



Attachment 4.1H - Environmental Monitoring Worksheet

Period: 16/08/17 - 31/08/17

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/iprpoeeapp/ViewPOEOLicence.aspx?DOCID=31016&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				Y					NRR
Site 2	Ash	Monthly	90				Y					NRR
Site 3	Ash	Monthly	90				Y					NRR
Site 4	Ash	Monthly	90				Y					NRR

Blasting												
		Per Blast	5		mm/s		Y					3.72
		Per Blast	115		dB		Y					83
		Per Blast	5		mm/s		Y					0.31
		Per Blast	115		dB		Y					83
		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: "Johnniefelds" 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/iprpoeeapp/ViewPOEOLicence.aspx?DOCID=28960&SYSUID=1&LICID=1371

Blasting												
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://www.environment.nsw.gov.au/iprpoeeapp/ViewPOEOLicence.aspx?DOCID=28690&SYSUID=1&LICID=12939

Air												
DD 5	Insoluble Solids	Monthly	0	4	mg/m2/month	24/7/17	Y	24/8/17	29/8/17			12/30/1899
DD 8	Insoluble Solids	Monthly	0	4	mg/m2/month	24/7/17	Y	24/8/17	29/8/17			12/30/1899
DD 11	Insoluble Solids	Monthly	0	4	mg/m2/month	24/7/17	Y	24/8/17	29/8/17			12/30/1899
DD 12	Insoluble Solids	Monthly	0	4	mg/m2/month	24/7/17	Y	24/8/17	29/8/17			12/30/1899
DD 13	Insoluble Solids	Monthly	0	4	mg/m2/month	24/7/17	Y	24/8/17	29/8/17			0.20
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m3	16/8/17	Y	18/8/17	22/8/17			4.40
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m3	22/8/17	Y	24/8/17	31/8/17			3.00
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m3	28/8/17	Y	30/8/17	6/9/17			1.80
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m3	16/8/17	Y	18/8/17	22/8/17			14.90
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m3	22/8/17	Y	24/8/17	31/8/17			7.20
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m3	28/8/17	Y	30/8/17	6/9/17			4.70
Blasting												
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	24/08/2017	Y		11:28:00 AM			0.00
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	24/08/2017	Y		11:28:00 AM			4.26
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	24/08/2017	Y		11:28:00 AM			0.00
B3 - Resident	Overpressure	Per Blast	0	115	dB	24/08/2017	Y		11:28:00 AM			0.00
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	29/08/2017	Y		3:45:00 PM			0.00
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	29/08/2017	Y		3:45:00 PM			1.73
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	29/08/2017	Y		3:45:00 PM			0.00
B3 - Resident	Overpressure	Per Blast	0	115	dB	29/08/2017	Y		3:45:00 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
B4 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	18/08/2017	Y		4:07:00 PM			12/30/1899
B4 - Resident	Overpressure	Per Blast	0	115	dB	18/08/2017	Y		4:07:00 PM			12/30/1899
B5 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	18/08/2017	Y		4:07:00 PM			12/30/1899
B5 - Resident	Overpressure	Per Blast	0	115	dB	18/08/2017	Y		4:07:00 PM			12/30/1899
B6 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	18/08/2017	Y		4:07:00 PM			12/30/1899
B6 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	22/08/2017	Y		1:46:00 PM			12/30/1899
B4 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	22/08/2017	Y		1:46:00 PM			12/30/1899



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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												
B4 - Resident	Overpressure	Per Blast	0	115	dB	22/08/2017	Y	1:46:00 PM			12/30/1899	
B5 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	22/08/2017	Y	1:46:00 PM			12/30/1899	
B5 - Resident	Overpressure	Per Blast	0	115	dB	22/08/2017	Y	1:46:00 PM			12/30/1899	

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/bprpoeapp/ViewPOEOLlicence.aspx?DOCID=289298&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												
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
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/bprpoeapp/ViewPOEOLlicence.aspx?DOCID=290368&SYSUID=1&LICID=2212

Blasting												
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
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/bprpoeapp/ViewPOEOLlicence.aspx?DOCID=289588&SYSUID=1&LICID=1310

Water												
Sediment Basin	TSS	Daily During Discharge		50	mg/L	28.08.17	Y					36
	pH	Daily During Discharge	6.5	8.5	pH	28.08.17	Y					8
Sediment Basin	TSS	Daily During Discharge		50	mg/L	29.08.17	Y					31
	pH	Daily During Discharge	6.5	8.5	pH	29.08.17	Y					8.5
Sediment Basin	TSS	Daily During Discharge		50	mg/L	31.08.17	Y					36
	pH	Daily During Discharge	6.5	8.5	pH	31.08.17	Y					8.5
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/bprpoeapp/ViewPOEOLlicence.aspx?DOCID=291688&SYSUID=1&LICID=3293

Blasting												
ID #1	pH	Weekly	6.5	8.5	pH	21/8/17	Y					7.4
ID #1	pH	Weekly	6.5	8.5	pH	28/8/17	Y					7.4
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)	Boambee Quarry North Boambee Road BOAMBE NSW 2450
Link to Licence on EPA Website	http://www.environment.nsw.gov.au/bprpoeapp/ViewPOEOLlicence.aspx?DOCID=312358&SYSUID=1&LICID=7094



Attachment 4.1H - Environmental Monitoring Worksheet

Period: 16/08/17 - 31/08/17

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							
Blasting (M4 & L2.1 - To determine compliance with L3, measurements to be taken at any point within 1 metre of residential boundary)											NRR = No Result Recorded
	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

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/iprpoapp/ViewPOEOLlicence.aspx?DOCID=309458&SYSUID=1&LICID=13359

Water											
ID#2 Surface H20 "Lake 1"	Arsenic	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"	Arsenic	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"	Arsenic	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#5 Surface H20 "Lake 4"	Arsenic	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/iprpoapp/ViewPOEOLlicence.aspx?DOCID=309588&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	mg/m2/month	Y					NRR
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)											
	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