



ROBE Pty Ltd
Integrated Oilseed Processing Plant
Compliance Noise Monitoring Assessment

August 2013

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1. Introduction

1.1 Overview

Riverina Oils and Bio Energy Pty Ltd (ROBE) operate an oilseed processing plant in Bomen, NSW. The Department of Planning (DoP) and the Environment Protection Authority (EPA) have issued Conditions of Approval (CoA) and an Environment Protection Licence (EPL 13097) applying to the site. Condition 29 of the CoA's requires a Noise Monitoring Plan to be prepared and implemented. Condition L4.2 of the EPL requires that a compliance assessment is undertaken post commissioning of the plant.

A *Noise Monitoring Plan* (Document number 103627, GHD 2013) was prepared prior to the compliance noise monitoring assessment with consideration to Condition 29 of the CoA and Section L4 of the EPL.

This report outlines the outcome of the compliance noise monitoring assessment undertaken on 6 August to 7 August 2013.

1.2 Scope

The assessment was undertaken as follows:

- Site Access was arranged with the assistance of ROBE to previously identified sensitive receptors (R2, R3, R4 and R8 – see Figure 2-1) which were assessed as part of the Project Development Application (Heggies, 2010).
- Attended noise measurements were undertaken during the 24 hour survey at four (4) sensitive receptor locations. 2 x 15-minute surveys were conducted at each location during each of the day, evening and night periods as required in the *Noise Monitoring Plan*.
- Noise data has been assessed and filtered to remove invalid data due to extraneous noise or adverse weather conditions.
- Project specific noise goals were established based on development consent conditions, for the operational phase of the development.
- Measured noise levels have been assessed against these Project specific noise goals.
- Where noise levels exceed noise goals, in-principle noise mitigation recommendations were to be provided.

2. Existing environment

2.1 Existing environment and sensitive receivers

The Project site is located at the intersection of Trahairs and Byrnes Road approximately 8 km northeast of Wagga Wagga. The area surrounding the project site contains both rural and industrial land uses. Rural residential receivers are located intermittently to the north east, east and south west of the site.

The nearest residential receivers to the site have been identified in in Table 2-1 and Figure 2-1.

Table 2-1 Sensitive Receiver Details

Receiver	Easting	Northing	Distance to site boundary (km)	Attended Noise Monitoring Location
R1	537248	6121739	1.5	
R2	537625	6121799	1.9	L3
R3	538090	6121848	1.0	L2
R4	537968	6122862	1.5	L1
R5	537760	6123116	1.75	
R6	538140	6123263	1.5	
R7	538268	6123807	1.9	
R8	540329	6119814	1.9	
R9	540594	6119575	2.25	L4

2.2 Existing noise sources

Noise sources in the area surrounding the site may potentially include:

- Operational noise from the existing processing plant
- Traffic noise from Trahairs Road
- Traffic noise from Byrnes Road
- Traffic noise from the Olympic Highway
- Traffic noise from site activities
- Rail noise from the existing railway line running parallel to Byrnes Road
- Noise associated with agricultural activities
- Natural noise from wind, insects and animals



Figure 2-1 Site Boundary and Sensitive Receiver Locations

(Source: Google maps 2013)

3. Noise limits

The DoP CoA 24 and EPL 13097 Clause L4.1 specify the following noise limits and monitoring conditions for the site:

Noise Limits (dB(A))

Day	Evening	Night	Night	Location
LAeq (15 minute)	LAeq (15 minute)	LAeq (15 minute)	LA1 (1 minute) or LA max	
35	35	35	45	At any residence or other sensitive receiver

Note: a) To determine compliance with the $L_{Aeq (15 min)}$ noise level limits in the above table, noise from the project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling where the dwelling (rural situations) is more than 30 metres from the boundary. To determine compliance with the $L_{A1 (1 minute)}$ noise level limits in the above table, noise from the project is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the project is impractical, the EPA may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).

The modification factors in Section 4 of the NSW Industrial Noise policy shall also be applied to the measured noise levels where applicable.

b) The noise emission limits identified in the above table apply under meteorological conditions of:

- *Wind speeds of up to 3 m/s at 10 metres above ground level; and*
- *Temperature inversion conditions of up to 3°C/100m, and wind speeds of up to 2m/s at 10 metres above the ground level.*

L4.2 For the purpose of the above condition:

- *Day is defined as the period from 7 am to 6 pm Monday to Saturday and 8 am to 6 pm Sundays and Public Holidays;*
- *Evening is defined as the period from 6 pm to 10 pm; and*
- *Night is defined as the period from 10 pm to 7 am Monday to Saturday and 10 pm to 8 am and Public holidays.*

4. Monitoring methodology

Noise monitoring was undertaken in accordance to the *Noise Monitoring Plan* and NSW EPA *Industrial Noise Policy* (INP) (EPA 2000) at four locations from the 6 August to the 7 August 2013. The noise monitoring locations are shown in Figure 4-1 and correspond to receiver locations as per Table 2-1. Site access was unable to be arranged at L1 and L4, therefore measurements were undertaken at the nearest publicly accessible point to these residences (road reserve). Measurements were conducted at 15 minute intervals twice during each of the day, evening and night periods.

Attended noise measurements were taken using a Svan 955 Type 1 sound level meter (serial number 27612) and a RION NL-22 Type 2 sound level meter (serial number 852196). These instruments are capable of measuring continuous sound pressure levels and able to record L_{Amin} , L_{A90} , L_{A10} , L_{A1} , L_{Amax} and L_{Aeq} noise descriptors.

Field calibrations were checked by GHD immediately before and after each set of measurements using a Larson Davis CAL200 sound level calibrator (serial number 9193). In all cases, pre and post calibration checks were within the acceptable range of 94 dB +/- 0.5 dB

Meteorological data was obtained for the survey period from attended weather measurements using a Kestrel handheld weather station and the ROBE facility's weather station located at the site.

It is our understanding that the plant was running under typical operation and capacity at the time of the noise survey.



Figure 4-1 Noise monitoring locations

(Source: Google maps 2013)

5. Monitoring results

5.1 Attended monitoring

Attended day, evening and night monitoring results at the four locations are presented in Table 5-1 to Table 5-4.

Table 5-1 Receiver L1 Attended Monitoring Results dB(A)

Receiver L1	Day		Evening		Night	
	#1	#2	#1	#2	#1	#2
L _{Aeq} (15min)	54.4	54.0	69.9	74.4	66.3	63.5
L _{A1} (15min)	66.3	68.3	84.5	88.0	79.0	72.4
Site contribution	Nil	Nil	Nil	Nil	<22	<22
L _{Aeq} (15min)						
Criteria	35 L _{eq,15min}		35 L _{eq,15min}		35 L _{eq,15min} 45 L _{1, 1min} or L _{max}	
Measurement commenced	14:42:23	14:57:50	21:07:08	21:22:54	2:35:40	2:52:34
Measurement ceased	14:57:23	15:12:34	21:22:08	21:37:54	2:50:40	3:07:34
Weather conditions	13 °C		10 °C		10 °C	
(Temperature, Wind speed, Cloud cover)	0 m/s 80%		<0.5 m/s 86%		<0.2 m/s 100%	
Observations	Road traffic: 35-72		Road traffic: 30-95		Road traffic: 25-85	
dB(A) Lp	Birds: 30-39 Cattle: 33-37		Insects/Frogs: <30		Insects/Frogs: 20-30 Cattle: 30-37 Industry hum: <30 Site hum: <22	

Table 5-2 Receiver L2 Attended Monitoring Results dB(A)

Receiver L2	Day		Evening		Night	
	#1	#2	#1	#2	#1	#2
L _{Aeq} (15min)	56.4	53.6	47.6	46.1	41.8	36.4
L _{A1} (15min)	70.6	68.3	55.6	55.3	52.1	48.6
Site contribution	Nil	Nil	Nil	Nil	Nil	<30
L _{Aeq} (15min)						
Criteria	35 L _{eq,15min}		35 L _{eq,15min}		35 L _{eq,15min} 45 L _{1, 1min} or L _{max}	
Measurement commenced	14:04:37	14:20:00	20:29:54	20:45:40	1:47:22	2:06:48
Measurement ceased	14:19:36	14:35:00	20:44:54	21:00:40	2:02:22	2:21:48
Weather conditions	13 °C		10 °C		7 °C	
(Temperature, Wind speed, Cloud cover)	0 to 1 m/s 90%		<0.5 m/s 86%		0 m/s 60%	
Observations	Road traffic: 30-52		Road traffic: 42-67		Road traffic: 30-55	
dB(A) Lp	Birds: 30-80 Reverse Alarms: 37 Vehicle on driveway: 30-73		Insects/Frogs: 28-38 Aeroplane: 35-36 Residential activities: 49-60		Insects/Frogs: 25-31 Cattle: 30-44 Site hum: <30	

Table 5-3 Receiver L3 Attended Monitoring Results dB(A)

Receiver L3	Day		Evening		Night	
	#1	#2	#1	#2	#1	#2
L _{Aeq} (15min)	48.2	47.4	47.3	50.5	47.4	46.3
L _{A1} (15min)	54.8	55.7	55.8	61.1	59.7	56.4
Site contribution	Nil	Nil	Nil	Nil	Nil	Nil
L _{Aeq} (15min)	35 L _{eq,15min}		35 L _{eq,15min}		35 L _{eq,15min}	
Criteria					45 L _{1, 1min} or L _{max}	
Measurement commenced	13:28:28	13:44:56	19:48:36	20:05:36	1:08:32	1:24:24
Measurement ceased	13:43:28	13:59:56	20:03:36	20:20:36	1:23:32	1:39:24
Weather conditions	13 °C		10 °C		6 °C	
(Temperature, Wind speed, Cloud cover)	0 m/s		<0.7 m/s		<0.5 m/s	
	90%		100%		Fog	
Observations	Road traffic: 30-71		Road traffic: 40-57		Road traffic: 35-64	
dB(A) Lp	Birds: 30-55		Insects/Frogs: 39-45		Insects/Frogs: 33-41	
	Insects/Frogs: 30-35		Truck: 51-63		Cattle: 38-41	
	Aeroplane: 40-51		Aeroplane: 40-43		Dog barking: 34	
					Train: 40-51	

Table 5-4 Receiver L4 Attended Monitoring Results dB(A)

Receiver L4	Day		Evening		Night	
	#1	#2	#1	#2 ²	#1	#2
L _{Aeq} (15min)	47.2	57.9	40.0	-	28.8	28.1
L _{A1} (15min)	60.2	68.7	44.5	-	36.2	34.8
Site contribution	Nil	Nil	<35	-	Nil	Nil
L _{Aeq} (15min)	35 L _{eq,15min}		35 L _{eq,15min}		35 L _{eq,15min}	
Criteria					45 L _{1, 1min} or L _{max}	
Measurement commenced	12:46:13	13:01:29	21:52:12	-	3:20:58	3:36:22
Measurement ceased	13:01:13	13:16:28	22:07:12	-	3:35:58	3:51:22
Weather conditions	12 °C		5.4 °C		10 °C	
(Temperature, Wind speed, Cloud cover)	0 to 1 m/s		<0.2 m/s		<0.5 m/s	
	90%		0%		100%	
Observations	Road traffic: 30-88		Road traffic: 35-45		Road traffic: 30-37	
dB(A) Lp	Birds: 25-48		Industry hum: 39-41		Birds: 25-50	
	Cattle: 30-35		Insects/Frogs: <25		Insects: <25-25	
	Aeroplane: 30-55		Birds: 37-57		Cattle: 30-37	
			Cattle: <35		Industry hum: 25-30	
			Site hum: <35			

² due to adverse weather during the afternoon and start of the evening period, only one evening measurement was undertaken at L4, however observations indicated that noise from the ROBE facility was below the noise limit.

Weather conditions during the evening and night surveys consisted of light westerly winds with cloudy skies following rain during the previous day and into the early evening. Cloud cover decreased into the early morning. Weather conditions during the daytime consisted of cloudy skies and calm conditions with occasional light winds from the North.

The noise environment during the daytime surveys was dominated at all locations by road traffic noise, birds, insects/frogs and cattle. Occasional aeroplane flyovers could also be heard at receivers L3 and L4. The site contribution was negligible at all locations.

The noise environment during the evening time period was dominated by road traffic noise and insects / frogs at all locations. Occasional aeroplane flyovers could also be heard at receivers L3 and L2. The site contribution was negligible at all receivers except L4 where a site hum (<35 dB(A)) was faintly audible, however much less than other environmental sources.

The noise environment during the night time period was dominated by road traffic noise, insects and cattle at all locations. The site was audible at receiver L2 (<30 dB(A)) and faintly audible at receiver L1 (<22 dB(A)).

At the receivers where the site was audible (L1, L2, L3), the measured L_{Aeq} levels are considered representative of the L_{Amax} noise levels due to the continuous nature of site noise.

While noise monitoring results are generally higher than the 35dB $L_{Aeq\ 15minute}$ noise criteria, this was due to noise sources other than the ROBE facility including road traffic noise, insects, birds, aeroplanes and other noises typical of a rural environment near to main transportation routes (Olympic Highway).

The attended noise monitoring indicates that site operational noise does not exceed the legislative criteria at any of the sensitive receivers assessed, based on the operations at the time of the monitoring surveys.

6. Conclusion

GHD undertook a noise survey and assessment of the ROBE oilseed processing and refining site during 6 and 7 August 2013. The noise assessment consisted of attended monitoring to quantify the received noise levels due to the ROBE site operations at four noise sensitive receivers near the site. The selected monitoring locations are considered representative of other receivers which are further from the facility, therefore compliance at the monitoring locations indicates compliance at all sensitive receivers surrounding the site.

The results of the measurement survey indicate that in general the noise environment near to the receivers is dominated by road traffic, aircraft and rural sources and that site noise contribution is in compliance with the legislative criteria outlined in Section 3 at all nearby noise sensitive receivers.

7. References

GHD (2013) ROBE Pty Ltd Integrated Oilseed Processing Plant - Noise Monitoring Plan.

Heggies (2010) ROBE Proposed Integrated Oilseed Processing Plant – Noise Impact Assessment.

NSW EPA (2000) NSW Industrial Noise Policy.

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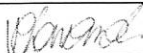

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