MEMORANDUM

610.14692 Report Addendum - Response to EPA's Comment on the AQIAV2.docx

TO:	Shivesh Singh	FROM:	Fardausur Rahaman	DATE:	28 October 2016
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SUBJECT:	**Report Addendum - Response to EPA's Comments on the AQIA**				

This memorandum addresses the information requests issued by NSW EPA dated 29 August 2016 and 2 September 2016 (DOC16/357994-02) on the air quality impact assessment (AQIA) report (SLR 2016) for the Resource Recovery Facility at 20 Hearne Street Mortdale. NSW EPA requested additional information on the following issues:

- Emission Estimation – The Proponent must confirm emission estimates and provide a tabulated emission inventory outlining all input parameters utilised to estimate emissions.
- Exceedances – Where exceedances of the EPA's impact assessment criteria for particles are predicted, the modelling assessment should be revised to include proposed emission controls which will be adopted at the premises.

In addition, NSW EPA advises that should the proposed development cause odour impacts, the EPA will require the Proponent to undertake an odour impact assessment as part of an environment protection licence condition (such as a Pollution Reduction Program).

Based on the above, this memorandum addresses the following.

- Odour impact assessment – No further information is required. The Proponent will be required undertake an odour impact assessment only if any odour is generated from the site during operation.
- Emission Estimation – A brief summary of the additional control measures is presented in **Section 1**. The revised emission inventory based on the proposed control measures is presented in **Table 1**. The input and assumptions utilised to estimate emissions from the site is presented in tabular format in **Table 2** (inputs) and **Table 3** (intensity/material throughput).
- Exceedances – Modelling results based on the revised emission inventory is presented in **Section 2**. Incremental and cumulative 24-hour average PM_{10} concentrations at surrounding sensitive/industrial receptors based on the revised emission inventory are presented in **Table 4**. No exceedances are predicted at any surrounding sensitive/industrial receptors.

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1 Emission Estimation

Following the EPA's feedback on the AQIA (SLR 2016), the emission inventory has been revised incorporating the following additional proposed emission controls that will be adopted for the operation of the Project:

- All processing of materials will be carried out within the enclosure (onsite building). Processed materials will be unloaded at different bays located under the awning with fogging and sprinkler controls to minimise potential dust emissions – it was assumed this will achieve an average of 90% emission reduction for dust emissions from this activity.
- Vehicle speed will be limited to less than 5 km/hr on onsite roads – it was assumed this will achieve an additional 40% reduction in on-site wheel generated dust emissions. It is noted that 40% control efficiency is based on limiting vehicle speed to 30 km/hr and no published emission factors are available for limiting vehicle speeds to 5 km/hr. Due to this, the calculated emissions associated with the onsite traffic movements are likely to be overestimated.

A summary of the estimated revised emission rates are presented in **Table 1**. The emission factors for each activity and all input parameters utilised to estimate emissions are presented in **Table 2**. The assumed intensity of each activity, including material throughput, annual vehicle kilometre travelled (vkt) onsite and exposed areas are outlined in **Table 3**.

The revised estimated emission rates for the proposed operation outlined in **Table 1** have been modelled using the same dispersion modelling methodology as outlined in the AQIA (SLR 2016). Based on the original emission inventory without the additional controls listed above, the AQIA predicted exceedances of the 24-hour average PM_{10} assessment criterion at one industrial receptor (I3) in the vicinity of the site. No exceedances were predicted for any other pollutants including annual average PM_{10} concentrations at any surrounding residential or industrial receptors. To address EPA's request therefore, this additional modelling has only addressed the incremental and cumulative 24-hour average PM_{10} concentrations predicted at surrounding residential and industrial receptors.

Table 1 Revised Emission Inventory

Activity	Annual Average Emission Rate (kg/annum)			Peak Emission Rate (kg/annum)		
	TSP	PM_{10}	$PM_{2.5}$	TSP	PM_{10}	$PM_{2.5}$
Unloading materials from truck	5	2	0.3	110	52	8
Material sorting/handling	9	4	0.6	219	104	16
Loading product material to truck	4	2	0.3	88	41	6
Onsite Hauling	168	32	7.8	4,084	784	190
Wind erosion	615	307	28.8	615	307	29
Total emissions	**800**	**348**	**38**	**5,115**	**1,288**	**248**

Table 2 Emission Factors and Input Assumptions

Activity	Emission Factor				Input Assumptions	Emission Factor Source
	TSP	PM_{10}	$PM_{2.5}$	Unit		
Unloading materials from truck	0.0002	0.0001	0.00001	kg/t	Wind speed factor – 1.21 Moisture content – 10% Control efficiency – 90%[1]	USEPA AP42
Material sorting/handling	0.0002	0.0001	0.00001	kg/t		
Loading product material to truck	0.0002	0.0001	0.00001	kg/t		
Onsite Hauling	0.056	0.011	0.003	kg/vkt	Mean Vehicle weight – 15 t Onsite road length – 0.4 km/return trip Silt loading – 1.1 g/m² Control efficiency – 70%[2]	
Wind erosion	0.40	0.20	0.02	kg/ha/hour	Control efficiency – 65%[3]	NPI

[1]All processing activities will be carried out within the enclosure (onsite building). Processed materials will be stored in different bays under the awning with fogging and sprinkler controls to minimise potential dust emissions.

[2] An overall 70% control efficiency on haul roads will be achieved through the application of water sprays and limiting the onsite vehicle speeds to 5 km/hr.

[3]65% control efficiency will be achieved through the application of water spray and wind barrier effect achieved due to the fence at the site boundary and buildings/infrastructure within the site.

Table 3 Intensity of Each Activity

Activity	Intensity		Unit
	Annual	Peak	
Unloading materials from truck	300,000	7,280,000	tonnes/annum
Material sorting/handling[1]	600,000	14,560,000	tonnes/annum
Loading product material to truck	240,000	5,824,000	tonnes/annum
Onsite Hauling[2]	10,057	244,058	VKT/annum
Wind erosion	0.5	0.5	ha

[1]Assumes material will be handled twice at the site

[2]Based on a truck capacity of 10 tonnes/load and onsite trip distance of 0.4 km/return trip

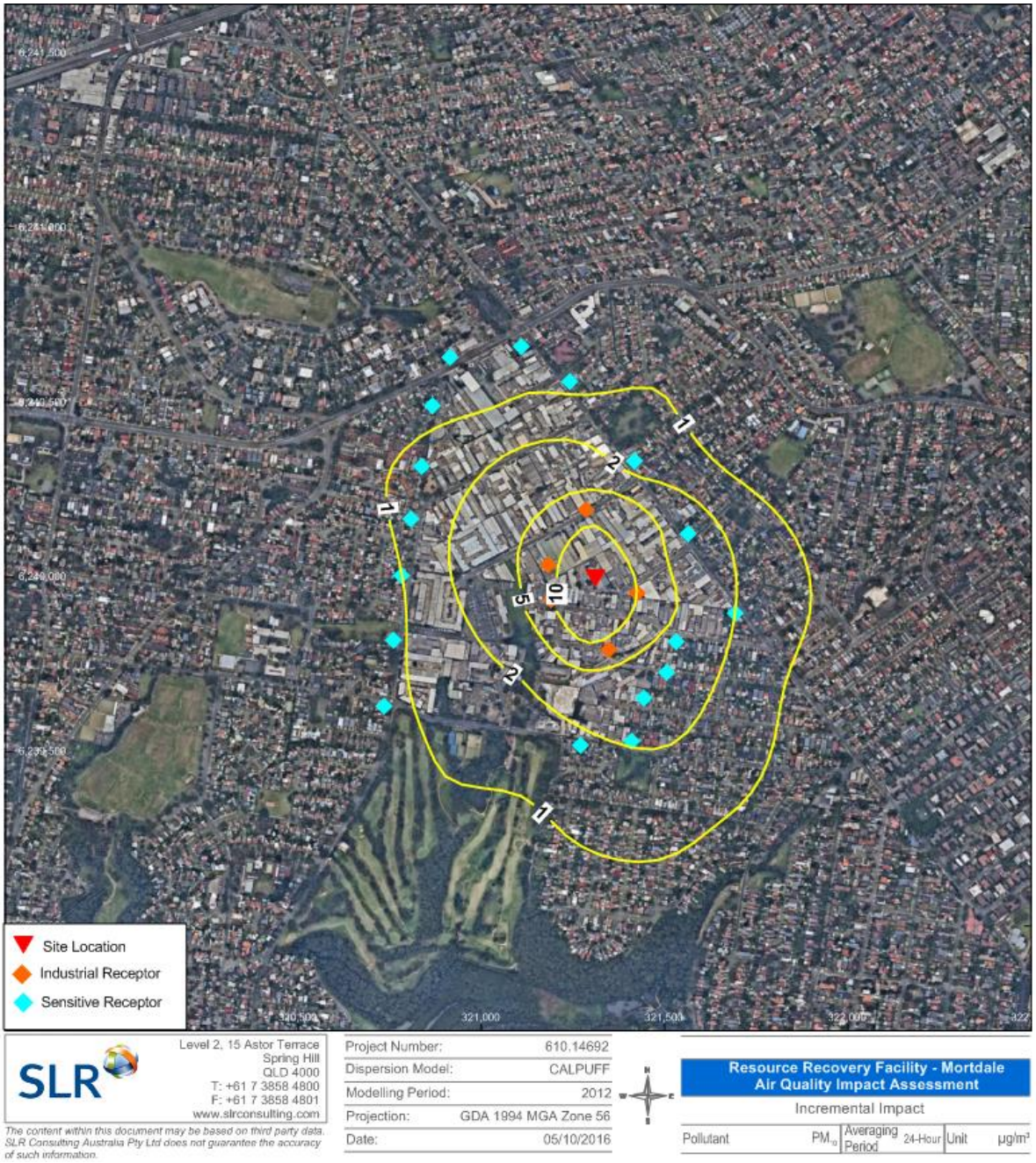
2 Impact Assessment

Based on the revised emission inventory, cumulative 24-hour average PM_{10} concentrations at each receptor were calculated using the predicted increment from the Project and background 24-hour average PM_{10} concentrations outlined in the AQIA (SLR 2016). The resulting maximum predicted 24-hour average PM_{10} concentrations at surrounding sensitive and industrial receptors are presented in **Table 4**. As shown in **Table 4**, with the additional controls accounted for in the emission inventory, the maximum predicted 24-hour average PM_{10} concentrations at all receptors included in the model (including the industrial sites) comply with the assessment criterion of 50 µg/m^3. The maximum predicted incremental 24-hour average PM_{10} concentrations are shown as a contour plot in **Figure 1**.

Table 4 Predicted 24-Hour Average PM_{10} Concentrations at Surrounding Receptors

Receptor ID	Receptor Type	24-Hour Average PM_{10} Concentrations (µg/m^3)	
		Increment	Cumulative
Sensitive Receptors			
R1	Residential	0.6	44.2
R2	Residential	0.9	44.2
R3	Residential	2.0	44.2
R4	Residential	3.0	44.2
R5	Residential	1.9	44.4
R6	Residential	3.9	45.0
R7	Residential	3.2	44.9
R8	Residential	2.2	44.6
R9	Residential	1.6	44.3
R10	Residential	0.7	44.2
R11	Residential	0.7	44.2
R12	Residential	0.8	44.2
R13	Residential	1.3	44.2
R14	Residential	1.2	44.2
R15	Residential	0.8	44.2
R16	Residential	0.6	44.2
R17	Childcare Centre	3.5	45.1
Industrial Receptors			
I1	Industrial	8.7	44.2
I2	Industrial	5.9	44.2
I3	Industrial	10.1	46.3
I4	Industrial	7.4	44.2
I5	Industrial	4.6	44.8
CRITERION		**-**	**50.0**

Figure 1 Maximum Predicted Incremental 24 Hour Average PM_{10} Concentrations



We trust that the above information provided, addresses EPA's concerns. If you have any questions or require further information please don't hesitate to contact us.

Checked/
Authorised by: KL