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18 November 2020

Luke Farrell
Senior Environmental Consultant
Element Environment
Via email: luke@elementenvironment.com.au

RE: Further Additional Information for Tyrecycle Pty Ltd

Dear Luke,

The following outlines additional information and clarification to address the New South Wales (NSW) Environment Protection Authority (EPA) request for additional information relating to the *Air Quality Impact Assessment Tyrecycle Erskine Park* (AQIA) (**Todoroski Air Sciences, 2020a**) and the subsequent letter *Additional Information for Tyrecycle Pty Ltd* (the Letter) (**Todoroski Air Sciences, 2020c**).

The key comment is shown in grey italics, and is followed by our response to the comment.

Additional assessment of potential impacts at nearest commercial/ industrial receptors to the proposal has not been provided.

The Air Quality Impact Assessment (AQIA) only considered residential receptors in the assessment of impacts, with the closest receptor (R2) approximately 300 metres north from the proposed facility. No industrial or commercial receptors have been considered.

The EPA advised that a sensitive receptor is defined in the Approved Methods for Modelling and Assessment of Air Pollutants in NSW (Approved Methods) as a location where people are likely to work or reside and that future sensitive receptors should be considered.

The EPA recommended the AQIA include the industrial and commercial receptors in the complete assessment of air quality impacts. Any predicted exceedances must be addressed, and proposed mitigation measures should be benchmarked against industry best practise.

Tyrecycle should give more thorough consideration to the potential impacts at industrial/commercial receptors through inclusion of industrial and commercial receptors in the air quality assessment and demonstrating that any residual risks of potential impacts can be adequately managed.

As noted in the Letter, the air quality impact assessment criteria in the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (Approved Methods) (**NSW EPA, 2017**) are designed for sensitive individuals who would be most susceptible to harm.

Places where people work such as the adjacent industrial receptors, would be expected to only have healthy adults present who are unlikely to reside for more than 24-hours at any one time (based on typical working hours), thus the NSW EPA impact assessment criteria are not considered applicable.

The location of air quality impact is important in defining the context in which it occurs. Generally, there is a lower expectation of air quality amenity in industrial areas due to the nature of activities which occur in these areas and is not considered to be out of place (similar to noise impacts). The expectations for what may be reasonable interference with the comfort and repose of a person working in an industrial area is obviously going to be less, relative to a person taking respite in their own home and this difference needs to be considered when assessing air quality impact in an industrial area.

Nevertheless, to resolve the NSW EPA issue, the potential air quality impacts associated with the Project have been assessed at the adjacent industrial receptors. **Figure 1** presents the location of the Project with reference to the industrial receptor locations assessed which are the same locations assessed in the *Noise Impact Assessment Tyrecycle Erskine Park (Todoroski Air Sciences, 2020b)*.



Figure 1: Industrial receptor locations

The air dispersion modelling presented in the AQIA has been used to assess impacts, full details regarding the air dispersion model setup can be found in the AQIA.

Table 1 presents the predicted incremental and cumulative particulate dispersion modelling results at each of the industrial receptor locations.

The predicted cumulative results indicate that the industrial receptor locations are predicted to experience levels below the relevant criteria for each of the assessed dust metrics.

Table 1: Dust dispersion modelling results for industrial receptor locations

Receptor ID	PM _{2.5} (µg/m³)		PM ₁₀ (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	PM _{2.5} (µg/m³)	PM ₁₀ (µg/m³)	TSP (µg/m³)	DD* (g/m²/mth)
	Incremental						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	-	2	8	25	90
IN1	2.6	1.0	5.7	2.5	4.0	0.1	7.4	17.5	57.9	2.5
IN2	2.9	0.6	6.5	1.4	1.8	<0.1	7.0	16.4	55.7	2.4
IN3	3.4	0.9	8.3	2.3	3.9	0.1	7.3	17.3	57.8	2.5
IN4	5.5	1.4	13.6	3.8	6.5	0.2	7.8	18.8	60.4	2.6
IN5	2.6	0.5	6.0	1.2	1.9	<0.1	6.9	16.2	55.8	2.4

*Deposited dust

The results for incremental 24-hour average PM_{2.5} and PM₁₀ concentrations indicate there are no predicted exceedances of the relevant criteria at the industrial receptor locations. A "Level 2 assessment - Contemporaneous impact and background approach" was applied to assess potential impacts PM_{2.5} and PM₁₀.

Table 2 provides a summary of the findings from the Level 2 assessment on the additional days above the 24-hour average PM_{2.5} and PM₁₀ criteria for IN1 and IN4. The results indicate that the Project would potentially see one additional day above the 24-hour average PM_{2.5} criterion at IN4 and one additional day above the 24-hour average PM₁₀ criterion at IN1 and IN4. All other industrial receptor locations would not see any days above the 24-hour average PM_{2.5} and PM₁₀ criteria. For the additional days, the predicted levels are marginally above the applicable 24-hour average PM_{2.5} and PM₁₀ criteria (approximately 0.4-1.4µg/m³) and occur when the background level is relatively elevated.

Table 2: Summary of Level 2 assessment - additional days above 24-hour average criteria

Industrial receptor location	IN1	IN4
	PM _{2.5} (µg/m ³)	
Date	-	6/05/2015
Measured background level	-	22.6
Predicted increment	-	2.8
Total cumulative 24-hour average level	-	25.4
Criterion	25	25
	PM ₁₀ (µg/m ³)	
Date	27/11/2015	27/11/2015
Measured background level	48.3	48.3
Predicted increment	3.0	3.1
Total cumulative 24-hour average level	51.3	51.4
Criterion	50	50

The air dispersion modelling presented in the AQIA applied generally conservative assumptions which would overestimate the potential impact from the Project. This includes assuming that all the activities occur out in the open (i.e. not within the warehouse) and therefore would overestimate the potential emissions released. As noted in the Letter, the only activities occurring outside the warehouse enclosure would include movement of a forklift, trucks entering and exiting the site and the loading of the processed material to trucks for dispatch

off-site. All other activity inclusive of the tyre shredding and processing would occur within the warehouse enclosure. The warehouse enclosure is a mitigation measure for the Project and would act to control the dust generating activities by approximately 70-90%. A comparison of the estimated annual TSP, PM₁₀ and PM_{2.5} emissions for the Project with and without a 70% control applied to activity occurring within the warehouse enclosure is presented in **Table 3**. The comparison indicates the warehouse enclosure would reduce the total dust generated at the Project by 52% for TSP, 49% for PM₁₀ and 15% for PM_{2.5}.

Table 3: Comparison of estimated emissions for the Project with controls applied to activities occurring within warehouse enclosure

Activity	As per AQIA			Control applied to activity occurring within warehouse enclosure		
	Dust emissions					
	TSP	PM ₁₀	PM _{2.5}	TSP	PM ₁₀	PM _{2.5}
Delivering material to site	98	19	5	98	19	5
Unloading material in building (within warehouse)	22	10	2	7	3	1
Rehandle material at stockpile (within warehouse)	22	10	2	7	3	1
Loading material to shredder (within warehouse)	22	10	2	7	3	1
Shredding material (within warehouse)	78	35	6	23	11	2
Granulating material (within warehouse)	363	125	8	109	38	2
Granulating material (within warehouse)	363	125	8	109	38	2
Unloading processed material to stockpile (within warehouse)	22	10	2	7	3	1
Rehandle material at stockpile (within warehouse)	22	10	2	7	3	1
Loading processed material to truck	22	10	2	22	10	2
Hauling processed material offsite	99	19	5	99	19	5
Exhaust emissions	98	98	95	98	98	95
Total dust emissions (kg/yr.)	1,232	483	137	591	247	117
Precent reduction (%)				52	49	15

The reduction in dust due to the warehouse enclosure has been applied to the modelling results by assuming the reduction in total estimated dust emissions is directly proportional to the predicted concentrations. **Table 4** provides an updated Level 2 assessment on the additional days above the 24-hour average PM_{2.5} and PM₁₀ criterion for IN1 and IN4 indicated in **Table 2**. The results indicate that with consideration of the warehouse enclosure for the Project, the predicted cumulative 24-hour average PM_{2.5} and PM₁₀ levels would be below the relevant criteria at these locations.

Table 4: Summary of Level 2 assessment - additional days above 24-hour average criterion

Industrial receptor location	IN1	IN4
	PM _{2.5} (µg/m³)	
Date	-	6/05/2015
Measured background level	-	22.6
Predicted increment	-	(2.8 x 0.85) = 2.4
Total cumulative 24-hour average level	-	25.0
Criterion	25	25
	PM ₁₀ (µg/m³)	
Date	27/11/2015	27/11/2015
Measured background level	48.3	48.3
Predicted increment	(3.0 x 0.51) = 1.5	(3.1 x 0.51) = 1.6
Total cumulative 24-hour average level	49.8	49.9
Criterion	50	50

Overall, the modelling predictions indicate that the Project can operate without causing any air quality impact at the adjacent industrial receptors.

The adjacent industrial receptors should have a lower expectation of air quality amenity and should not be considered sensitive receptors.

The dust controls and mitigation for the Project are effective in minimising the potential occurrence of excessive air emissions from the site and are in line with industry best practice.

Please feel free to contact us if you would like to clarify any aspect of this letter.

Yours faithfully,
Todoroski Air Sciences



Philip Henschke

References

Todoroski Air Sciences (2020a)

"Air Quality Impact Assessment Tyrecycle Erskine Park", prepared for Tyrecycle Pty Ltd by Todoroski Air Sciences, September 2020.

Todoroski Air Sciences (2020b)

"Noise Impact Assessment Tyrecycle Erskine Park", prepared for Tyrecycle Pty Ltd by Todoroski Air Sciences, September 2020.

Todoroski Air Sciences (2020c)

"Additional Information for Tyrecycle Pty Ltd", prepared for Element Environment on behalf of Tyrecycle Pty Ltd by Todoroski Air Sciences, October 2020.