

Holcim Dunloe Sand Quarry Quarterly Environmental Report

July to September 2018

1. Introduction

Dunloe Sand Quarry is located on Mooball Rd, Pottsville. The development application number 06-0030 was approved by the NSW Minister for Planning in November 2008, subject to the conditions listed in the project approval document. Schedule 5, condition number 11 states:

During the project, the Proponent shall:

- (a) make a summary of monitoring results required under this approval publicly available at the Proponent's regional office; and*
- (b) update these results regularly (at least every 3 months), to the satisfaction of the Director-General.*

This report is available on the proponent's website in satisfaction of this clause.

2. Water Quality

2.1 Surface Water – Dredge Pond

The following tables contain the monthly and quarterly results for the Dredge Pond, along with the Water Quality Objectives (WQO) documented in Schedule 3, condition 9.

Table 1. Monthly Surface Water Results

Reference	Site	Date	pH	Electrical Conductivity	Dissolved Oxygen	Turbidity	Oil & Grease
Units			pH units	µS/cm	Mg/L	NTU	Mg/L
WQO			6.5 – 8.5	3000	>6	5 – 20	10
6104/1	SW1	11/07/2018	4.1	324	9.7	4.2	<5
6243/1	SW1	8/08/2018	4.1	384	9.4	5.3	<5
EB1821540-006	SW1	5/09/2018	6.73	382	99.2	21.0	N/A

Table 2. Monthly Surface Water Algae Tests

Reference	Site	Date	Blue Green Algae Cyanophytes	Total Algae Count
Units			cells/ml	cells/ml
WQO			<50,000	
6104/1	SW1	11/07/2018	<5	16,100
6243/1	SW1	8/08/2018	<5	13,800
N/A	SW1	N/A	Not completed this sample run; to be collected in October	

Table 3. Quarterly Surface Water Results

	Units	WQO	SW1
Reference			EB1821540-006
Date			5/09/2018
Aluminium	mg/L	0.5	0.02
Arsenic	mg/L		<0.001
Dissolved Iron	mg/L	20	<0.05
Dissolved Manganese	mg/L		0.167
Chloride	mg/L	1000	23
Sulphate	mg/L	800	120
Total Alkalinity as CaCO ₃	mg/L	400	13
Magnesium	mg/L	100	6
Sodium	mg/L	500	16
Potassium	mg/L	40	3
Ammonia	mg/L	20	0.04
Total Nitrogen	mg/L		-
Total Phosphorus	mg/L		0.02
Chlorophyll a	mg/m ³	2 – 10	<1
Faecal Coliforms	CFU/100mL	<1000	~160
Enterococci	CFU/100mL	<230	~410

2.2 Surface Water – Local Creeks

The following table contains the quarterly results for the creeks from the surrounding environment.

Table 4. Waters from the Surrounding Environment – Quarterly Results

Description	Units	South Creek Upstream	South Creek Downstream	North Creek Upstream	North Creek Downstream
Reference		EB1821540-008	EB1821540-009	EB1821540-010	EB1821540-011
Date		5/09/2018	5/09/2018	5/09/2018	5/09/2018
pH	pH Units	6.60	3.97	4.60	5.73
Electrical Conductivity	µS/cm	3540	386	396	8790
Dissolved Oxygen	mg/L	2.90	99.2	4.81	6.8
Total Suspended Solids	mg/L	11	6	28	16
Total Nitrogen	mg/L	1.1	0.7	1.4	0.9
Total Phosphorus	mg/L	0.04	<0.01	0.02	0.01

2.3 Groundwater

The following tables contain the monthly and quarterly results for the monitoring bores, along with the Water Quality Objectives (WQO) documented in Schedule 3, condition 9.

Table 5. Groundwater Monthly Results

Reference	Site	Date	Depth to Water from top of cap	pH	Electrical Conductivity
Units			m	pH Units	µS/cm
WQO			N/A	6.5 – 8.5	3000
6105/1	DLP1	11/07/2018	1.78	4.3	146
6242/1	DLP1	8/08/2018	1.98	3.9	204
EB1821540-001	DLP1	5/09/2018	1.75	4.21	144
6105/2	DLP3	11/07/2018	1.48	6.2	7,280
6242/2	DLP3	8/08/2018	1.72	6.1	7,880
EB1821540-002	DLP3	5/09/2018	1.36	5.38	3760
6105/3	DLP5	11/07/2018	1.56	4.7	623
6242/3	DLP5	8/08/2018	1.80	4.3	252
EB1821540-003	DLP5	5/09/2018	1.74	4.67	1880
6105/4	DLP6	11/07/2018	1.71	3.9	463
6242/4	DLP6	8/08/2018	1.78	3.9	517
EB1821540-004	DLP6	5/09/2018	1.60	3.82	600
6105/5	DLP7	11/07/2018	1.62	7.1	3,220
6242/5	DLP7	8/08/2018	1.78	7.0	3,510
	DLP7	5/09/2018	1.78	3.90	2680

Table 6. Groundwater Quarterly Results

Site	Units	WQO	DLP1	DLP3	DLP5	DLP6	DLP7
Reference			EB1821540-001	EB1821540-002	EB1821540-003	EB1821540-004	EB1821540-005
Date			5/09/2018	5/09/2018	5/09/2018	5/09/2018	5/09/2018
Oil & Grease ^A	mg/L	10	<5	<5	<5	<5	<5
Aluminium	mg/L	0.5	1.08	0.66	0.36	9.31	0.49
Arsenic	mg/L		<0.001	0.002	<0.001	0.001	<0.001
Dissolved Iron	mg/L	20	6.67	24.0	3.11	91.4	1.88
Dissolved Manganese	mg/L		0.032	0.715	0.029	0.498	0.074
Chloride	mg/L	1000	18	2760	112	20	783
Sulphate	mg/L	800	26	191	14	205	232
Total Alkalinity as CaCO ₃	mg/L	400	<1	134	4	<1	393
Magnesium	mg/L	100	<1	137	7	7	40
Sodium	mg/L	500	22	1380	58	11	651
Potassium	mg/L	40	1	49	2	6	26
Ammonia	mg/L	20	0.07	2.46	0.12	0.25	2.06

Notes:

A – Oil and Grease Sampling date for Q3 was undertaken 11/07/2018

3. Ambient Air Monitoring**3.1 Dust Depositional Gauges**

The following table contains the results of the monthly dust deposition results, along with the Long Term Impact Assessment Criteria for Particulate Matter, as documented in Schedule 3, condition 6, table 5. It should be noted that this criteria is relevant to the annual average, which will be reported in the Annual Environmental Management Report.

Table 7. Monthly Dust Deposition Results

Reference	Description	Date On	Date Off	Insoluble Solids	Ash	Combustible Matter
Units				g/m ² /mth	g/m ² /mth	g/m ² /mth
Criteria				4		
6103/1	D1 Sugar Shed	13/06/2018	11/07/2018	0.5	0.3	0.2
6241/1	D1 Sugar Shed	11/07/2018	08/08/2018	0.4	0.2	0.2
EB1821540-014	D1 Sugar Shed	08/08/2018	5/09/2018	0.3	0.3	<0.1
6103/2	D2 Black Rocks	13/06/2018	11/07/2018	0.4	0.2	0.2
6241/2	D2 Black Rocks	11/07/2018	08/08/2018	0.5	0.3	0.2
EB1821540-015	D2 Black Rocks	08/08/2018	5/09/2018	0.4	0.3	0.1
6103/3	D3 Windmill	13/06/2018	11/07/2018	0.5	0.2	0.3
6241/3	D3 Windmill	11/07/2018	08/08/2018	0.3	<0.1	0.3
EB1821540-013	D3 Windmill	08/08/2018	5/09/2018	0.3	0.3	<0.1
6103/4	D4 Haul Rd	13/06/2018	11/07/2018	0.2	0.2	<0.1
6241/4	D4 Haul Rd	11/07/2018	08/08/2018	0.2	<0.1	0.2
EB1821540-012	D4 Haul Rd	08/08/2018	5/09/2018	0.7	0.6	0.1

3.2 Particulate Matter

A revised Dust Management Plan (DMP) was submitted to the Department of Planning and Environment (DPE) which states that 'Airborne particulate monitoring of TSP and PM10 is only required to be undertaken if annual production rates increase to 200,000 tonnes or above, or in the event of a valid complain relating to Dunloe Sands Quarry.

This DMP was approved for implementation by DPE in correspondence dated 27 July 2018. Therefore results are shown only for the month of July for Quarter 3 2018.

In accordance with the Air Quality Management Plan, Total suspended particulate matter (TSP) is calculated from the PM10 results multiplied by 2.5.

Table 8. Airborne Particulate Matter Results

Reference	Description	Date Sampled	Comments	Particulate Matter <10 μ , (PM ₁₀)	Calculated Total Suspended Particulates (TSP)
Units				$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$
Criteria	24 hour average			50	
	Annual average			30	90
6309/1	Office	12/07/2018		4	10
6309/2	Office	18/07/2018		44	110
6309/3	Office	24/07/2018	No paper in Envelope	N/A	

4. Monitoring Locations

