



Attachment 4.1H - Environmental Monitoring Worksheet

Period: 16/12/17 - 31/12/17

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://www.environment.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=31016&SYSUID=1&LICID=122

Water

Discharge 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
Discharge 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		5/12/2017	Y	7/12/2017	13/12/2017	16
Site 2	Ash	Monthly		90		5/12/2017	Y	7/12/2017	13/12/2018	15
Site 3	Ash	Monthly		90		5/12/2017	Y	7/12/2017	13/12/2019	64
Site 4	Ash	Monthly		90		5/12/2017	Y	7/12/2017	13/12/2020	20

Blasting

		Per Blast		5	mm/s	7/12/2017	Y	7/12/2017	7/12/2017	0.6
		Per Blast		115	dB	7/12/2017	Y	7/12/2017	7/12/2017	77
		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

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Period: **16/12/17** - **31/12/17**

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: "Johniefelds" 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://www.environment.nsw.gov.au/brpoeoapp/ViewPOEOLicence.aspx?DOCID=28960&SYSUID=1&LICID=1371

Blasting

Underdowns	Overpressure	Per Blast		115	dB	Y				NRR	No blasting this period.
	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://www.environment.nsw.gov.au/brpoeoapp/ViewPOEOLicence.aspx?DOCID=28960&SYSUID=1&LICID=12939

Air

DD 5	Insoluble Solids	Monthly	0	4	mg/m ² /month	29/12/17	Y	29/12/17	4/1/2018	0.8	
DD 8	Insoluble Solids	Monthly	0	4	mg/m ² /month	29/12/17	Y	29/12/17	4/1/2018	2	
DD 11	Insoluble Solids	Monthly	0	4	mg/m ² /month	29/12/17	Y	29/12/17	4/1/2018	0.9	
DD 12	Insoluble Solids	Monthly	0	4	mg/m ² /month	29/12/17	Y	29/12/17	4/1/2018	1.2	
DD 13	Insoluble Solids	Monthly	0	4	mg/m ² /month	29/12/17	Y	29/12/17	4/1/2018	1.6	
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m ³	20/12/17	Y	22/12/17	2/1/2018	22.1	
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m ³	26/12/17	Y	29/12/18	7/1/2018	2.8	
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m ³		Y			NRR	
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m ³	20/12/17	Y	22/12/17	2/1/2018	3	
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m ³	26/12/17	Y	29/12/18	7/1/2018	<1	
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m ³		Y			NRR	

Blasting

Time of Blast

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			min	max								
											NRR = No Result Recorded	
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	19/12/2017	Y	12:34:00 PM			0.00	
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	19/12/2017	Y	12:34:00 PM			3.07	
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	19/12/2017	Y	12:34:00 PM			0.00	
B3 - Resident	Overpressure	Per Blast	0	115	dB	19/12/2017	Y	12:34:00 PM			0.00	
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec		Y				NRR	
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec		Y				NRR	
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec		Y				NRR	
B3 - Resident	Overpressure	Per Blast	0	115	dB		Y				NRR	
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec		Y				NRR	
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec		Y				NRR	
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec		Y				NRR	
B3 - Resident	Overpressure	Per Blast	0	115	dB		Y				NRR	
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec		Y				NRR	
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec		Y				NRR	
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec		Y				NRR	
B3 - Resident	Overpressure	Per Blast	0	115	dB		Y				NRR	
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec		Y				NRR	
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec		Y				NRR	
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec		Y				NRR	
B3 - Resident	Overpressure	Per Blast	0	115	dB		Y				NRR	
B4 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	21/12/2017	Y	12:29:00 PM			0.00	
B4 - Resident	Overpressure	Per Blast	0	115	dB	21/12/2017	Y	12:29:00 PM			0.00	
B5 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	21/12/2017	Y	12:29:00 PM			0.00	
B5 - Resident	Overpressure	Per Blast	0	115	dB	21/12/2017	Y	12:29:00 PM			0.00	
B6 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	21/12/2017	Y	12:29:00 PM			0.00	
B6 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec		Y				NRR	
B4 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec		Y				NRR	
B4 - Resident	Overpressure	Per Blast	0	115	dB		Y				NRR	
B5 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec		Y				NRR	
B5 - Resident	Overpressure	Per Blast	0	115	dB		Y				NRR	

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://www.environment.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=28929&SYSUID=1&LICID=1453

Water												
Barracks Creek	pH	Monthly	6.5	8.5	pH		Y				NRR	
	Total O&G	Monthly	0	10	mg/L		Y				NRR	
	Susp. Solids	Monthly	0	50	mg/L		Y				NRR	

Blasting

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Period: 16/12/17 - 31/12/17

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			min	max								
											NRR = No Result Recorded	
Heffernans House	Overpressure	Per blast	0	115	dB	18/12/17	Y				98.6	
	Vibration	Per blast	0	5	mm/s	18/12/18	Y				0.83	
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://www.environment.nsw.gov.au/prpoeoapp/ViewPOEOLlicence.aspx?DOCID=29036&SYSUID=1&LICID=2212

Blasting

WARRENS HOUSE	Overpressure	Per blast		120	dB		Y				NRR	No blasting this period.
	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	
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://www.environment.nsw.gov.au/prpoeoapp/ViewPOEOLlicence.aspx?DOCID=28958&SYSUID=1&LICID=1310

Water

Sediment Basin	TSS	Daily During Discharge		50	mg/L	18/12/17	Y				33	
	pH	Daily During Discharge	6.5	8.5	pH	18/12/17	Y				8.19	
Sediment Basin	TSS	Daily During Discharge		50	mg/L	21/12/17	Y				43	
	pH	Daily During Discharge	6.5	8.5	pH	21/12/17	Y				8.35	

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			min	max								
											NRR = No Result Recorded	
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://www.environment.nsw.gov.au/prpoeoapp/ViewPOEOLlicence.aspx?DOCID=29168&SYSUID=1&LICID=3293

Water

ID #1	Test	Freq	min	max	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
ID #1	pH	Weekly	6.5	8.5	pH	18/12/17	Y				7.68	
ID #1	pH	Weekly	6.5	8.5	pH	21/12/17	Y				7.71	
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

Location	Test	Freq	min	max	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
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
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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 Name (As it appears on the licence)	Boambee Quarry					
							Site Address (As it appears on the licence)	Boambee Quarry North Boambee Road BOAMBE NSW 2450					
							Link to Licence on EPA Website	http://www.environment.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=31235&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)													
	Overpressure	Per blast	115	120	dB		Y				NRR	No blasting this period.	
	Vibration	Per blast	0	5	mm/s		Y				NRR		
	Overpressure	Per blast	115	120	dB		Y				NRR		
	Vibration	Per blast	0	5	mm/s		Y				NRR		
	Overpressure	Per blast	115	120	dB		Y				NRR		
	Vibration	Per blast	0	5	mm/s		Y				NRR		
	Overpressure	Per blast	115	120	dB		Y				NRR		
	Vibration	Per blast	0	5	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://www.environment.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=30945&SYSUID=1&LICID=13359				

Water												
ID#2 Surface H20 "Lake 1"	Aresnic	Quarterly	0		mg/L		Y				NRR	
	Conductivity	Quarterly	0		µS/cm		Y				NRR	
	Copper	Quarterly	0		mg/L		Y				NRR	
	Iron	Quarterly	0		mg/L		Y				NRR	
	pH	Quarterly	0		pH		Y				NRR	
	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		Y				NRR	
	Copper	Quarterly	0		mg/L		Y				NRR	
	Iron	Quarterly	0		mg/L		Y				NRR	
	pH	Quarterly	0		pH		Y				NRR	
	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		Y				NRR	
	Copper	Quarterly	0		mg/L		Y				NRR	

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			min	max								
											NRR = No Result Recorded	
	Iron	Quarterly	0		mg/L		Y				NRR	
	pH	Quarterly	0		pH		Y				NRR	
	Zinc	Quarterly	0		mg/L		Y				NRR	
ID#5 Surface H2O "Lake 4"	Aresnic	Quarterly	0		mg/L		Y				NRR	
	Conductivity	Quarterly	0		µS/cm		Y				NRR	
	Copper	Quarterly	0		mg/L		Y				NRR	
	Iron	Quarterly	0		mg/L		Y				NRR	
	pH	Quarterly	0		pH		Y				NRR	
	Zinc	Quarterly	0		mg/L		Y				NRR	
	Air											
ID #1	Deposited Matter	Monthly	0	4	g/m2/month		Y				8	

Site: Jandra Quarry

Environment Protection Licence No.	2796
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://www.environment.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=30958&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		Y				NRR	
DD 3	Insoluble Solids	Monthly	0	4	mg/m2/month		Y				NRR	
DD 4	Insoluble Solids	Monthly	0	4	mg/m2/month		Y				NRR	
HVAS 1	Insoluble Solids	Monthly	0	4	mg/m2/month		Y				NRR	
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m3		Y				NRR	
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m3		Y				NRR	
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m3		Y				NRR	
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m3		Y				NRR	
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)

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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
	Overpressure	Per blast	0	120	dB		Y				NRR	No blasting this period.
	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 cummulative basis)												
	Overpressure	Monthly (Cummulative)	115	120	dB		Y				NRR	
	Vibration	Monthly (Cummulative)	5	10	mm/s		Y				NRR	