Aggregates

Holcim (Australia) Pty Ltd
Tower B, Level 8
799 Pacific Hwy
Chatswood 2067
Australia

ABN 87 099 732 297
Phone +61 2 9412 6600
Fax +61 2 9412 6601
www.holcim.com.au

Holcim Dunloe Sand Quarry Quarterly Environmental Report

April to June 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
5709/1	SW1	18/04/2018	4.6	373	8.18	4.64	<5
5849/1	SW1	16/05/2018	4.12	346	8.38	2.27	<5
5962/1	SW1	13/06/2018	4.21	366	9.18	2.87	<5

Holcim (Australia) Pty Ltd
Tower B, Level 8
799 Pacific Hwy
Chatswood 2067
Australia

ABN 87 099 732 297
Phone +61 2 9412 6600
Fax +61 2 9412 6601
www.holcim.com.au

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	
5709/1	SW1	18/04/2018	<5	4,580
5849/1	SW1	16/05/2018	<5	250
5962/1	SW1	13/06/2018	<5	5,820

Table 3. Quarterly Surface Water Results

	Units	*WQO*	SW1
Reference			5962/1
Date			13/06/2018
Aluminium	mg/L	0.5	0.62
Arsenic	mg/L		<0.001
Dissolved Iron	mg/L	20	0.1
Dissolved Manganese	mg/L		0.25
Chloride	mg/L	1000	21
Sulphate	mg/L	800	110
Total Alkalinity as CaCO3	mg/L	400	<5
Magnesium	mg/L	100	4.9
Sodium	mg/L	500	14
Potassium	mg/L	40	3.6
Ammonia	mg/L	20	<0.005
Total Nitrogen	mg/L		<0.1
Total Phosphorus	mg/L		<0.05
Chlorophyll a	mg/m^3	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.

Holcim (Australia) Pty Ltd
Tower B, Level 8
799 Pacific Hwy
Chatswood 2067
Australia

ABN 87 099 732 297
Phone +61 2 9412 6600
Fax +61 2 9412 6601
www.holcim.com.au

Table 4. Waters from the Surrounding Environment – Quarterly Results

Description	Units	South Creek Upstream	South Creek Downstream	North Creek Upstream	North Creek Downstream
Reference		5963/1	5963/2	5963/3	5963/4
Date		13/06/2018	13/06/2018	13/06/2018	13/06/2018
pH	pH Units	6.32	6.73	5.4	6.5
Electrical Conductivity	µS/cm	7,550	14,250	8,810	15,100
Dissolved Oxygen	mg/L	7.48	7.08	6.51	7.58
Total Suspended Solids	mg/L	5	4	13	9
Total Nitrogen	mg/L	0.5	0.3	0.8	0.5
Total Phosphorus	mg/L	<0.05	<0.05	<0.05	<0.05

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
5708/1	DLP1	18/04/2018	1.6	4.49	153
5848/1	DLP1	16/05/2018	1.62	4.4	146.3
5961/1	DLP1	13/06/2018	1.74	4.33	167.1
5708/2	DLP3	18/04/2018	1.33	5.94	7,580
5848/2	DLP3	16/05/2018	1.23	5.97	7,670
5961/2	DLP3	13/06/2018	1.42	6.02	7,930
5708/3	DLP5	18/04/2018	1.41	4.88	266
5848/3	DLP5	16/05/2018	1.36	4.78	486
5961/3	DLP5	13/06/2018	1.56	4.69	406
5708/4	DLP6	18/04/2018	1.52	4.03	472
5848/4	DLP6	16/05/2018	1.65	3.98	469
5961/4	DLP6	13/06/2018	1.78	3.89	533
5708/5	DLP7	18/04/2018	1.24	6.88	3,500
5848/5	DLP7	16/05/2018	1.37	6.89	3,480
5961/5	DLP7	13/06/2018	1.55	6.89	3,570

Holcim (Australia) Pty Ltd
Tower B, Level 8
799 Pacific Hwy
Chatswood 2067
Australia

ABN 87 099 732 297
Phone +61 2 9412 6600
Fax +61 2 9412 6601
www.holcim.com.au

Table 6. Groundwater Quarterly Results

Site	Units	*WQO*	DLP1	DLP3	DLP5	DLP6	DLP7
Reference			5708/1	5708/2	5708/3	5708/4	5708/5
Date			13/06/2018	13/06/2018	13/06/2018	13/06/2018	13/06/2018
Oil & Grease	mg/L	10	<5	<5	<5	<5	<5
Aluminium	mg/L	0.5	0.76	0.08	0.28	6.7	0.35
Arsenic	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Iron	mg/L	20	6.2	11	2.1	74	1.6
Dissolved Manganese	mg/L		0.024	0.61	0.019	0.4	0.072
Chloride	mg/L	1000	19	2,300	96	25	680
Sulphate	mg/L	800	28	180	15	320	260
Total Alkalinity as CaCO3	mg/L	400	<5	130	<5	<5	380
Magnesium	mg/L	100	0.7	120	4.8	5.2	37
Sodium	mg/L	500	14	1,500	66	11	840
Potassium	mg/L	40	1.4	56	2.1	6.5	31
Ammonia	mg/L	20	0.057	2.7	0.098	0.52	2.3

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.

Holcim (Australia) Pty Ltd
Tower B, Level 8
799 Pacific Hwy
Chatswood 2067
Australia

ABN 87 099 732 297
Phone +61 2 9412 6600
Fax +61 2 9412 6601
www.holcim.com.au

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		
5706/1	D1 Sugar Shed	12/03/2018	18/04/2018	0.4	0.2	0.2
5847/1	D1 Sugar Shed	18/04/2018	16/05/2018	0.2	0.1	0.1
5958/1	D1 Sugar Shed	16/05/2018	13/06/2018	0.3	0.2	0.1
5706/2	D2 Black Rocks	12/03/2018	18/04/2018	<0.1	<0.1	<0.1
5847/2	D2 Black Rocks	18/04/2018	16/05/2018	0.4	0.2	0.2
5958/2	D2 Black Rocks	16/05/2018	13/06/2018	0.2	0.1	0.1
5706/3	D3 Windmill	12/03/2018	18/04/2018	0.3	<0.1	0.3
5847/3	D3 Windmill	18/04/2018	16/05/2018	0.6	0.4	0.2
5958/3	D3 Windmill	16/05/2018	13/06/2018	5.2	2.3	2.9
5706/4	D4 Haul Rd	12/03/2018	18/04/2018	0.2	0.1	0.1
5847/4	D4 Haul Rd	18/04/2018	16/05/2018	0.3	0.2	0.1
5958/4	D4 Haul Rd	16/05/2018	13/06/2018	0.4	0.2	0.2

3.2 Particulate Matter

The following table contains the results of Particulate Matter less than 10 µm (PM10) as measured by high volume air sampler (HVAS) located near the Dunloe Site Office, along with the Short and Long Term Impact Assessment Criteria for Particulate Matter, as documented in Schedule 3, condition 6, tables 3 and 4. In accordance with the Air Quality Management Plan, Total suspended particulate matter (TSP) is calculated from the PM10 results multiplied by 2.5.

Holcim (Australia) Pty Ltd
Tower B, Level 8
799 Pacific Hwy
Chatswood 2067
Australia

ABN 87 099 732 297
Phone +61 2 9412 6600
Fax +61 2 9412 6601
www.holcim.com.au

Table 8. Airborne Particulate Matter Results

Reference	Description	Date Sampled	Comments	Particulate Matter <10µ, (PM_{10})	Calculated Total Suspended Particulates (TSP)
Units				µg/m^3	µg/m^3
Criteria	*24 hour average*			*50*	
	Annual average			*30*	*90*
5776/2	Office	1/04/2018		18	45
5776/3	Office	7/04/2018		28	70
5776/4	Office	13/04/2018		20	50
5932/1	Office	19/04/2018		24	60
5932/2	Office	25/04/2018		9	22.5
5932/3	Office	1/05/2018		20	50
5932/4	Office	7/05/2018		21	52.5
5932/5	Office	13/05/2018		11	27.5
6019/1	Office	19/05/2018		17	42.5
6019/2	Office	25/05/2018		32	80
6019/3	Office	31/05/2018		35	87.5
6019/4	Office	6/06/2018		5	12.5
6019/5	Office	12/06/2018		21	52.5
6159/1	Office	18/06/2018	Paper appears unused, corner torn	<2	<5
6159/2	Office	24/06/2018		30	75
6159/3	Office	30/06/2018		8	20

Holcim (Australia) Pty Ltd
Tower B, Level 8
799 Pacific Hwy
Chatswood 2067
Australia

ABN 87 099 732 297
Phone +61 2 9412 6600
Fax +61 2 9412 6601
www.holcim.com.au

4. Monitoring Locations