

EPL - Pollution Monitoring Data

Environment Protection Licence Number:

Licensee:

Premises:

Link to full Environment Protection Licence:

Sampling Period:

Date Last Data Obtained During Period:

Date Published:

5042

Pasminco Cockle Creek Smelter Pty Ltd

Pasminco Cockle Creek Smelter & Incitec

Main Road

Boolaroo NSW 2284

<http://www.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=5042&id=5042&option=licence&searchrange=licence&range=POEO licence&prp=no&status=Issued>

January 2015 to December 2015

9/12/2015

Concentration Limits

EPA Point ID	Pollutant	Type of Monitoring Point	Unit of Measure	Monitoring Frequency Required by Licence	Sampling method	No. of times measured during year	Min Value	Mean value*	Median value*	Max Value
Point 51 Groundwater Monitoring (BH62)	Alkalinity (as calcium carbonate)	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	2	<1	57	57	112
	Ammonia	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.01	0.20	0.20	0.38
	Bicarbonate	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<1	57	57	112
	Cadmium	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.0001	0.0015	0.0015	0.0028
	Calcium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	38	38	38	38
	Chloride	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	926	926	926	926
	Conductivity	Water and / or land monitoring	Microsiemens per centimetre	Every 6 months	Representative sample	3	3,406	3,782	3,544	4,396
	Fluoride	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.1	0.2	0.2	0.3
	Lead	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.002	0.002	0.002	0.002
	Magnesium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	76	76	76	76
	Nickel	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.004	0.021	0.021	0.038
	Oxidation Reduction Potential <sup>†</sup>	Water and / or land monitoring	Millivolts	Every 6 months	Probe	3	120.8	327.8	338.0	524.7
	pH	Water and / or land monitoring	pH	Every 6 months	Probe	3	4.34	4.97	4.67	5.90
	Potassium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	48	48	48	48
	Sodium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	621	621	621	621
	Standing Water Level	Water and / or land monitoring	Metres (Australian Height Datum)	Every 6 months	In situ	3	5.25	5.55	5.42	5.99
	Sulfate	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	392	392	392	392
Temperature	Water and / or land monitoring	degrees Celsius	Every 6 months	Probe	3	18.4	20.3	18.7	23.7	
Total dissolved solids	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	2,280	2,470	2,470	2,660	
Zinc	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.030	0.081	0.081	0.132	
Point 52 Groundwater Monitoring (BH63)	Alkalinity (as calcium carbonate)	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	2	8	8	8	8
	Ammonia	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.01	0.07	0.07	0.13
	Bicarbonate	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	8	8	8	8
	Cadmium	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.0001	<0.0001	<0.0001	<0.0001
	Calcium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	<1	<1	<1	<1
	Chloride	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	56	56	56	56
	Conductivity	Water and / or land monitoring	Microsiemens per centimetre	Every 6 months	Representative sample	3	399	434	436	467
	Fluoride	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.1	0.1	0.1	0.1
	Lead	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.001	<0.001	<0.001	<0.001
	Magnesium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	2	2	2	2
	Nickel	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.001	<0.001	<0.001	<0.001
	Oxidation Reduction Potential <sup>†</sup>	Water and / or land monitoring	Millivolts	Every 6 months	Probe	3	340.0	490.5	430.2	701.4
	pH	Water and / or land monitoring	pH	Every 6 months	Probe	3	4.80	5.26	4.98	6.01
	Potassium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	<1	<1	<1	<1
	Sodium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	94	94	94	94
	Standing Water Level	Water and / or land monitoring	Metres (Australian Height Datum)	Every 6 months	In situ	3	7.76	7.85	7.82	7.95
	Sulfate	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	118	118	118	118
Temperature	Water and / or land monitoring	degrees Celsius	Every 6 months	Probe	3	17.5	18.8	18.3	20.6	
Total dissolved solids	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	607	909	909	1,210	
Zinc	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.007	0.009	0.009	0.011	
Point 53 Groundwater Monitoring (BH64D)	Alkalinity (as calcium carbonate)	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	2	453	549	549	645
	Ammonia	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.44	0.62	0.62	0.80
	Bicarbonate	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	453	549	549	645
	Cadmium	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.0001	<0.0001	<0.0001	<0.0001
	Calcium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	260	260	260	260
	Chloride	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	1,930	1,930	1,930	1,930
	Conductivity	Water and / or land monitoring	Microsiemens per centimetre	Every 6 months	Representative sample	3	7,098	7,586	7,563	8,097
	Fluoride	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.4	0.4	0.4	0.4
	Lead	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.001	<0.001	<0.001	<0.001
	Magnesium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	160	160	160	160
	Nickel	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.001	<0.001	<0.001	<0.001
	Oxidation Reduction Potential <sup>†</sup>	Water and / or land monitoring	Millivolts	Every 6 months	Probe	3	-20.3	52.1	23.6	153
	pH	Water and / or land monitoring	pH	Every 6 months	Probe	3	6.94	8.66	7.03	12.01
	Potassium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	21	21	21	21
	Sodium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	1,280	1,280	1,280	1,280
	Standing Water Level	Water and / or land monitoring	Metres (Australian Height Datum)	Every 6 months	In situ	3	5.84	5.89	5.84	6.00
	Sulfate	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	679	679	679	679
Temperature	Water and / or land monitoring	degrees Celsius	Every 6 months	Probe	3	18.3	19.2	19.3	20.1	
Total dissolved solids	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	5,180	5,380	5,380	5,580	
Zinc	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.005	0.0125	0.0125	0.020	
Point 54 Groundwater Monitoring (BH64E)	Alkalinity (as calcium carbonate)	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	2	<1	<1	<1	<1
	Ammonia	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.13	0.19	0.19	0.24
	Bicarbonate	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<1	<1	<1	<1
	Cadmium	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.0005	0.0015	0.0015	0.0025
	Calcium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	18	18	18	18
	Chloride	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	2,790	2,790	2,790	2,790
	Conductivity	Water and / or land monitoring	Microsiemens per centimetre	Every 6 months	Representative sample	3	7,221	7,605	7,506	8,087

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Point 54 Groundwater Monitoring (BH65S)	Fluoride	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.6	0.8	0.8	1.0	
	Lead	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.003	0.003	0.003	0.003	
	Magnesium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	194	194	194	194	
	Nickel	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.022	0.024	0.024	0.026	
	Oxidation Reduction Potential <sup>†</sup>	Water and / or land monitoring	Millivolts	Every 6 months	Probe	3	363.8	404.9	404.8	446.0	
	pH	Water and / or land monitoring	pH	Every 6 months	Probe	3	3.62	3.97	4.12	4.16	
	Potassium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	5	5	5	5	
	Sodium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	1,210	1,210	1,210	1,210	
	Standing Water Level	Water and / or land monitoring	Metres (Australian Height Datum)	Every 6 months	In situ	3	5.79	5.93	5.93	6.06	
	Sulfate	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	447	447	447	447	
	Temperature	Water and / or land monitoring	degrees Celsius	Every 6 months	Probe	3	18.0	19.4	19.2	21.0	
	Total dissolved solids	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	5,490	5,505	5,505	5,520	
Zinc	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.259	0.291	0.291	0.323		
Point 55 Groundwater Monitoring (BH65D)	Alkalinity (as calcium carbonate)	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	2	17	28	28	39	
	Ammonia	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.61	0.86	0.86	1.11	
	Bicarbonate	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<1	9	9	17	
	Cadmium	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.0001	<0.0001	<0.0001	<0.0001	
	Calcium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	171	171	171	171	
	Chloride	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	1,370	1,370	1,370	1,370	
	Conductivity	Water and / or land monitoring	Microsiemens per centimetre	Every 6 months	Representative sample	3	3,611	3,836	3,782	4,116	
	Fluoride	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.2	0.3	0.3	0.4	
	Lead	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.001	<0.001	<0.001	<0.001	
	Magnesium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	2	2	2	2	
	Nickel	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.001	0.001	0.001	0.001	
	Oxidation Reduction Potential <sup>†</sup>	Water and / or land monitoring	Millivolts	Every 6 months	Probe	3	-22.9	43.6	-3.0	156.6	
	pH	Water and / or land monitoring	pH	Every 6 months	Probe	3	10.62	11.03	11.15	11.33	
	Potassium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	13	13	13	13	
	Sodium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	715	715	715	715	
	Standing Water Level	Water and / or land monitoring	Metres (Australian Height Datum)	Every 6 months	In situ	3	6.02	6.20	6.29	6.31	
	Sulfate	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	139	139	139	139	
	Temperature	Water and / or land monitoring	degrees Celsius	Every 6 months	Probe	3	17.7	19.8	19.1	22.6	
Total dissolved solids	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	2,380	2,765	2,765	3,150		
Zinc	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.005	<0.005	<0.005	<0.005		
Point 56 Groundwater Monitoring (BH64S)	Alkalinity (as calcium carbonate)	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	2	244	261	261	278	
	Ammonia	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.02	0.04	0.04	0.06	
	Bicarbonate	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	244	261	261	278	
	Cadmium	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.0005	0.0013	0.0013	0.0020	
	Calcium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	93	93	93	93	
	Chloride	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	1,250	1,250	1,250	1,250	
	Conductivity	Water and / or land monitoring	Microsiemens per centimetre	Every 6 months	Representative sample	3	5,625	5,960	6,103	6,152	
	Fluoride	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.8	0.8	0.8	0.8	
	Lead	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	<0.001	<0.001	<0.001	<0.001	
	Magnesium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	199	199	199	199	
	Nickel	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.017	0.0185	0.0185	0.02	
	Oxidation Reduction Potential <sup>†</sup>	Water and / or land monitoring	Millivolts	Every 6 months	Probe	3	-0.8	248.3	369	376.7	
	pH	Water and / or land monitoring	pH	Every 6 months	Probe	3	5.90	6.01	5.92	6.22	
	Potassium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	11	11	11	11	
	Sodium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	1,220	1,220	1,220	1,220	
	Standing Water Level	Water and / or land monitoring	Metres (Australian Height Datum)	Every 6 months	In situ	3	5.57	5.77	5.62	6.11	
	Sulfate	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	1,880	1,880	1,880	1,880	
	Temperature	Water and / or land monitoring	degrees Celsius	Every 6 months	Probe	3	18.3	19.1	19.4	19.5	
	Total dissolved solids	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	4,790	5,020	5,020	5,250	
	Zinc	Water and / or land monitoring	Milligrams per litre	Every 6 months	Representative sample	2	0.029	0.031	0.031	0.033	
Point 58 (Sump A)	Alkalinity (as calcium carbonate)	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	14	14	14	14	
	Cadmium	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	3 <sup>^</sup>	0.0048	0.0193	0.0235	0.0296	
	Calcium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	35	35	35	35	
	Chloride	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	165	165	165	165	
	Lead	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	3 <sup>^</sup>	<0.001	0.004	0.004	0.006	
	Magnesium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	20	20	20	20	
	Nickel	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	3 <sup>^</sup>	0.009	0.018	0.022	0.024	
	Potassium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	20	20	20	20	
	Sodium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	146	146	146	146	
	Sulfate	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	228	228	228	228	
	Zinc	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	3 <sup>^</sup>	0.722	3.231	3.840	5.130	
	Point 58 (Sump A)	Alkalinity (as calcium carbonate)	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	1	1	1	1
		Cadmium	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	3 <sup>^</sup>	0.0392	0.0445	0.0408	0.0536
Calcium		Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	51	51	51	51	

EPL - Pollution Monitoring Data

Environment Protection Licence Number: 5042  
 Licensee: Pasmenco Cockle Creek Smelter Pty Ltd  
 Premises: Pasmenco Cockle Creek Smelter & Incitec  
 Main Road  
 Boolaroo NSW 2284  
 Link to full Environment Protection Licence: <http://www.epa.nsw.gov.au/prpocapp/Detail.aspx?instid=5042&id=5042&option=licence&searchrange=licence&range=POEO licence&prpno&status=issued>  
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Concentration Limits

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Point 59 (Sump B)	Chloride	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	461	461	461	461
	Lead	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	3^	0.028	0.057	0.054	0.088
	Magnesium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	65	65	65	65
	Nickel	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	3^	0.048	0.052	0.052	0.057
	Potassium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	8	8	8	8
	Sodium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	407	407	407	407
	Sulfate	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	848	848	848	848
	Zinc	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	3^	20.200	22.367	21.600	25.300
Point 60 (Sump C)	Alkalinity (as calcium carbonate)	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	244	244	244	244
	Cadmium	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	2^	0.0015	0.0028	0.0028	0.0040
	Calcium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	134	134	134	134
	Chloride	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	755	755	755	755
	Lead	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	2^	<0.001	0.008	0.008	0.015
	Magnesium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	70	70	70	70
	Nickel	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	2^	<0.001	0.013	0.013	0.024
	Potassium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	118	118	118	118
	Sodium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	302	302	302	302
	Sulfate	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	296	296	296	296
	Zinc	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	2^	0.057	0.161	0.161	0.264
Point 61 (Sump D)	Alkalinity (as calcium carbonate)	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	397	397	397	397
	Cadmium	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	4	0.0008	0.0255	0.0172	0.0670
	Calcium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	94	94	94	94
	Chloride	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	527	527	527	527
	Lead	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	4	<0.001	0.008	0.006	0.019
	Magnesium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	65	65	65	65
	Nickel	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	4	<0.001	0.025	0.029	0.041
	Potassium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	278	278	278	278
	Sodium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	272	272	272	272
	Sulfate	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	236	236	236	236
	Zinc	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	4	0.052	1.476	1.535	2.780
Point 62 (Sump E)	Alkalinity (as calcium carbonate)	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	12	12	12	12
	Cadmium	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	4	<0.001	0.0193	0.0017	0.0735
	Calcium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	107	107	107	107
	Chloride	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	300	300	300	300
	Lead	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	4	<0.001	0.016	0.001	0.062
	Magnesium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	10	10	10	10
	Nickel	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	4	0.002	0.008	0.002	0.025
	Potassium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	13	13	13	13
	Sodium	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	133	133	133	133
	Sulfate	Water and / or land monitoring	Milligrams per litre	Yearly	Representative sample	1	302	302	302	302
	Zinc	Water and / or land monitoring	Milligrams per litre	Quarterly	Representative sample	4	0.009	0.624	0.078	2.330

Notes:  
 \* Oxidation Reduction Potential taken as Eh, converted to Eh from field data by Eh = Er + 199 (mV).  
 ^ Sump dry at time of some monitoring events.  
 \*Where results are below limit of reporting (LOR), the LOR has been conservatively adopted in the calculation of the mean and median.

Groundwater monitoring

EPA Point ID / other Identifier	Point ID	Pollutant (or other)	Type of Monitoring Point	Unit of Measure	Monitoring Frequency Required by Licence	No. of times measured during year	Min Value	Mean value*	Median value*	Max Value
E7.5: Up-gradient and down-gradient groundwater cut off drains	-	Height of groundwater	Groundwater monitoring	Metres (Australian Height Datum)	Quarterly	6	Water levels in the up-gradient and down-gradient groundwater cut off drains and bores required by conditions E7.1, E7.2 and E7.3 that have been able to be accessed have been measured regularly, however, due to damaged or buried monitoring wells and wells not yet installed, insufficient data could be obtained to assess compliance with condition E8.2 of the EPL. PCCSS have continued to undertake pumping to reduce water levels in the drain, however, the automatic pumping system is not yet operational.			
E7.6: Bores required by conditions E7.1, E7.2 and E7.3	-	Height of groundwater	Groundwater monitoring	Metres (Australian Height Datum)	Quarterly	6				
Sump A	-	As	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.001	0.0015	0.0015	0.002
		Cd	Groundwater monitoring	Milligrams per litre	Every 6 months	3^	0.0048	0.0193	0.0235	0.0296
		Pb	Groundwater monitoring	Milligrams per litre	Every 6 months	3^	<0.001	0.004	0.004	0.006
		Hg	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.0001	<0.0001	<0.0001	<0.0001
		Selenium	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.01	0.01	0.01	0.01
		Zn	Groundwater monitoring	Milligrams per litre	Every 6 months	3^	0.722	3.231	3.840	5.130
		Nitrate	Groundwater monitoring	Milligrams per litre	Every 6 months	2	0.35	0.78	0.78	1.20
		As	Groundwater monitoring	Milligrams per litre	Every 6 months	2	0.001	0.0015	0.0015	0.002
-	-	Cd	Groundwater monitoring	Milligrams per litre	Every 6 months	3^	0.0392	0.0445	0.0408	0.0536
		Pb	Groundwater monitoring	Milligrams per litre	Every 6 months	3^	0.028	0.057	0.054	0.088

## EPL - Pollution Monitoring Data

Environment Protection Licence Number:

5042

Licensee:

Pasminco Cockle Creek Smelter Pty Ltd

Premises:

Pasminco Cockle Creek Smelter & Incitec  
Main Road  
Boolaroo NSW 2284

Link to full Environment Protection Licence:

<http://www.epa.nsw.gov.au/prpoeoapp/Detail.aspx?nstdid=5042&id=5042&option=licence&searchrange=licence&range=POEO licence&prp=no&status=issued>

Sampling Period:

January 2015 to December 2015

Date Last Data Obtained During Period:

9/12/2015

Date Published:

### Concentration Limits

EPA Point ID	Pollutant	Type of Monitoring Point	Unit of Measure	Monitoring Frequency Required by Licence	Sampling method	No. of times measured during year	Min Value	Mean value*	Median value*	Max Value
E7.7: Groundwater monitoring bores required by conditions E11.1, E11.2, E11.3 [sic E7.1, E7.2, E7.3] which are outside the up gradient and down gradient cut off drains <sup>#</sup>	Sump B	Hg	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.0001	0.00035	0.00035	0.0006
		Selenium	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.01	<0.01	<0.01	<0.01
		Zn	Groundwater monitoring	Milligrams per litre	Every 6 months	3 <sup>^</sup>	20.200	22.367	21.600	25.300
		Nitrate	Groundwater monitoring	Milligrams per litre	Every 6 months	2	0.26	0.36	0.36	0.46
	Sump C	As	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.001	0.0065	0.0065	0.012
		Cd	Groundwater monitoring	Milligrams per litre	Every 6 months	2	0.0015	0.0028	0.0028	0.0040
		Pb	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.001	0.008	0.008	0.015
		Hg	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.0001	<0.0001	<0.0001	<0.0001
		Selenium	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.01	<0.01	<0.01	<0.01
		Zn	Groundwater monitoring	Milligrams per litre	Every 6 months	2	0.057	0.161	0.161	0.264
		Nitrate	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.01	0.25	0.25	0.49
	Sump D	As	Groundwater monitoring	Milligrams per litre	Every 6 months	2	0.001	0.0165	0.0165	0.032
		Cd	Groundwater monitoring	Milligrams per litre	Every 6 months	4 <sup>^</sup>	0.0008	0.0255	0.0172	0.0670
		Pb	Groundwater monitoring	Milligrams per litre	Every 6 months	4 <sup>^</sup>	<0.001	0.008	0.006	0.019
		Hg	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.0001	<0.0001	<0.0001	<0.0001
		Selenium	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.01	<0.01	<0.01	<0.01
	Sump E	Zn	Groundwater monitoring	Milligrams per litre	Every 6 months	4 <sup>^</sup>	0.052	1.476	1.535	2.780
		Nitrate	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.01	0.25	0.25	0.49
		As	Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.001	0.009	0.009	0.017
		Cd	Groundwater monitoring	Milligrams per litre	Every 6 months	4 <sup>^</sup>	<0.0001	0.0193	0.0017	0.0735
Pb		Groundwater monitoring	Milligrams per litre	Every 6 months	4 <sup>^</sup>	<0.001	0.016	0.001	0.062	
Hg		Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.0001	0.0001	0.0001	0.0001	
Selenium		Groundwater monitoring	Milligrams per litre	Every 6 months	2	<0.01	0.015	0.015	0.02	
Zn		Groundwater monitoring	Milligrams per litre	Every 6 months	4 <sup>^</sup>	0.009	0.624	0.078	2.330	
Nitrate	Groundwater monitoring	Milligrams per litre	Every 6 months	2	0.24	0.685	0.685	1.13		

#### Notes:

<sup>#</sup> Water quality samples have been collected from Sumps A to D (located along the upgradient cut-off drain) and Sump E (located along the downgradient cut-off drain) instead of the groundwater monitoring bores required by conditions E11.1, E11.2, E11.3 [sic E7.1, E7.2, E7.3]. Sumps A to E are considered sufficient to characterise groundwater inflow into the drain.

<sup>^</sup> Additional samples collected and analysed for analytes (Cd, Pb & Zn) as part of EPL sump sampling for monitoring points 58 - 62 have been included in calculations.

\* Where results are below limit of reporting (LOR), the LOR has been conservatively adopted in the calculation of the mean and median.

### Data correction

EPA Point ID	Sample Date	Pollutant	Original Data	Corrected Data	Date Corrected	Date Originally Published	Reason