



Attachment 4.1H - Environmental Monitoring Worksheet

Period: 01/02/2018 - 15/02/2018

Location	Test	Freq	Limit		Units	Sample Date	NSW Environment Protection Licence Requirement	Date Sample Transferred to Laboratory	Date Sample Results Received by Holcim	Date of Remote Data Download	Result	Comments
			min	max								

NRR = No Result Recorded

Site: Albion Park Quarry

Environment Protection Licence No.	122
Site Name (As it appears on the licence)	Albion Park Quarry
Site Address (As it appears on the licence)	Albion Park Quarry Woollybutt Drive ALBION PARK RAIL NSW 2527
Link to Licence on EPA Website	http://app.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=54925&SYSUID=1&LICID=122

Water

Point 1	pH	After 90mm rain	6.5	8.5	pH	Y					NRR
	Oil and Grease	After 90mm rain	0	0	Visible	Y					NRR
	TSS	After 90mm rain		50	mg/L	Y					NRR
Point 2	pH	After 90mm rain	6.5	8.5	pH	Y					NRR
	Oil and Grease	After 90mm rain	0	0	Visible	Y					NRR
	TSS	After 90mm rain		50	mg/L	Y					NRR
Point 1	pH	After 90mm rain	6.5	8.5	pH	Y					NRR
	Oil and Grease	After 90mm rain	0	0	Visible	Y					NRR
	TSS	After 90mm rain		50	mg/L	Y					NRR
Point 2	pH	After 90mm rain	6.5	8.5	pH	Y					NRR
	Oil and Grease	After 90mm rain	0	0	Visible	Y					NRR
	TSS	After 90mm rain		50	mg/L	Y					NRR
Point 1	pH	After 90mm rain	6.5	8.5	pH	Y					NRR
	Oil and Grease	After 90mm rain	0	0	Visible	Y					NRR
	TSS	After 90mm rain		50	mg/L	Y					NRR
Point 2	pH	After 90mm rain	6.5	8.5	pH	Y					NRR
	Oil and Grease	After 90mm rain	0	0	Visible	Y					NRR
	TSS	After 90mm rain		50	mg/L	Y					NRR

Air

Site 1	Ash	Monthly		90		2/6/18	Y	2/7/18	14/02/2018		25
Site 2	Ash	Monthly		90		2/6/18	Y	2/7/18	14/02/2019		18
Site 3	Ash	Monthly		90		2/6/18	Y	2/7/18	14/02/2020		93
Site 4	Ash	Monthly		90		2/6/18	Y	2/7/18	14/02/2021		19

Blasting

Time of Blast											
		Per Blast		5	mm/s		Y				0.4
		Per Blast		115	dB		Y				105.5
		Per Blast		5	mm/s		Y				NRR
		Per Blast		115	dB		Y				NRR
		Per Blast		5	mm/s		Y				NRR
		Per Blast		115	dB		Y				NRR
		Per Blast		5	mm/s		Y				NRR
		Per Blast		115	dB		Y				NRR
		Per Blast		5	mm/s		Y				NRR

Site: "Johnniefields" Marulan Quarry

Environment Protection Licence No.	1371
Site Name (As it appears on the licence)	Marulan Quarry

Site Address (As it appears on the licence)	Marulan Quarry Brayton Road MARULAN NSW 2579
Link to Licence on EPA Website	http://app.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=32923&SYSUID=1&LICID=1371

Blasting							Time of Blast			
Underdowns	Overpressure	Per Blast		115	dB	Y				NRR
	Vibration	Per Blast		5	mm/s	Y				NRR
Underdowns	Overpressure	Per Blast		115	dB	Y				NRR
	Vibration	Per Blast		5	mm/s	Y				NRR
Underdowns	Overpressure	Per Blast		115	dB	Y				NRR
	Vibration	Per Blast		5	mm/s	Y				NRR
Underdowns	Overpressure	Per Blast		115	dB	Y				NRR
	Vibration	Per Blast		5	mm/s	Y				NRR
Underdowns	Overpressure	Per Blast		115	dB	Y				NRR

Site: Lynwood Quarry

Environment Protection Licence No.	12939
Site Name (As it appears on the licence)	Lynwood Quarry
Site Address (As it appears on the licence)	Lynwood Quarry 278 Stoney Creek Road, MARULAN NSW 2579
Link to Licence on EPA Website	http://app.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=105521&SYSUID=1&LICID=12939

Air										
DD 5	Insoluble Solids	Monthly	0	4	mg/m2/month	0/1/00	Y	15/2/18	22/2/18	1/1/00
DD 8	Insoluble Solids	Monthly	0	4	mg/m2/month	14/2/18	Y	15/2/18	22/2/18	1/1/00
DD 11	Insoluble Solids	Monthly	0	4	mg/m2/month	14/2/18	Y	15/2/18	22/2/18	0/1/00
DD 12	Insoluble Solids	Monthly	0	4	mg/m2/month	14/2/18	Y	15/2/18	22/2/18	0/1/00
DD 13	Insoluble Solids	Monthly	0	4	mg/m2/month	14/2/18	Y	15/2/18	22/2/18	1.60
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m3	2/6/18	Y	9/2/2018	14/2/18	11.00
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m3	2/12/18	Y	14/2/18	16/2/18	7.50
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m3	0/1/00	Y	12:00:00 AM	12:00:00 AM	NRR
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m3	2/6/18	Y	9/2/2018	14/2/18	2.50
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m3	2/12/18	Y	14/2/18	16/2/18	0.00
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m3	0/1/00	Y	12:00:00 AM	12:00:00 AM	NRR

Blasting							Time of Blast			
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	2/1/18	Y	11:35:00 AM		0.95
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	2/1/18	Y	11:35:00 AM		2.42
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	2/1/18	Y	11:35:00 AM		0.00
B3 - Resident	Overpressure	Per Blast	0	115	dB	2/1/18	Y	11:35:00 AM		0.00
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	14/02/2018	Y	2:28:00 PM		1.08
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	14/02/2018	Y	2:28:00 PM		2.10
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	14/02/2018	Y	2:28:00 PM		0.00
B3 - Resident	Overpressure	Per Blast	0	115	dB	14/02/2018	Y	2:28:00 PM		0.00
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	0/1/00	Y	12:00:00 AM		NRR
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	0/1/00	Y	12:00:00 AM		NRR
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	0/1/00	Y	12:00:00 AM		NRR
B3 - Resident	Overpressure	Per Blast	0	115	dB	0/1/00	Y	12:00:00 AM		NRR
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	0/1/00	Y	12:00:00 AM		NRR
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	0/1/00	Y	12:00:00 AM		NRR
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	0/1/00	Y	12:00:00 AM		NRR
B3 - Resident	Overpressure	Per Blast	0	115	dB	0/1/00	Y	12:00:00 AM		NRR
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	0/1/00	Y	12:00:00 AM		NRR
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	0/1/00	Y	12:00:00 AM		NRR
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	2/6/18	Y	1:10:00 PM		0.00
B3 - Resident	Overpressure	Per Blast	0	115	dB	2/6/18	Y	1:10:00 PM		0.00

B4 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	2/6/18	Y	1:10:00 PM			0.00
B4 - Resident	Overpressure	Per Blast	0	115	dB	2/6/18	Y	1:10:00 PM			0.00
B5 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	0/1/00	Y	12:00:00 AM			NRR
B5 - Resident	Overpressure	Per Blast	0	115	dB	0/1/00	Y	12:00:00 AM			NRR
B6 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	2/6/18	Y	1:10:00 PM			0.00
B6 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	2/6/18	Y	1:10:00 PM			0.00
B4 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	2/8/18	Y	1:39:00 PM			0.00
B4 - Resident	Overpressure	Per Blast	0	115	dB	2/8/18	Y	1:39:00 PM			0.00
B5 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	2/8/18	Y	1:39:00 PM			0.00
B5 - Resident	Overpressure	Per Blast	0	115	dB	2/8/18	Y	1:39:00 PM			0.00

Site: Cooma Road Quarry

Environment Protection Licence No.	1453
Site Name (As it appears on the licence)	Cooma Road Quarry
Site Address (As it appears on the licence)	Cooma Road Quarry Cooma Road Queanbeyan NSW 2620
Link to Licence on EPA Website	http://app.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=32932&SYSUID=1&LICID=1453

Water											
Barracks Creek	pH	Monthly	6.5	8.5	pH	2/2/18	Y				7.9
	Total O&G	Monthly	0	10	mg/L	2/2/18	Y				<1
	Susp. Solids	Monthly	0	50	mg/L	2/2/18	Y				<2

Blasting											
Time of Blast											
Heffernans House	Overpressure	Per blast	0	115	dB	13/2/2018	Y	11:09:00 AM			94.2
	Vibration	Per blast	0	5	mm/s	13/2/2018	Y	11:09:00 AM			0.95
Heffernans House	Overpressure	Per blast	0	115	dB		Y				NRR
	Vibration	Per blast	0	5	mm/s		Y				NRR
Heffernans House	Overpressure	Per blast	0	115	dB		Y				NRR
	Vibration	Per blast	0	5	mm/s		Y				NRR
Heffernans House	Overpressure	Per blast	0	115	dB		Y				NRR
	Vibration	Per blast	0	5	mm/s		Y				NRR

Site: Dubbo Quarry

Environment Protection Licence No.	2212
Site Name (As it appears on the licence)	Dubbo Quarry
Site Address (As it appears on the licence)	Sheraton Road, Dubbo, NSW,2830
Link to Licence on EPA Website	http://app.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=42179&SYSUID=1&LICID=2212

Blasting											
Time of Blast											
Not monitored	Overpressure	Per blast		120	dB	15/2/2018	Y	9:07:12 AM			NRR
Not monitored	Vibration	Per blast		10	mm/s	15/2/2018	Y	9:07:12 AM			NRR
WARRENS HOUSE	Overpressure	Per blast		120	dB		Y				NRR
	Vibration	Per blast		10	mm/s		Y				NRR
WARRENS HOUSE	Overpressure	Per blast		120	dB		Y				NRR
	Vibration	Per blast		10	mm/s		Y				NRR
WARRENS HOUSE	Overpressure	Per blast		120	dB		Y				NRR
	Vibration	Per blast		10	mm/s		Y				NRR

Site: Humes - Blacktown

Environment Protection Licence No.	1310
Site Name (As it appears on the licence)	Humes Blacktown
Site Address (As it appears on the licence)	Humes Blacktown Lot 1 Woodstock Ave ROOTY HILL NSW 2766
Link to Licence on EPA Website	http://app.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=35038&SYSUID=1&LICID=1310

Water										
Sediment Basin	TSS	Daily During Discharge		50	mg/L		Y			NRR
	pH	Daily During Discharge	6.5	8.5	pH		Y			NRR
Sediment Basin	TSS	Daily During Discharge		50	mg/L		Y			NRR
	pH	Daily During Discharge	6.5	8.5	pH		Y			NRR
Sediment Basin	TSS	Daily During Discharge		50	mg/L		Y			NRR
	pH	Daily During Discharge	6.5	8.5	pH		Y			NRR
Sediment Basin	TSS	Daily During Discharge		50	mg/L		Y			NRR
	pH	Daily During Discharge	6.5	8.5	pH		Y			NRR
Sediment Basin	TSS	Daily During Discharge		50	mg/L		Y			NRR
	pH	Daily During Discharge	6.5	8.5	pH		Y			NRR
Sediment Basin	TSS	Daily During Discharge		50	mg/L		Y			NRR
	pH	Daily During Discharge	6.5	8.5	pH		Y			NRR
Sediment Basin	TSS	Daily During Discharge		50	mg/L		Y			NRR
	pH	Daily During Discharge	6.5	8.5	pH		Y			NRR
Sediment Basin	TSS	Daily During Discharge		50	mg/L		Y			NRR
	pH	Daily During Discharge	6.5	8.5	pH		Y			NRR
Sediment Basin	TSS	Daily During Discharge		50	mg/L		Y			NRR
	pH	Daily During Discharge	6.5	8.5	pH		Y			NRR
Sediment Basin	TSS	Daily During Discharge		50	mg/L		Y			NRR
	pH	Daily During Discharge	6.5	8.5	pH		Y			NRR
Sediment Basin	TSS	Daily During Discharge		50	mg/L		Y			NRR
	pH	Daily During Discharge	6.5	8.5	pH		Y			NRR
Sediment Basin	TSS	Daily During Discharge		50	mg/L		Y			NRR
	pH	Daily During Discharge	6.5	8.5	pH		Y			NRR

Site: Teven Quarry

Environment Protection Licence No.	3293
Site Name (As it appears on the licence)	Readymix Teven Quarry
Site Address (As it appears on the licence)	Stokers Lane Teven NSW 2478
Link to Licence on EPA Website	http://app.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=85921&SYSUID=1&LICID=3293

Blasting										
ID #1							Time of Blast			NRR
ID #1	pH	Weekly	6.5	8.5	pH		Y			NRR
ID #1	pH	Weekly	6.5	8.5	pH		Y			NRR
ID #1	Oil&Grease	Yearly during discharge (August)	0	10	mg/L		Y			NRR
ID #1	TSS	Yearly during discharge (August)	0	50	mg/L		Y			NRR

Noise										
144 Stokers Lane - Murphy's Residence	dB(A) L Aeq 15 min	Not specified	0	46	dB		Y			NRR

Site: Boambee Quarry

Environment Protection Licence No.	7094
Site Name (As it appears on the licence)	Boambee Quarry

Site Address (As it appears on the licence)	Boambe Quarry North Boambe Road BOAMBE NSW 2450
Link to Licence on EPA Website	http://app.epa.nsw.gov.au/prpoeoapp/ViewPOELicence.aspx?DOCID=108484&SYSUID=1&LICID=7094

Blasting (M4 & L2.1 - To determine compliance with L3, measurements to be taken at any point within 1 metre of residential boundary)										Time of Blast	
	Overpressure	Per blast	0	115	dB	13/02/18	Y	12:28:00 PM	13/02/18	106.5	Shot 190
	Vibration	Per blast	0	5	mm/s		Y			1.23	Shot 190
	Overpressure	Per blast	0	120	dB		Y			NRR	
	Vibration	Per blast	0	10	mm/s		Y			NRR	
	Overpressure	Per blast	0	120	dB		Y			NRR	
	Vibration	Per blast	0	10	mm/s		Y			NRR	
	Overpressure	Per blast	0	120	dB		Y			NRR	
	Vibration	Per blast	0	10	mm/s		Y			NRR	

Site: Tuncurry Sand

Environment Protection Licence No.	13359
Site Name (As it appears on the licence)	Tuncurry Sand Quarry
Site Address (As it appears on the licence)	Tip Road Tuncurry NSW 2428
Link to Licence on EPA Website	http://app.epa.nsw.gov.au/prpoeoapp/ViewPOELicence.aspx?DOCID=47350&SYSUID=1&LICID=13359

Water											
ID#2 Surface H20 "Lake 1"	Aresnic	Quarterly	0		mg/L		Y				NRR
	Conductivity	Quarterly	0		µS/cm	13/02/2018	Y				219
	Copper	Quarterly	0		mg/L		Y				NRR
	Iron	Quarterly	0		mg/L		Y				NRR
	pH	Quarterly	0		pH	13/02/2018	Y				7.9
	Zinc	Quarterly	0		mg/L		Y				NRR
ID#3 Surface H20 "Lake 2"	Aresnic	Quarterly	0		mg/L		Y				NRR
	Conductivity	Quarterly	0		µS/cm	13/02/2018	Y				329
	Copper	Quarterly	0		mg/L		Y				NRR
	Iron	Quarterly	0		mg/L		Y				NRR
	pH	Quarterly	0		pH	13/02/2018	Y				7.7
	Zinc	Quarterly	0		mg/L		Y				NRR
ID#4 Surface H20 "Lake 3"	Aresnic	Quarterly	0		mg/L		Y				NRR
	Conductivity	Quarterly	0		µS/cm	13/02/2018	Y				430
	Copper	Quarterly	0		mg/L		Y				NRR
	Iron	Quarterly	0		mg/L		Y				NRR
	pH	Quarterly	0		pH	13/02/2018	Y				8.4
	Zinc	Quarterly	0		mg/L		Y				NRR
ID#5 Surface H20 "Lake 4"	Aresnic	Quarterly	0		mg/L		Y				NRR
	Conductivity	Quarterly	0		µS/cm	13/02/2018	Y				460
	Copper	Quarterly	0		mg/L		Y				NRR
	Iron	Quarterly	0		mg/L		Y				NRR
	pH	Quarterly	0		pH	13/02/2018	Y				8.2
	Zinc	Quarterly	0		mg/L		Y				NRR
Air											
ID #1	Deposited Matter	Monthly	0	4	g/m2/month		Y				NRR

Site: Jandra Quarry

Environment Protection Licence No.	2796
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Site Name (As it appears on the licence)	Jandra Quarry
Site Address (As it appears on the licence)	Pacific Highway Possum Brush NSW 2430
Link to Licence on EPA Website	http://app.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=87197&SYSUID=1&LICID=2796

Water											
ID #1	Discharge pH	Each overflow event	6.5	8.5	pH		Y			NRR	
ID #1	Discharge TSS	2 X Daily during discharge	0	50	mg/L		Y			NRR	
ID #1	Discharge TSS	2 X Daily during discharge	0	50	mg/L		Y			NRR	
ID #1	Discharge Turbidity	2 X Daily during discharge	0		ntu		Y			NRR	
ID #1	Discharge Turbidity	2 X Daily during discharge	0		ntu		Y			NRR	
ID #1	Discharge pH	Each overflow event	6.5	8.5	pH		Y			NRR	
ID #1	Discharge TSS	2 X Daily during discharge	0	50	mg/L		Y			NRR	
ID #1	Discharge TSS	2 X Daily during discharge	0	50	mg/L		Y			NRR	
ID #1	Discharge Turbidity	2 X Daily during discharge	0		ntu		Y			NRR	
ID #1	Discharge Turbidity	2 X Daily during discharge	0		ntu		Y			NRR	
ID #1	Discharge pH	Each overflow event	6.5	8.5	pH		Y			NRR	
DD 1	Insoluble Solids	Monthly	0	4							
DD 2	Insoluble Solids	Monthly	0	4	mg/m2/month	13/02/18	Y	13/02/18	23/02/18	1	
DD 3	Insoluble Solids	Monthly	0	4	mg/m2/month	13/02/18	Y	13/02/18	23/02/18	1.5	
DD 4	Insoluble Solids	Monthly	0	4	mg/m2/month	13/02/18	Y	13/02/18	23/02/18	0.8	
HVAS 1	Insoluble Solids	Monthly	0	4	mg/m2/month	13/02/18	Y	13/02/18	23/02/18	0.5	
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m3		Y	13/02/18	20/02/18	20/01/18	8
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m3		Y	13/02/18	20/02/18	26/01/18	9
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m3		Y	13/02/18	20/02/18	1/1/18	11
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m3		Y	13/02/18	20/02/18	2/7/18	7
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m3		Y				NRR
Blasting (To determine compliance with L3, measurements to be taken at any point within 1 metre of residential boundary)											
Time of Blast											
	Overpressure	Per blast	0	120	dB		Y			NRR	
	Vibration	Per blast	0	10	mm/s		Y			NRR	
	Overpressure	Per blast	0	120	dB		Y			NRR	
	Vibration	Per blast	0	10	mm/s		Y			NRR	
	Overpressure	Per blast	0	120	dB		Y			NRR	
	Vibration	Per blast	0	10	mm/s		Y			NRR	
	Overpressure	Per blast	0	120	dB		Y			NRR	
	Vibration	Per blast	0	10	mm/s		Y			NRR	
Annual Blasting Requirements (Calculated each month on a cumulative basis)											
	Overpressure	Monthly (Cumulative)	115	120	dB		Y			NRR	
	Vibration	Monthly (Cumulative)	5	10	mm/s		Y			NRR	