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23 November 2023

Ben Crawford Independent Cement & Lime Group 750 Lorimer St, Port Melbourne Victoria 3207

E bcrawford@indcem.com.au

Dear Ben

Re: Quarterly Environmental Noise Monitoring – Building Product Services, Quarter 3 2023

Umwelt has completed Quarter 3 2023 Environmental Attended Noise Monitoring for Building Product Services (BPS), Kembla Grange to satisfy BPS's Environment Protection Licence (EPL) 20747 requirements.

This report presents the results of noise monitoring carried out on 27 and 28 September 2023. The purpose of attended noise surveys is to quantify and describe the ambient noise environment in the region surrounding BPS and to estimate the BPS contribution to the ambient noise levels. Meteorological conditions present at the time of monitoring and the measured BPS noise levels are compared to criteria outlined in EPL20747.

Noise monitoring methodology

The compliance assessment methodology includes the following activities:

- Attended noise monitoring measurements, of fifteen-minute duration, at monitoring locations to measure the ambient noise levels in the surrounding region and to assess the BPS contribution (reported as an LAeq, 15 minute measurement) to the measured noise levels.
- Comparison of the BPS LAeq, 15 minute contribution with the relevant EPL LAeq, 15 minute noise criteria to assess compliance of BPS operations.
- Comparison of the BPS LAF, Max night-time attended noise monitoring results with the night-time LAF, Max criteria outlined in the EPL.

Attended noise monitoring for BPS was conducted in accordance with the NSW Environment Protection Authority (EPA) *Noise Policy for Industry* (NPfI, 2017), *Approved methods for the measurement and analysis of environmental noise in NSW* (EPA, 2022) and the Australian Standard *AS1055:2018, Acoustics – Description and Measurement of Environmental Noise*. Inspired People Dedicated Team Quality Outcomes

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During the attended monitoring sessions, noise measurements were taken with a SVAN 958A Precision Integrating Sound Level Meter (Serial Number 59839) which was calibrated on-site using a Type SV-36, Svantek Sound Level Calibrators (Serial Number 90131). The noise meter was run using three measurement profiles, Z Weighting (linear), C Weighting and A Weighting and records A-weighted 1/3 octave noise levels at 10th of a second intervals over a 15-minute measurement period.

During the attended monitoring sessions, the operator maintained a log of noise-related events that occurred and contributed to the ambient noise environment. Particular attention and note were made for contributions associated with BPS operations.

Attended noise monitoring data and results recorded include:

- The LAeq,15minute, LA10,15minute and LA90,15minute noise levels of the ambient acoustic environment for each 15-minute measurement period.
- The recorded A-weighted 1/3 octave noise levels at 10th of a second intervals over each 15-minute measurement period.
- The results of a 1000 Hz low pass filter at 10th of a second intervals over each 15-minute measurement period.
- An assessment of the maximum LAFmax noise level recorded over each 15-minute measurement period.
- Operator comments regarding any extraneous noise sources contributing to the ambient noise levels.

The March 2023 version of EPL20747 identifies three noise monitoring locations, which are shown in **Figure 1**. EPL20747 calls for monitoring to be carried out during the day, evening and night period as defined in the Noise Policy for Industry for a minimum of two (2) of the residential locations and one (1) near-field location.

The noise criteria specified in EPL20747 for three residential locations, NML1, NML2 and NML3 are described in **Table 1**.

Table 1Noise Criteria, dB(A)

Time of d	lay	Parameter	Noise Level
Day	7 am-6 pm Monday -Saturday 8 am-6 pm Sunday & Public Holidays)	LAeq(15minute)	46
Evening	6 pm – 10 pm	LAeq(15minute)	43
Night	10 pm to commencement of day period	LAeq(15minute)	40
		LAFmax	52

Source: EPL20747



- 🔲 BPS Kembla Grange Site
- Near Field Monitoring Location
- EPL Monitoring Location • EPA Kembla Grange Air Quality Monitoring Station (526)

FIGURE 1 Location Figure



The noise criteria in **Table 1** apply under the following meteorological conditions:

- Day Stability categories A, B, C, D with wind speeds up to and including 3 m/s at 10 m above ground level.
- Evening Stability categories A, B, C, D with wind speeds up to and including 3 m/s at 10 m above ground level.
- Night Stability categories A, B, C, D with wind speeds up to and including 3 m/s at 10 m above ground level; or
- Stability Category E and F with wind speeds up to and including 2 m/s at 10 m above ground level.

For those meteorological conditions not referred to above the noise limits include a plus 5dB allowance.

Identification of suitable meteorological conditions

Umwelt aims to conduct compliance monitoring during meteorological conditions where criteria will apply. Publicly available weather forecasts, such as Weatherzone and the Bureau of Meteorology's (BOM's) synoptic charts and Meteye forecasts are reviewed and periods of low wind speeds and no rain are selected for monitoring. It is noted that inversion conditions can occur during periods of low wind speeds. Therefore, preferentially targeting calm periods may inadvertently result in the monitoring being undertaken during inversion conditions. During strong inversion conditions, the noise criteria include a 5 dB allowance and the value of the noise monitoring process is potentially diminished. The 5 dB allowance also applies to periods when the wind speed exceeds those nominated above (as per EPL20747).

Additionally, local radars may be checked immediately prior to monitoring to confirm the absence of rain or storms during summer months. Based on the forecast prevailing meteorological conditions, monitoring was conducted at NM1 and NM2 as well as an additional near-field location on Sylvester Avenue, Unanderra.

Meteorological conditions during monitoring were determined from meteorological data obtained from the EPA Kembla Grange Air Quality Monitoring Station (Station ID 526). Averaged data was available in one-hour intervals. Stability categories present during monitoring were determined using the method from Fact Sheet D of the NPfl using the sigma theta data to estimate the Pasquill-Gifford stability category, as outlined in Section D1 of the NPfl, as specified in EPL20747.

The Quarter 3 2023 attended noise monitoring results in **Table 2** and **Table 3** for NML1 and NML2 respectively include:

- The noise criteria for each monitoring location (for the period when the measurement was taken).
- The estimated noise contribution from BPS.
- Whether the meteorological conditions include a plus 5 dB allowance.
- Whether BPS is complying with the noise criteria at the time of monitoring.

At times, the contribution of BPS to total measured noise levels can only be estimated due to the presence of other more dominant noise sources. In these circumstances, the estimated contribution of BPS is determined during lulls of extraneous noise, such as wind or road traffic noise. Additionally, the near field monitoring conducted at Sylvester Avenue assists in determining the contribution of BPS noise levels in the acoustic environment.

Results in **Table 2** for NML1, Orana Parade, note that BPS was inaudible during all day period measurements. This was largely due to the masking effect of road traffic noise and, at times, nearby construction noise continuum. Background noise data was used to confirm that measured noise levels in



the frequencies expected from BPS were below the noise limit. These levels have been used to estimate a day period noise level for BPS at NML1 Orana Parade to confirm compliance, even though BPS operations were noted as inaudible by noise monitoring personnel.

Further details on the operator comments regarding any extraneous noise sources contributing to the ambient noise levels during the evening and night time monitoring period can be found in **Appendix A** for NML1 and in **Appendix B** for NML2 as notated run charts. Noise levels over the fifteen-minute period are presented in terms of an overall all pass noise level and the low pass level showing the noise level up to and including 1000 Hz is also shown.

The meteorological conditions present during each measurement interval are presented in Table 4.

Calibration certificates for the sound and vibration analyser and sound level calibrator used are provided in **Appendix C**.



	Start Date	Ambient Estimated ¹ BPS Contribution and Criteria, dB(A) Start Date Noise Levels								
Period	and Time of 15 min period	LA90, 15min	LAeq, 15min	EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	Comments
Day	27/09/2023 16:20	55	60	46	IA	-	-	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Princes Highway (Highway). BPS was inaudible during the measurement. Other sources included noise from a nearby industrial area (not related to BPS), trains, aircraft and dogs.
Day	27/09/2023 16:35	56	61	46	<40	-	-	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible on one occasion in the background of the measurement as dust collector fan discharge continuum. Other sources included birds, dogs and aircraft noise.
Day	27/09/2023 16:50	55	59	46	<40	-	-	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible on one occasion in the background of the measurement as dust collector fan discharge continuum. Other sources included train noise, birds, nearby industrial area (not related to BPS) and aircraft.
Day	27/09/2023 17:05	55	60	46	IA	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was inaudible during the measurement. Other sources included dogs and birds.

Table 2 Quarter 3 2023 Attended Noise Monitoring Results – NML1 Orana Parade



	Ambien Start Date Noise Lev		oient Levels		Estimated ¹	BPS Contr	ibution and	Criteria, dB(A)		
Period	and Time of 15 min period	LA90, 15min	LAeq, 15min	EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	Comments
Day	27/09/2023 17:20	54	59	46	<40	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible at times in the background of the measurement as dust collector fan discharge continuum. Other sources included dogs, birds, noise from a nearby industrial area (not related to BPS), aircraft and train noise.
Day	27/09/2023 17:35	54	59	46	<40	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible at times in the background of the measurement as dust collector fan discharge continuum. Other sources included aircraft, birds, residential noise and train noise.
Evening	27/09/2023 18:00	53	59	43	<40	-	-	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible at times in the background of the measurement as dust collector fan discharge continuum. Other sources noted during the measurement included dogs at the residence and at a nearby dog kennel, train noise, birds and aircraft.
Evening	27/09/2023 18:15	51	57	43	<40	-	-	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible on one occasion in the background of the measurement as dust collector fan discharge continuum. Other sources noted during the measurement included dogs at the residence and at a nearby dog kennel, aircraft, birds, insects, noise from a nearby industrial area (not related to BPS) and train noise.



	Start Date	Ambient Estimated ¹ BPS Contribution and Criteria, dB(A) Start Date Noise Levels								
Period	and Time of 15 min period	LA90, 15min	LAeq, 15min	EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	Comments
Night	28/09/2023 22:06	44	54	40	<35	52	<40 No specific event noted	+5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible at times in the background of the measurement as dust collector fan discharge continuum. Other sources noted during the measurement included road traffic noise from the motorway, impact noises and reverse alarms from a nearby industrial area (not related to BPS), frogs, birds, dogs at a nearby dog kennel and train noise.
Night	28/09/2023 22:21	46	54	40	<35	52	<40 No specific event noted	+5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible briefly in the background of the measurement as dust collector fan discharge continuum. Other sources noted during the measurement included road traffic noise from the motorway, frogs, train noise and breeze in foliage.
Night	28/09/2023 22:36	43	52	40	<35	52	<40 No specific event noted	+5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible in the background of the measurement as dust collector fan discharge continuum. Other sources noted during the measurement included road traffic noise from the motorway, train noise and frogs.



	Ambient Start Date Noise Levels				Estimated ¹	3PS Conti	ribution and	Criteria, dB(A)		
Period	and Time of 15 min period	LA90, 15min	LAeq, 15min	EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	Comments
Night	28/09/2023 22:51	44	53	40	<35	52	<40 No specific event noted	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible in the background of the measurement as dust collector fan discharge continuum. Other sources noted during the measurement included road traffic noise from the motorway and aircraft.

Notes:

1. Assessed by the operator during the monitoring session. Exceedances of EPL limits are shown in bold.

2. Meteorological conditions under which the noise criteria apply are defined in EPL20747 condition L2.3(a).

3. See **Table 4** for specific meteorological data during the monitoring period.

4. For those meteorological conditions not referred to in EPL20747 condition L2.3(a), the noise limits that apply are the noise limits in condition L2.1 plus 5dB.



	Start Date	Ambient Noise Levels			Estimated	¹ BPS Con	tribution and		Comments	
Period	and Time of 15 min period	f od LA90, LAed 15min 15m		EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	Comments
Day	28/09/2023 7:00	52	54	46	IA	-	_	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise on the Highway. BPS was inaudible during the measurement. Other sources included birds, aircraft and industrial continuum from Port Kembla.
Day	28/09/2023 7:15	51	54	46	IA	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise on the Highway. BPS was inaudible during the measurement. Other sources included birds, aircraft and train noise.
Day	28/09/2023 7:30	51	53	46	IA	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise on the Highway. BPS was inaudible during the measurement. Other sources included birds, noise from a nearby industrial area (not related to BPS) and aircraft noise.
Day	28/09/2023 7:45	49	53	46	IA	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise on the Highway. BPS was inaudible during the measurement. Other sources included birds and noise from a nearby industrial area (not related to BPS).

Table 3 Quarter 3 2023 Attended Noise Monitoring Results – NML2 Farmborough Road



	Start Date	Ambier Lev	nt Noise vels		Estimated	¹ BPS Con	tribution and	d Criteria, dB(A)		
Period	and Time of 15 min period	LA90, 15min	LAeq, 15min	EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	Comments
Day	28/09/2023 8:00	49	52	46	<46	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise on the Highway. BPS was audible briefly as a front end load bucket impact noise during the measurement. Other sources included birds, aircraft, train noise, road traffic on the Princes Motorway (Motorway) and noise from an industrial area (not related to BPS).
Day	28/09/2023 8:15	51	56	46	<46	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise on the Highway. BPS was audible twice as raw product truck tail gate slams during the measurement. Other sources included birds and dogs.
Evening	28/09/2023 21:18	47	50	43	IA	-	-	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise on the Highway. BPS was inaudible during the measurement. Other sources included dogs, aircraft, train noise and frogs.
Evening	28/09/2023 21:33	46	50	43	IA	-	-	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise on the Highway. BPS was inaudible during the measurement. Other sources included continuum from a nearby industrial area (not related to BPS), aircraft, frogs, birds and breeze in foliage.



	Start Date	Ambient Noise Levels			Estimated	¹ BPS Con	tribution and	d Criteria, dB(A)		
Period	and Time of 15 min period	LA90, 15min	LAeq, 15min	EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	Comments
Night	28/09/2023 6:00	51	54	40	IA	52	IA	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise on the Highway. BPS was inaudible during the measurement. Other sources included birds, and train noise.
Night	28/09/2023 6:15	51	54	40	IA	52	IA	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise on the Highway. BPS was inaudible during the measurement. Other sources included birds.
Night	28/09/2023 6:30	51	55	40	IA	52	IA	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise on the Highway. BPS was inaudible during the measurement. Other sources included birds and train noise.
Night	28/09/2023 6:45	52	57	40	IA	52	IA	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise on the Highway. BPS was inaudible during the measurement. Other sources included train noise, birds, and a garbage truck.

Notes:

1. Assessed by the operator during the monitoring session. Exceedances of EPL limits are shown in bold.

2. Meteorological conditions under which the noise criteria apply are defined in EPL20747 condition L2.3(a).

3. See **Table 4** for specific meteorological data during the monitoring period.

4. For those meteorological conditions not referred to in EPL20747 condition L2.3(a), the noise limits that apply are the noise limits in condition L2.1 plus 5dB.



		Meteorolog	ical Assessmen	nt during Monit	oring Period ^{1,2}	Includes
EPL Id	Start Date and Time of 15 min period	Rain (mm)	Avg. Wind Speed @ Mic. ³ (m/s)	Avg. Wind Speed @ 10m (m/s)	Atmospheric Stability Category (ASC)	Meteorological Allowance ^{4,} (0dB/+5dB)
NML1	27/09/2023 16:20	0	<5	3.3	D	+ 5 dB
NML1	27/09/2023 16:35	0	<5	3.3	D	+ 5 dB
NML1	27/09/2023 16:50	0	<5	3.3	D	+ 5 dB
NML1	27/09/2023 17:05	0	<5	2.2	D	0 dB
NML1	27/09/2023 17:20	0	<5	2.2	D	0 dB
NML1	27/09/2023 17:35	0	<5	2.2	D	0 dB
NML1	27/09/2023 18:00	0	<5	1.0	F	+ 5 dB
NML1	27/09/2023 18:15	0	<5	1.0	F	+ 5 dB
NML1	28/09/2023 22:06	0	<5	0.8	F	+5 dB
NML1	28/09/2023 22:21	0	<5	0.8	F	+5 dB
NML1	28/09/2023 22:36	0	<5	0.8	F	+5 dB
NML1	28/09/2023 22:51	0	<5	0.8	F	+5 dB
NML2	28/09/2023 7:00	0	<5	1.0	В	0 dB
NML2	28/09/2023 7:15	0	<5	1.0	В	0 dB
NML2	28/09/2023 7:30	0	<5	1.0	В	0 dB
NML2	28/09/2023 7:45	0	<5	1.0	В	0 dB
NML2	28/09/2023 8:00	0	<5	0.6	А	0 dB
NML2	28/09/2023 8:15	0	<5	0.6	А	0 dB
NML2	28/09/2023 21:18	0	<5	2.2	F	+5 dB
NML2	28/09/2023 21:33	0	<5	2.2	F	+5 dB
NML2	28/09/2023 6:00	0	<5	1.3	E	+5 dB
NML2	28/09/2023 6:15	0	<5	1.3	E	+5 dB
NML2	28/09/2023 6:30	0	<5	1.3	E	+5 dB
NML2	28/09/2023 6:45	0	<5	1.3	E	+5 dB

Table 4 Meteorological Conditions During Attended Monitoring

Notes:

1. Assessed by the operator during the monitoring session. Exceedances of EPL limits are shown in bold.

2. Meteorological conditions under which the noise criteria apply are defined in EPL20747 condition L2.3(a).

3. Wind speed at microphone height was determined by the operator.

4. For those meteorological conditions not referred to in EPL20747 condition L2.3(a), the noise limits that apply are the noise limits in condition L2.1 plus 5dB.



Near-field Monitoring

To investigate the contribution of BPS noise levels to the acoustic environment at the monitoring locations, near-field monitoring was undertaken to the north of BPS, at Sylvester Avenue during the evening period.

Figure 2 shows the one-third octave noise levels of the acoustic environment at Sylvester Avenue which includes the overall LAeq,15minute (period analysis) for overall context, and selected snapshots from the measurement demonstrating the contributions of individual sources when they were dominant. The snapshots include:

- The BPS pulse lines and BPS plant continuum.
- The BPS plant continuum, including the dust collector system.



• Road traffic on the Highway and also on Sylvester Avenue.

Figure 2 - One-third octave noise levels monitored at a near-field location in Sylvester Avenue

Figure 2 shows one-third octave noise levels of the BPS duct collector at 400 Hz. **Figure 2** also shows the masking effects of others noise sources such as road traffic on the highway.



Statement of Compliance

The results of the Quarter 3 2023 noise monitoring program have been assessed against the EPL 20747 noise criteria and the meteorological conditions identified in the license for BPS.

The Quarter 3 2023 attended noise monitoring results show that BPS was compliant with the BPS EPL 20747 noise criteria for LAeq,15minute and LAFmax noise levels for all monitoring locations.

Review of monitoring requirements

As noted in Condition M2 of EPL 20747, we request that the EPA review the monitoring requirements as over 12 months of monitoring data has been collected by BPS in accordance with the EPL requirements.

The BPS noise monitoring results collected since Quarter 4 of 2021 have generally been compliant with the limits in EPL20747. Noise issues identified during this period due to plant malfunction or change management issues have been addressed with prompt modification to plant and operations at BPS. Improvements made to BPS plant during and since 2020 in response to both modelled and measured noise risks include:

- Modifications to the dryer system, specifically the vibro-feeder hopper system which achieved a significant reduction in low frequency noise emissions off site.
- Enclosing the north-facing wall of the loading bay has resulted in the truck loading/unloading activities being inaudible at NML1 and NML2.
- Enclosing of the dust collector pulse system has significantly reduced the audibility of the pulse system off site.
- Attenuation of the exhaust muffler on the front end loader has reduced the volume of the exhaust note from the loader when it is working in the raw materials yard as observed at monitoring locations.
- Changing the reverse alarm on the front end loader from a beeper alarm to a broad band system to reduce audibility off site.
- Replacement of the dryer system and maintenance of the dryer plant heat shields has effectively eliminated this as an off-site noise source.
- Re-locating the dust collector fan to ground level and the installation of a noise wall at the base of the dust collector system has reduced fan noise emissions from the plant, as observed at monitoring locations.
- Maintenance of the lining of the dust collector ductwork has been undertaken to improve the
 efficiency and reduce the noise output of this system. Specialist advice was sought relating to
 design changes in the system, which included changes to the fan speed and replacement of the
 silencer. The dust collector exhaust ductwork was also extended in height so that the exhaust
 discharge could be directed over the roof line of the main building of BPS, which has reduced
 audibility of this plant at NML1 and NML2.
- Management and training of front end loader operators with regards to clean-up activities in the raw product area. This action has seen a reduction in audible impact noises at monitoring locations.
- Awareness training of operators has been undertaken to reduce the rate of descent of trailer bodies to in turn reduce the frequency and extent of tail gate slams during raw product deliveries.
- Removing the use of truck-mounted blower systems in the delivery of cement to the site and replacing it with a dedicated cement tankers discharge blower system forming part of the plant at



BPS. Truck mounted blowers noise output varied between different trucks and this noise source was not able to be managed with options such as barriers as the noise source was located in the centre of the BPS yard.

The dedicated cement tanker discharge blower system was installed in a shielded location on-site western side of the building in a purpose-built enclosure. The cement tanker discharge blower system was found to be inaudible at NML1 and NM2 during trials conducted during sensitive times of day, evening and night periods.

Appendix D includes a short summary of noise monitoring results at NML1 and NM2 during tanker unloading while the external blower system has been in use. This information further satisfies the requirements of the *Expanded or varied Production Operations Implementation and Noise Verification Program* (Program) as outlined in Condition E2 of EPL 20747.

Given the improvements made at BPS and their history of compliance with noise conditions, we believe EPL 20747 requirements covering the duration and frequency of noise monitoring can be significantly reduced, such as to a biannual basis as discussed during recent consultation with the EPA. Further to this, we believe that daytime monitoring provides little value in terms of determining the noise performance of BPS, due to the dominant presence of road traffic noise during the day period, which makes BPS inaudible most of the time. As such daytime monitoring should be removed from EPL 20747, leaving only evening and night period monitoring. The continuation of evening and night monitoring will ensure any modifications to the BPS plant relating to dust emissions and upgrades to packaging equipment will not result in an increase in noise emissions from site.

Should monitoring results continue to demonstrate compliance, in the future it is hoped that monitoring may only be required when triggered by concerns raised by the community.

We trust this information meets with your current requirements. Please do not hesitate to contact the undersigned on 1300 793 267 should you require clarification or further details of the noise monitoring parameters recorded during this monitoring round.

Yours sincerely

Tim Procter Practice Lead – Acoustic Environment

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Day Monitoring Results for NML1, Orana Parade



Day Monitoring Results for NML1, Orana Parade





Day Monitoring Results for NML1, Orana Parade



Day Monitoring Results for NML1, Orana Parade





Day Monitoring Results for NML1, Orana Parade



Day Monitoring Results for NML1, Orana Parade





Evening Monitoring Results for NML1, Orana Parade



Evening Monitoring Results for NML1, Orana Parade





Night Monitoring Results for NML1, Orana Parade



Night Monitoring Results for NML1, Orana Parade





Night Monitoring Results for NML1, Orana Parade



Night Monitoring Results for NML1, Orana Parade









Day Monitoring Results for NML2, Farmborough Road

Day Monitoring Results for NML2, Farmborough Road







Day Monitoring Results for NML2, Farmborough Road

Day Monitoring Results for NML2, Farmborough Road









Day Monitoring Results for NML2, Farmborough Road







Evening Monitoring Results for NML2, Farmborough Road

Evening Monitoring Results for NML2, Farmborough Road





Night Monitoring Results for NML2, Farmborough Road



Night Monitoring Results for NML2, Farmborough Road





Night Monitoring Results for NML2, Farmborough Road



Night Monitoring Results for NML2, Farmborough Road





CERTIFICATE OF CALIBRATION

CERTIFICATE NO: SLM33138

EQUIPMENT TESTED: Sound & Vibration Analyser

Manufacturer:	Svantek		
Type No:	SVAN-958A	Serial No:	59839
Mic. Type:	7052E	Serial No:	71109
Pre-Amp. Type:	SV12L	Serial No:	73589
Filter Type:	1/3 Octave	Test No:	F033139
		Print Barrier and Last Last	

Owner: Umwelt (Australia) Pty Ltd 75 York Street Teralba, NSW 2284

Tests Performed: IEC 61672-3:2013 & IEC 61260-3:2016

Comments: All Test passed for Class 1. (See overleaf for details) **CONDITIONS OF TEST:**

Ambient Pressure Temperature **Relative Humidity**

996 hPa ±1 hPa °C +1° C 22 48 % ±5%

Date of Receipt : 08/07/2022 Date of Calibration : Date of Issue :

08/07/2022 11/07/2022

Acu-Vib Test Procedure: AVP10 (SLM) & AVP06 (Filters) CHECKED BY: **AUTHORISED SIGNATURE:**



Accredited for compliance with ISO/IEC 17025 - Calibration

Results of the tests, calibration and/or measurements included in this document are traceable to SI units through reference equipment that has been calibrated by the Australian National Measurement Institute or other NATA accredited laboratories demonstrating traceability.

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CERTIFICATE OF CALIBRATION

CERTIFICATE NO: C36730

EQUIPMENT TESTED: Sound Level Calibrator

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In December 2022, Umwelt undertook a verification Program at NML1 and NML2 to determine the noise impacts of BPS' external blower system operating in isolation from other BPS plant. The results of the verification Program confirmed modelling results, which suggested that the external blower system was unlikely to be audible at these locations.

The noise measurements from December 2022 are presented below. During these measurements, all plant including the external blower system were in use at BPS. This has been confirmed by BPS.

1. 8 December 2022 – NML2 Orana Parade, evening period.

This 15-minute measurement started at 20:41 am when a cement truck started unloaded at BPS.

The ambient noise environment at the monitoring location was dominated by traffic noise on the Highway. Other sources included some industrial area noise (not related to BPS).

BPS was audible on one occasion during the measurement as a metallic impact noise consistent with a metal object being dropped. The external blower system was not audible, and no other sources from BPS were noted.



Q2, 2023 – Evening Monitoring Results for NML1, Orana Parade

The EPA requested further data to demonstrate that the external blower system could be used in conjunction with other plant while maintaining compliance with EPL 20747 noise criteria at monitoring locations. During each quarterly monitoring program since December 2022 specific attention has been taken of the cement tanker unloading activities on the site. This included monitoring at NML1 and NM2 at different times of the of day, evening and night and during different weather conditions. During all the monitoring events where a cement tanker was unloading on the site, the external blower system was not audible.

Two example noise measurements from the quarterly monitoring program during June and September 2023 are presented below. During these measurements, all plant including the external blower system

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were in use at BPS. This has been confirmed by visual observations made during monitoring and/or through the confirmation of cement unloading times supplied by BPS.

2. 28 June 2023 – NML2 Farmborough Road, day period.

This 15-minute measurement started at 8:38 am and a cement truck was unloaded at BPS from 8:45 am.

The ambient noise environment at the monitoring location was dominated by birds and road traffic noise. Other sources included industrial area noise (not related to BPS), breeze in foliage and aircraft noise.

BPS was audible briefly as a front end load bucket impact noise during the measurement period, resulting in an estimated LAeq,15minute contribution of less than 40 dB(A), which was well within the day period criteria of 46 dB(A).

3. 27 September 2023 – NML1 Orana Parade, day period.

This 15-minute measurement started at 5:05 pm and a cement truck was unloaded at BPS from 5:00 pm.

The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. Other sources included dogs and birds.

BPS was inaudible during the measurement period.

Run charts showing the operator observations relating to noise sources during these measurements are presented below.



Q2, 2023 - Day Monitoring Results for NML2, Farmborough Road

Q3, 2023 - Day Monitoring Results for NML1, Orana Parade

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During the quarterly monitoring program in April 2023 it was not possible to complete an assessment of the external blower system with the balance of the BPS planting running due to lack of availability of a cement tanker. It was possible however to complete an audibility assessment of the external blower system when a tanker arrived at the end of the evening period and BPS shut down operations for the day. The benefit of this monitoring period is the reduced traffic noise late in the evening resulting in a low background noise level. The results of this assessment and the corresponding run chart is presented below.

4. 27 April 2023 – NML1 Orana Parade, end of the evening monitoring period extended into the night period to assess audibility.

This 15-minute measurement started at 20:44 pm and a cement truck was unloaded at BPS from 20:51 pm.

The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway with period of low traffic flow.

BPS external blower system was not audible during lull in traffic noise where the background noise level of approximately 40 dB(A). The estimated contribution from the external blower system could be as low as 30 dB(A)



Q1, 2023 – Evening Results for NML1, Orana Parade



The results from the monitoring program demonstrate:

- 1. The external blower system is not audible at the residential receiver areas adjacent to BPS. The estimated contribution of the external blower system is less than the minimum noise level recorded during the monitoring programs.
- 2. That the use of the external blower system, in conjunction with other operating plant, can achieve compliance with BPS' criteria at the EPL noise monitoring locations.

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