.004	No
Cyanide (total)	mg/L	Every 6 Months	<0.004	No

Note: If trigger level is exceeded, actions listed in Condition E1.2 of EPL12693 are to be followed. These actions include notifying the EPA and resampling the location to confirm the elevated concentration.

* Trigger Condition 1 and 2 recalculated each sampling round.

Groundwater Sampling Point 22 (K11/1)

Sample Date: 17 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value	Exceedance (Yes/No)*
pH	pH units	Every 6 Months	7.4	No
Conductivity	µS/cm	Every 6 Months	994	No
Bromide	mg/L	Every 6 Months	0.31	No
Aluminium	mg/L	Every 6 Months	<0.01	No
Arsenic	mg/L	Every 6 Months	0.002	Yes
Cadmium	mg/L	Every 6 Months	<0.0001	No
Copper	mg/L	Every 6 Months	0.001	No
Manganese	mg/L	Every 6 Months	0.788	No
Nickel	mg/L	Every 6 Months	0.001	No
Zinc	mg/L	Every 6 Months	<0.005	No
Iron	mg/L	Every 6 Months	<0.05	No
Total PAH	µg/L	Every 6 Months	<0.5	No
TPH C6-9 Fraction	µg/L	Every 6 Months	<20	No
TPH C10-14 Fraction	µg/L	Every 6 Months	<50	No
TPH C15-28 Fraction	µg/L	Every 6 Months	<100	No
TPH C29-36 Fraction	µg/L	Every 6 Months	<50	No
Cyanide (free)	mg/L	Every 6 Months	<0.004	No
Cyanide (total)	mg/L	Every 6 Months	<0.004	No

Note: If trigger level is exceeded, actions listed in Condition E1.2 of EPL12693 are to be followed. These actions include notifying the EPA and resampling the location to confirm the elevated concentration.

* Trigger Condition 1 and 2 recalculated each sampling round.

Groundwater Sampling Point 23 (K11/1S)

Sample Date: 17 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value	Exceedance (Yes/No)*
pH	pH units	Every 6 Months	7.83	No
Conductivity	µS/cm	Every 6 Months	7830	No
Bromide	mg/L	Every 6 Months	5.53	No
Aluminium	mg/L	Every 6 Months	<0.01	No
Arsenic	mg/L	Every 6 Months	<0.001	No
Cadmium	mg/L	Every 6 Months	<0.0001	No
Copper	mg/L	Every 6 Months	<0.001	No
Manganese	mg/L	Every 6 Months	0.086	No
Nickel	mg/L	Every 6 Months	<0.001	No
Zinc	mg/L	Every 6 Months	<0.005	No
Iron	mg/L	Every 6 Months	<0.05	No
Total PAH	µg/L	Every 6 Months	<0.5	No
TPH C6-9 Fraction	µg/L	Every 6 Months	<20	No
TPH C10-14 Fraction	µg/L	Every 6 Months	<50	No
TPH C15-28 Fraction	µg/L	Every 6 Months	<100	No
TPH C29-36 Fraction	µg/L	Every 6 Months	<50	No
Cyanide (free)	mg/L	Every 6 Months	<0.004	No
Cyanide (total)	mg/L	Every 6 Months	<0.004	No

Note: If trigger level is exceeded, actions listed in Condition E1.2 of EPL12693 are to be followed. These actions include notifying the EPA and resampling the location to confirm the elevated concentration.

* Trigger Condition 1 and 2 recalculated each sampling round.

Groundwater Sampling Point 36 (BH20S)

Sample Date: 16 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value	Exceedance (Yes/No)*
pH	pH units	Every 6 Months	6.78	No
Conductivity	µS/cm	Every 6 Months	1120	No
Bromide	mg/L	Every 6 Months	0.124	No
Aluminium	mg/L	Every 6 Months	<0.01	No
Arsenic	mg/L	Every 6 Months	0.003	No
Cadmium	mg/L	Every 6 Months	<0.0001	No
Copper	mg/L	Every 6 Months	<0.001	No
Manganese	mg/L	Every 6 Months	2.21	No
Nickel	mg/L	Every 6 Months	0.003	No
Zinc	mg/L	Every 6 Months	0.01	No
Iron	mg/L	Every 6 Months	<0.05	No
Total PAH	µg/L	Every 6 Months	4	No
TPH C6-9 Fraction	µg/L	Every 6 Months	<20	No
TPH C10-14 Fraction	µg/L	Every 6 Months	<50	No
TPH C15-28 Fraction	µg/L	Every 6 Months	<100	No
TPH C29-36 Fraction	µg/L	Every 6 Months	<50	No
Cyanide (free)	mg/L	Every 6 Months	<0.004	No
Cyanide (total)	mg/L	Every 6 Months	<0.004	No

Note: If trigger level is exceeded, actions listed in Condition E1.2 of EPL12693 are to be followed. These actions include notifying the EPA and resampling the location to confirm the elevated concentration.

* Trigger Condition 1 and 2 recalculated each sampling round.

Groundwater Sampling Point 37 (BH20D)

Sample Date: 16 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value	Exceedance (Yes/No)*
pH	pH units	Every 6 Months	6.29	No
Conductivity	µS/cm	Every 6 Months	44700	No
Bromide	mg/L	Every 6 Months	46.1	No
Aluminium	mg/L	Every 6 Months	<0.10	No
Arsenic	mg/L	Every 6 Months	<0.010	No
Cadmium	mg/L	Every 6 Months	<0.0010	No
Copper	mg/L	Every 6 Months	<0.010	No
Manganese	mg/L	Every 6 Months	9.71	No
Nickel	mg/L	Every 6 Months	0.021	Yes
Zinc	mg/L	Every 6 Months	<0.050	No
Iron	mg/L	Every 6 Months	29.9	No
Total PAH	µg/L	Every 6 Months	<0.5	No
TPH C6-9 Fraction	µg/L	Every 6 Months	<20	No
TPH C10-14 Fraction	µg/L	Every 6 Months	<50	No
TPH C15-28 Fraction	µg/L	Every 6 Months	<100	No
TPH C29-36 Fraction	µg/L	Every 6 Months	<50	No
Cyanide (free)	mg/L	Every 6 Months	<0.004	No
Cyanide (total)	mg/L	Every 6 Months	<0.004	No

Note: If trigger level is exceeded, actions listed in Condition E1.2 of EPL12693 are to be followed. These actions include notifying the EPA and resampling the location to confirm the elevated concentration.

* Trigger Condition 1 and 2 recalculated each sampling round.

Groundwater Sampling Point 40 (BH23S)

Sample Date: 16 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value	Exceedance (Yes/No)*
pH	pH units	Every 6 Months	8.32	No
Conductivity	µS/cm	Every 6 Months	1020	Yes
Bromide	mg/L	Every 6 Months	ND*	N/A
Aluminium	mg/L	Every 6 Months	ND*	N/A
Arsenic	mg/L	Every 6 Months	ND*	N/A
Cadmium	mg/L	Every 6 Months	ND*	N/A
Copper	mg/L	Every 6 Months	ND*	N/A
Manganese	mg/L	Every 6 Months	ND*	N/A
Nickel	mg/L	Every 6 Months	ND*	N/A
Zinc	mg/L	Every 6 Months	ND*	N/A
Iron	mg/L	Every 6 Months	ND*	N/A
Total PAH	µg/L	Every 6 Months	ND*	N/A
TPH C6-9 Fraction	µg/L	Every 6 Months	ND*	N/A
TPH C10-14 Fraction	µg/L	Every 6 Months	ND*	N/A
TPH C15-28 Fraction	µg/L	Every 6 Months	ND*	N/A
TPH C29-36 Fraction	µg/L	Every 6 Months	ND*	N/A
Cyanide (free)	mg/L	Every 6 Months	ND*	N/A
Cyanide (total)	mg/L	Every 6 Months	ND*	N/A

Note: If trigger level is exceeded, actions listed in Condition E1.2 of EPL12693 are to be followed. These actions include notifying the EPA and resampling the location to confirm the elevated concentration.

* Trigger Condition 1 and 2 recalculated each sampling round.

*ND due to sample inadvertently not analysed for the complete suite of required analytes in the lab. A complete same will be analysed as soon as possible.

Groundwater Sampling Point 41 (BH23D)

Sample Date: 16 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value	Exceedance (Yes/No)*
pH	pH units	Every 6 Months	6.89	No
Conductivity	µS/cm	Every 6 Months	17800	No
Bromide	mg/L	Every 6 Months	19.8	No
Aluminium	mg/L	Every 6 Months	<0.01	No
Arsenic	mg/L	Every 6 Months	<0.001	No
Cadmium	mg/L	Every 6 Months	<0.0001	No
Copper	mg/L	Every 6 Months	<0.001	No
Manganese	mg/L	Every 6 Months	0.748	No
Nickel	mg/L	Every 6 Months	<0.001	No
Zinc	mg/L	Every 6 Months	0.005	No
Iron	mg/L	Every 6 Months	0.16	No
Total PAH	µg/L	Every 6 Months	<0.5	No
TPH C6-9 Fraction	µg/L	Every 6 Months	<20	No
TPH C10-14 Fraction	µg/L	Every 6 Months	<50	No
TPH C15-28 Fraction	µg/L	Every 6 Months	<100	No
TPH C29-36 Fraction	µg/L	Every 6 Months	<50	No
Cyanide (free)	mg/L	Every 6 Months	<0.004	No
Cyanide (total)	mg/L	Every 6 Months	<0.004	No

Note: If trigger level is exceeded, actions listed in Condition E1.2 of EPL12693 are to be followed. These actions include notifying the EPA and resampling the location to confirm the elevated concentration.

* Trigger Condition 1 and 2 recalculated each sampling round.

Sampling Point 24,25,26,27,28,29,30,31,32,33 (Additional Contingency Wells)

Groundwater Sampling Point BHe23S (Note: BHe23S has been used as a substitute to Monitoring Point 24 (K11/3E), which no longer exists due to previous impacts to the bore).

Sample Date: N/A

Note: Sampling Point BHe23S was unable to be sampled in this monitoring round as the well was dry.

Groundwater Sampling Point BHe23D (Note: BHe23D has been used as a substitute to Monitoring Point 25 (K11/3W), which no longer exists due to previous impacts to the bore).

Sample Date: 17 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value
pH	pH units	Special Frequency 1	7.14
Conductivity	µS/cm	Special Frequency 1	15800
Bromide	mg/L	Special Frequency 1	14.7
Aluminium	mg/L	Special Frequency 1	<0.01
Arsenic	mg/L	Special Frequency 1	<0.001
Cadmium	mg/L	Special Frequency 1	<0.0001
Copper	mg/L	Special Frequency 1	<0.001
Manganese	mg/L	Special Frequency 1	1.03
Nickel	mg/L	Special Frequency 1	<0.001
Zinc	mg/L	Special Frequency 1	<0.005
Iron	mg/L	Special Frequency 1	<0.05
Total PAH	µg/L	Special Frequency 1	<0.5
TPH C6-9 Fraction	µg/L	Special Frequency 1	<20
TPH C10-14 Fraction	µg/L	Special Frequency 1	<50
TPH C15-28 Fraction	µg/L	Special Frequency 1	<100
TPH C29-36 Fraction	µg/L	Special Frequency 1	<50
Cyanide (free)	mg/L	Special Frequency 1	<0.004
Cyanide (total)	mg/L	Special Frequency 1	<0.004

Note: For the purposes of the table(s) above Special Frequency 1 means the collection of samples on a six monthly basis if trigger conditions specified in condition E1.1 of EPL12693 are exceeded.

Groundwater Sampling Point 26 (K11/2W)

Sample Date: 17 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value
pH	pH units	Special Frequency 1	7.63
Conductivity	µS/cm	Special Frequency 1	8070
Bromide	mg/L	Special Frequency 1	4.73
Aluminium	mg/L	Special Frequency 1	0.01
Arsenic	mg/L	Special Frequency 1	<0.001
Cadmium	mg/L	Special Frequency 1	<0.0001
Copper	mg/L	Special Frequency 1	<0.001
Manganese	mg/L	Special Frequency 1	0.039
Nickel	mg/L	Special Frequency 1	<0.001
Zinc	mg/L	Special Frequency 1	<0.005
Iron	mg/L	Special Frequency 1	<0.05
Total PAH	µg/L	Special Frequency 1	<0.5
TPH C6-9 Fraction	µg/L	Special Frequency 1	<20
TPH C10-14 Fraction	µg/L	Special Frequency 1	<50
TPH C15-28 Fraction	µg/L	Special Frequency 1	<100
TPH C29-36 Fraction	µg/L	Special Frequency 1	<50
Cyanide (free)	mg/L	Special Frequency 1	<0.004
Cyanide (total)	mg/L	Special Frequency 1	<0.004

Note: For the purposes of the table(s) above Special Frequency 1 means the collection of samples on a six monthly basis if trigger conditions specified in condition E1.1 of EPL12693 are exceeded.

Groundwater Sampling Point 27 (K11/2E)

Sample Date: 17 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value
pH	pH units	Special Frequency 1	7.43
Conductivity	µS/cm	Special Frequency 1	863
Bromide	mg/L	Special Frequency 1	0.186
Aluminium	mg/L	Special Frequency 1	<0.01
Arsenic	mg/L	Special Frequency 1	<0.001
Cadmium	mg/L	Special Frequency 1	<0.0001
Copper	mg/L	Special Frequency 1	<0.001
Manganese	mg/L	Special Frequency 1	0.416
Nickel	mg/L	Special Frequency 1	<0.001
Zinc	mg/L	Special Frequency 1	<0.005
Iron	mg/L	Special Frequency 1	0.31
Total PAH	µg/L	Special Frequency 1	<0.5
TPH C6-9 Fraction	µg/L	Special Frequency 1	<20
TPH C10-14 Fraction	µg/L	Special Frequency 1	<50
TPH C15-28 Fraction	µg/L	Special Frequency 1	<100
TPH C29-36 Fraction	µg/L	Special Frequency 1	<50
Cyanide (free)	mg/L	Special Frequency 1	<0.004
Cyanide (total)	mg/L	Special Frequency 1	<0.004

Note: For the purposes of the table(s) above Special Frequency 1 means the collection of samples on a six monthly basis if trigger conditions specified in condition E1.1 of EPL12693 are exceeded.

Groundwater Sampling Point 28 (K9/4W)

Sample Date: 21 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value
pH	pH units	Special Frequency 1	7.3
Conductivity	µS/cm	Special Frequency 1	6990
Bromide	mg/L	Special Frequency 1	3.65
Aluminium	mg/L	Special Frequency 1	<0.01
Arsenic	mg/L	Special Frequency 1	<0.001
Cadmium	mg/L	Special Frequency 1	<0.0001
Copper	mg/L	Special Frequency 1	<0.001
Manganese	mg/L	Special Frequency 1	0.126
Nickel	mg/L	Special Frequency 1	<0.001
Zinc	mg/L	Special Frequency 1	<0.005
Iron	mg/L	Special Frequency 1	1.48
Total PAH	µg/L	Special Frequency 1	<0.5
TPH C6-9 Fraction	µg/L	Special Frequency 1	<20
TPH C10-14 Fraction	µg/L	Special Frequency 1	<50
TPH C15-28 Fraction	µg/L	Special Frequency 1	<100
TPH C29-36 Fraction	µg/L	Special Frequency 1	<50
Cyanide (free)	mg/L	Special Frequency 1	<0.004
Cyanide (total)	mg/L	Special Frequency 1	<0.004

Note: For the purposes of the table(s) above Special Frequency 1 means the collection of samples on a six monthly basis if trigger conditions specified in condition E1.1 of EPL12693 are exceeded.

Groundwater Sampling Point 29 (K9/4E)

Sample Date: 21 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value
pH	pH units	Special Frequency 1	7.28
Conductivity	µS/cm	Special Frequency 1	7200
Bromide	mg/L	Special Frequency 1	5.14
Aluminium	mg/L	Special Frequency 1	0.03
Arsenic	mg/L	Special Frequency 1	0.002
Cadmium	mg/L	Special Frequency 1	<0.0001
Copper	mg/L	Special Frequency 1	<0.001
Manganese	mg/L	Special Frequency 1	1.09
Nickel	mg/L	Special Frequency 1	<0.001
Zinc	mg/L	Special Frequency 1	<0.005
Iron	mg/L	Special Frequency 1	0.28
Total PAH	µg/L	Special Frequency 1	<0.5
TPH C6-9 Fraction	µg/L	Special Frequency 1	<20
TPH C10-14 Fraction	µg/L	Special Frequency 1	<50
TPH C15-28 Fraction	µg/L	Special Frequency 1	<100
TPH C29-36 Fraction	µg/L	Special Frequency 1	<50
Cyanide (free)	mg/L	Special Frequency 1	<0.004
Cyanide (total)	mg/L	Special Frequency 1	<0.004

Note: For the purposes of the table(s) above Special Frequency 1 means the collection of samples on a six monthly basis if trigger conditions specified in condition E1.1 of EPL12693 are exceeded.

Groundwater Sampling Point 30 (K9/2W)

Sample Date: 21 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value
pH	pH units	Special Frequency 1	7.54
Conductivity	µS/cm	Special Frequency 1	2900
Bromide	mg/L	Special Frequency 1	1.88
Aluminium	mg/L	Special Frequency 1	<0.01
Arsenic	mg/L	Special Frequency 1	0.007
Cadmium	mg/L	Special Frequency 1	<0.0001
Copper	mg/L	Special Frequency 1	<0.001
Manganese	mg/L	Special Frequency 1	0.205
Nickel	mg/L	Special Frequency 1	0.001
Zinc	mg/L	Special Frequency 1	<0.005
Iron	mg/L	Special Frequency 1	<0.05
Total PAH	µg/L	Special Frequency 1	<0.5
TPH C6-9 Fraction	µg/L	Special Frequency 1	<20
TPH C10-14 Fraction	µg/L	Special Frequency 1	<50
TPH C15-28 Fraction	µg/L	Special Frequency 1	<100
TPH C29-36 Fraction	µg/L	Special Frequency 1	<50
Cyanide (free)	mg/L	Special Frequency 1	<0.004
Cyanide (total)	mg/L	Special Frequency 1	<0.004

Note: For the purposes of the table(s) above Special Frequency 1 means the collection of samples on a six monthly basis if trigger conditions specified in condition E1.1 of EPL12693 are exceeded.

Groundwater Sampling Point 31 (K9/2E)

Sample Date: 21 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value
pH	pH units	Special Frequency 1	7.18
Conductivity	µS/cm	Special Frequency 1	29500
Bromide	mg/L	Special Frequency 1	28.8
Aluminium	mg/L	Special Frequency 1	<0.01
Arsenic	mg/L	Special Frequency 1	<0.001
Cadmium	mg/L	Special Frequency 1	<0.0001
Copper	mg/L	Special Frequency 1	<0.001
Manganese	mg/L	Special Frequency 1	0.532
Nickel	mg/L	Special Frequency 1	0.001
Zinc	mg/L	Special Frequency 1	<0.005
Iron	mg/L	Special Frequency 1	0.33
Total PAH	µg/L	Special Frequency 1	<0.5
TPH C6-9 Fraction	µg/L	Special Frequency 1	<20
TPH C10-14 Fraction	µg/L	Special Frequency 1	<50
TPH C15-28 Fraction	µg/L	Special Frequency 1	<100
TPH C29-36 Fraction	µg/L	Special Frequency 1	<50
Cyanide (free)	mg/L	Special Frequency 1	<0.004
Cyanide (total)	mg/L	Special Frequency 1	<0.004

Note: For the purposes of the table(s) above Special Frequency 1 means the collection of samples on a six monthly basis if trigger conditions specified in condition E1.1 of EPL12693 are exceeded.

Groundwater Sampling Point BHe29D (Note: BHe29D has been used as a substitute to Monitoring Point 32 (K10/4W), which no longer exists due to previous impacts to the bore).

Sample Date: 20 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value
pH	pH units	Special Frequency 1	7.69
Conductivity	µS/cm	Special Frequency 1	5300
Bromide	mg/L	Special Frequency 1	3.85
Aluminium	mg/L	Special Frequency 1	0.02
Arsenic	mg/L	Special Frequency 1	<0.001
Cadmium	mg/L	Special Frequency 1	<0.0001
Copper	mg/L	Special Frequency 1	<0.001
Manganese	mg/L	Special Frequency 1	0.067
Nickel	mg/L	Special Frequency 1	<0.001
Zinc	mg/L	Special Frequency 1	<0.005
Iron	mg/L	Special Frequency 1	<0.05
Total PAH	µg/L	Special Frequency 1	<0.5
TPH C6-9 Fraction	µg/L	Special Frequency 1	<20
TPH C10-14 Fraction	µg/L	Special Frequency 1	<50
TPH C15-28 Fraction	µg/L	Special Frequency 1	<100
TPH C29-36 Fraction	µg/L	Special Frequency 1	<50
Cyanide (free)	mg/L	Special Frequency 1	<0.004
Cyanide (total)	mg/L	Special Frequency 1	<0.004

Note: For the purposes of the table(s) above Special Frequency 1 means the collection of samples on a six monthly basis if trigger conditions specified in condition E1.1 of EPL12693 are exceeded.

Groundwater Sampling Point BHe26S (Note: BHe26S has been used as a substitute to Monitoring Point 33 (DM10), which no longer exists due to previous impacts to the bore).

Sample Date: 20 December 2021

Pollutant	Units of Measure	Frequency	Recorded Value
pH	pH units	Special Frequency 1	8.01
Conductivity	µS/cm	Special Frequency 1	2950
Bromide	mg/L	Special Frequency 1	1.61
Aluminium	mg/L	Special Frequency 1	<0.01
Arsenic	mg/L	Special Frequency 1	0.007
Cadmium	mg/L	Special Frequency 1	<0.0001
Copper	mg/L	Special Frequency 1	<0.001
Manganese	mg/L	Special Frequency 1	0.117
Nickel	mg/L	Special Frequency 1	<0.001
Zinc	mg/L	Special Frequency 1	<0.005
Iron	mg/L	Special Frequency 1	<0.05
Total PAH	µg/L	Special Frequency 1	<0.5
TPH C6-9 Fraction	µg/L	Special Frequency 1	<20
TPH C10-14 Fraction	µg/L	Special Frequency 1	<50
TPH C15-28 Fraction	µg/L	Special Frequency 1	<100
TPH C29-36 Fraction	µg/L	Special Frequency 1	<50
Cyanide (free)	mg/L	Special Frequency 1	<0.004
Cyanide (total)	mg/L	Special Frequency 1	<0.004

Note: For the purposes of the table(s) above Special Frequency 1 means the collection of samples on a six monthly basis if trigger conditions specified in condition E1.1 of EPL12693 are exceeded.

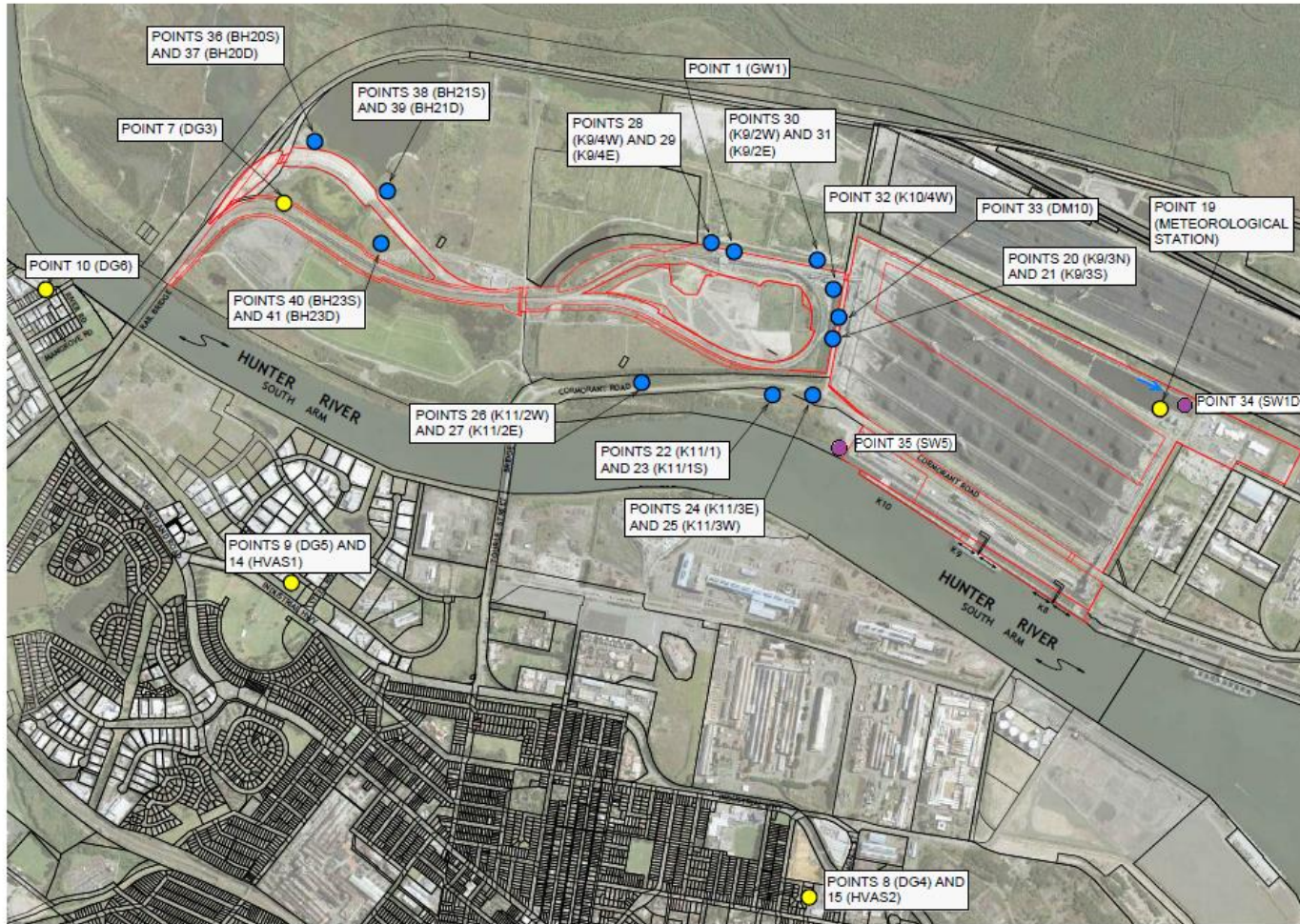


Figure 1: Groundwater, Surface Water and Additional Ambient Air Quality Monitoring Locations.