

# Holcim Dunloe Sand Quarry Quarterly Environmental Report

## January to March 2017

### 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
170341-1	SW1	30/01/2017	3.6	758	7.2	2.6	<2
170721-1	SW1	27/02/2017	3.5	858	7.7	2.4	<2
3959/1	SW1	22/03/2017	3.4	979	8.2	2.2	<5.0

**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	
170341-1	SW1	30/01/2017	ND	1480
170721-1	SW1	27/02/2017	ND	640
3959/1	SW1	22/03/2017	<1	175

**Table 3. Quarterly Surface Water Results**

	Units	WQO	SW1
Reference			3959/1
Date			22/3/2017
Aluminium	mg/L	0.5	5.6
Arsenic	mg/L		<0.001
Dissolved Iron	mg/L	20	1.7
Dissolved Manganese	mg/L		0.57
Chloride	mg/L	1000	67
Sulphate	mg/L	800	260
Total Alkalinity as CaCO <sub>3</sub>	mg/L	400	<5
Magnesium	mg/L	100	10
Sodium	mg/L	500	46
Potassium	mg/L	40	7
Ammonia	mg/L	20	0.01
Total Nitrogen	mg/L		0.1
Total Phosphorus	mg/L		<0.05
Chlorophyll a	mg/m <sup>3</sup>	2 - 10	<1
Faecal Coliforms	CFU/100mL	<1000	<1
Enterococci	CFU/100mL	<230	<1

## 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	North Creek
Reference		3960/1	3960/2
Date		22/03/2017	22/03/2017
pH	pH Units	4.4	5.1
Electrical Conductivity	µS/cm	3,410	4,570
Dissolved Oxygen	mg/L	2.1	2.9
Total Suspended Solids	mg/L	68	48
Total Nitrogen	mg/L	2.7	2.3
Total Phosphorus	mg/L	0.2	0.1

### 2.3. Groundwaters

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				6.5 - 8.5	3000
170341-2	DLP1	30/01/2017		4.2	121
170721-2	DLP1	27/02/2017		4.6	103
3958/1	DLP1	22/03/2017	1.58	4.4	116
170341-3	DLP3	30/01/2017		6.1	7119
170721-3	DLP3	27/02/2017		6.1	7013
3958/2	DLP3	22/03/2017	1.28	5.9	7570
170341-4	DLP5	30/01/2017		5.2	260
170721-4	DLP5	27/02/2017		5.5	244
3958/3	DLP5	22/03/2017	1.38	5.1	300
170341-5	DLP6	30/01/2017		3.6	1745
170721-5	DLP6	27/02/2017		3.8	1653
3958/4	DLP6	22/03/2017	1.95	3.8	1710
170341-6	DLP7	30/01/2017		6.9	3471
170721-6	DLP7	27/02/2017		7.1	3174
3958/5	DLP7	22/03/2017	1.20	7.0	3430

**Table 6. Groundwater Quarterly Results**

Site	Units	WQO	DLP1	DLP3	DLP5	DLP6	DLP7
Reference			3958/1	3958/2	3958/3	3958/4	3958/5
Date			22/03/17	22/03/17	22/03/17	22/03/17	22/03/17
Oil & Grease	mg/L	10	<5.0	<5.0	<5.0	<5.0	<5.0
Aluminium	mg/L	0.5	0.48	0.04	0.20	59	0.33
Arsenic	mg/L		<0.001	<0.001	<0.001	0.004	<0.001
Dissolved Iron	mg/L	20	4.8	15	1.5	370	1.8
Dissolved Manganese	mg/L		0.02	0.67	0.01	1.9	0.08
Chloride	mg/L	1000	18	2300	63	17	360
Sulphate	mg/L	800	12	230	22	1200	710
Total Alkalinity as CaCO <sub>3</sub>	mg/L	400	<5	130	<5	<5	350
Magnesium	mg/L	100	<0.5	130	2	21	36
Sodium	mg/L	500	12	1500	55	14	830
Potassium	mg/L	40	1	54	1	10	29
Ammonia	mg/L	20	0.06	2.90	0.10	0.54	0.19
Total Nitrogen	mg/L		1.1	4.1	1.0	2.5	2.1
Total Phosphorus	mg/L		0.09	0.1	0.1	0.3	0.1

### 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 4. It should be noted that this criteria is relevant to the annual average and not the monthly results.

Reference	Description	Date On	Date Off	Insoluble Solids	Ash	Combustible Matter
Units				g/m <sup>2</sup> /mth	g/m <sup>2</sup> /mth	g/m <sup>2</sup> /mth
<i>Criteria</i>				4		
170343-4	D1 Sugar Shed		30/01/2017	0.3		
170723-4	D1 Sugar Shed	30/01/2017	27/02/2017	0.3		
3961/1	D1 Sugar Shed	27/02/2017	22/03/2017	0.2	0.1	0.1
	Annual Average			0.5		
170343-3	D2 Black Rocks		30/01/2017	0.2		
170723-3	D2 Black Rocks	30/01/2017	27/02/2017	0.2		
3961/2	D2 Black Rocks	27/02/2017	22/03/2017	0.1	0.1	<0.1
	Annual Average			0.3		
170343-2	D3 Windmill		30/01/2017	0.5		
170723-2	D3 Windmill	30/01/2017	27/02/2017	0.2		
3961/3	D3 Windmill	27/02/2017	22/03/2017	2.4	2	0.4
	Annual Average			1.3		
170343-1	D4 Haul Rd		30/01/2017	0.3		
170723-1	D4 Haul Rd	30/01/2017	27/02/2017	0.3		
3961/4	D4 Haul Rd	27/02/2017	22/03/2017	0.3	0.2	0.1
	Annual Average			0.4		

## 4. Monitoring Locations

