



Attachment 4.1H - Environmental Monitoring Worksheet

Period: 16/9/2017 - 30/9/2017

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/epoapp/ViewPOELLicence.aspx?DOCID=31016&SYSUID=1&LICID=122												

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

Air												
Point 3	Ash	Monthly		90			Y					NRR
Point 4	Ash	Monthly		90			Y					NRR
Point 5	Ash	Monthly		90			Y					NRR
Point 6	Ash	Monthly		90			Y					NRR

Blasting												
		Per Blast		5	mm/s		Y					0.42
		Per Blast		115	dB		Y					52.5
		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://www.environment.nsw.gov.au/epoapp/ViewPOELLicence.aspx?DOCID=29960&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 Sney Creek Road, MARULAN NSW 2579												
Link to Licence on EPA Website http://www.environment.nsw.gov.au/epoapp/ViewPOELLicence.aspx?DOCID=29960&SYSUID=1&LICID=12939												

Air												
DD 5	Insoluble Solids	Monthly	0	4	mg/m ³ /month	22/9/17	Y	22/9/17	28/9/17			1/100
DD 8	Insoluble Solids	Monthly	0	4	mg/m ³ /month	22/9/17	Y	22/9/17	28/9/17			0/100
DD 11	Insoluble Solids	Monthly	0	4	mg/m ³ /month	22/9/17	Y	22/9/17	28/9/17			0/100
DD 12	Insoluble Solids	Monthly	0	4	mg/m ³ /month	22/9/17	Y	22/9/17	28/9/17			0/100
DD 13	Insoluble Solids	Monthly	0	4	mg/m ³ /month	22/9/17	Y	22/9/17	28/9/17			4.2
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m ³	21/9/17	Y	22/9/17	27/9/17			10.40
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m ³	27/9/17	Y	28/9/17	10/10/17			21.20
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m ³	0/1/00	Y		0/1/00			15.80
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m ³	21/9/17	Y	22/9/17	27/9/17			16.80
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m ³	27/9/17	Y	28/9/17	10/10/17			25.30
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m ³	0/1/00	Y		0/1/00			NRR

Blasting												
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	26/09/2017	Y	3:36 PM				6.00
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	26/09/2017	Y	3:36 PM				1.84
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	26/09/2017	Y	3:36 PM				0.00
B3 - Resident	Overpressure	Per Blast	0	115	dB	26/09/2017	Y	3:36 PM				0.00
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	29/09/2017	Y	2:55 PM				0.00
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	29/09/2017	Y	2:55 PM				1.89
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	29/09/2017	Y	2:55 PM				0.00
B3 - Resident	Overpressure	Per Blast	0	115	dB	29/09/2017	Y	2:55 PM				0.00
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	0/1/00	Y	12:00 AM				NRR
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	0/1/00	Y	12:00 AM				NRR
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	0/1/00	Y	12:00 AM				NRR
B3 - Resident	Overpressure	Per Blast	0	115	dB	0/1/00	Y	12:00 AM				NRR
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	0/1/00	Y	12:00 AM				NRR
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	0/1/00	Y	12:00 AM				NRR
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	0/1/00	Y	12:00 AM				NRR
B3 - Resident	Overpressure	Per Blast	0	115	dB	0/1/00	Y	12:00 AM				NRR
B1 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	0/1/00	Y	12:00 AM				NRR
B2 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	0/1/00	Y	12:00 AM				NRR
B3 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	0/1/00	Y	12:00 AM				NRR
B3 - Resident	Overpressure	Per Blast	0	115	dB	0/1/00	Y	12:00 AM				NRR
B4 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	18/09/2017	Y	1:36 PM				0/100
B4 - Resident	Overpressure	Per Blast	0	115	dB	18/09/2017	Y	1:36 PM				0/100
B5 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	18/09/2017	Y	1:36 PM				0/100
B5 - Resident	Overpressure	Per Blast	0	115	dB	18/09/2017	Y	1:36 PM				0/100
B6 - Rail	Peak Particle Velocity	Per Blast	0	25	mm/sec	18/09/2017	Y	1:36 PM				0/100
B6 - Pipeline	Peak Particle Velocity	Per Blast	0	100	mm/sec	0/1/00	Y	12:00 AM				NRR
B4 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	0/1/00	Y	12:00 AM				NRR
B4 - Resident	Overpressure	Per Blast	0	115	dB	0/1/00	Y	12:00 AM				NRR
B5 - Resident	Peak Particle Velocity	Per Blast	0	5	mm/sec	0/1/00	Y	12:00 AM				NRR
B5 - Resident	Overpressure	Per Blast	0	115	dB	0/1/00	Y	12:00 AM				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/epoapp/ViewPOELLicence.aspx?DOCID=28928&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/eprocapp/ViewPOEOLLicence.aspx?DOCID=29038&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 2786
Link to Licence on EPA Website	http://www.environment.nsw.gov.au/eprocapp/ViewPOEOLLicence.aspx?DOCID=28988&SYSUID=1&LICID=1310

Water										
Sediment Basin	TSS	Daily During Discharge	6.5	8.5	mg/L	21/9/17	Y			36
	pH	Daily During Discharge	6.5	8.5	pH	21/9/17	Y			8.37
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://www.environment.nsw.gov.au/eprocapp/ViewPOEOLLicence.aspx?DOCID=29168&SYSUID=1&LICID=3293

Blasting										
ID #1	pH	Weekly	6.5	8.5	pH	18/9/17	Y			7.6
ID #1	pH	Weekly	6.5	8.5	pH	25/9/17	Y			7.7
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	45	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 BOAMBEE NSW 2450
Link to Licence on EPA Website	http://www.environment.nsw.gov.au/eprocapp/ViewPOEOLLicence.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	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/eprocapp/ViewPOEOLLicence.aspx?DOCID=30618&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/m ² /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/eprocapp/ViewCECLLicence.aspx?DOCID=305688&SYSID=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/m ² /month		Y			NRR
DD 2	Insoluble Solids	Monthly	0	4	mg/m ² /month		Y			NRR
DD 3	Insoluble Solids	Monthly	0	4	mg/m ² /month		Y			NRR
DD 4	Insoluble Solids	Monthly	0	4	mg/m ² /month		Y			NRR
HVAS 1	Insoluble Solids	Monthly	0	4	mg/m ² /month		Y			NRR
HVAS 1	PM10	24hr (every 6 days)	0	50	µg/m ³		Y			NRR
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		Y			NRR
HVAS 2	PM10	24hr (every 6 days)	0	50	µg/m ³		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