



16 AUGUST 2023

Terra Consultants

c/- Richard Falconer

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HD2090 – Paewira Hazardous Facilities – Hazardous Substances Consent Requirements Evaluation

Dear Richard,

This letter is responding to Waipā District Council’s (WDC) request for further assessment of ‘fly ash’ as a hazardous substance. The request suggested that ‘fly ash’ should potentially be considered as part of the hazardous facilities screening procedure (HFSP) assessment tool calculations. The HFSP tool helps determine the risk from hazardous substances stored on the site in accordance with Section 19 of the WDC Plan.

Background

Based on our initial review of the plant description¹, we calculated the risk from the following hazardous substances that the facility plans to store and use:

Diesel fuel

Diesel fuel will be stored in an above-ground storage tank. The diesel fuel is only used for start-ups, so a relatively low quantity is required. We have assumed a 5,000 L maximum storage quantity for calculation purposes. Diesel fuel is listed in the HFSP tool and default values were used.

Fly ash assessment

Fly ash was left out of the initial assessment. We consider this is attributed to two key points:

1. Fly ash is not listed as a regulated hazardous substance in the Hazardous Substances and New Organisms Act 1996
2. Fly ash is a waste product and there are provisions in the AEE to manage waste products

¹ HD2090 – Paewira Hazardous Facilities – Hazardous Substances Consent Requirements Evaluation. HD Geo, 2021



Our initial assessment concluded that fly ash does not need assessment under the HSFP. However, we have made an assessment of fly ash to include in the total calculation to demonstrate the low risk. The quantity of fly ash expected to be generated is 85 kg/hr which equates to 2 t/day.

Fly Ash as 'Generic Solid'

We assessed fly ash as a 'Generic Solid'. The values given to the 'Generic Solid' are very conservative and likely overestimate the actual risk from fly ash.

When considered in the HSFP calculation, fly ash has the following hazard quantity ratios:

- Fire/explosion: **0.02**
- Human health: **0.07**
- Environment: **0.22**

Including fly ash in the assessment increases the total hazard quantity ratio from 0.35 to 0.66. The revised total hazard quantity ratio remains below the permitted threshold effects ratio of 1 for activities in an industrial setting.

Consenting status

We maintain that fly ash does not require assessment under Section 19 of the WDC Plan as it is not a regulated hazardous substance. However, if factored into the assessment, the HSFP shows that the facility would meet the WDC Plan permitted activity standards.

Limitations

This evaluation is based on information provided by the client and has not been fully verified. Should quantities or types of hazardous substances to be stored or use change, we reserve the right to amend this letter report and attached HFSP.

Further assessment of fly ash could be undertaken once the composition of the site-specific fly ash is more understood based on actual inputs.

Closing

Thank you for this opportunity. If you have any questions, please let me know.

Kind regards,

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**PRIOR TO UNDERTAKING ANY CALCULATIONS USERS SHOULD CHECK THAT HFSP SUBSTANCE RATINGS AND TECHNICAL DATA TABS ARE UP-TO-DATE
BY REFERRING TO THE ERMA WEB SITE: <http://www.ermanz.govt.nz/>**

Ref. No.	Substances on this site	CAS No.	Effect Type	Hazard Rating	Base Quantity B t or m ³	Substance Form	Distance to boundary less than 30 metres? YES NO	Adjacent to water? YES NO	Type of Activity A/Above B/Underground Use	Adjustment Factors			Product of Adjustment Factors	Adjusted Quantity A	Proposed Quantity P t or m ³	Fire/Explosion Quantity Ratio FQ	Human Health Quantity Ratio HQ	Environment Quantity Ratio EQ	
										F1	F2	F3							
															0.04	0.23	0.39		
1	Ammonia Solution		Fire/Explosion	-	-	liquid	N		A						0				
			Human Health	Medium	10						1.0	1.0	1.0	1	10		FALSE		
			Environment	High	3				N			1.0	1.0	1.0	1	3			FALSE
2	Diesel	various	Fire/Explosion	Low	100	liquid	N		A						5	0.02			
			Human Health	Low	30						1.0	1.0	1.0	1	30		0.17		
			Environment	Medium	30				N			1.0	1.0	1.0	1	30			0.17
3	Generic solid	-	Fire/Explosion	Medium	10	solid	N		A						2	0.02			
			Human Health	Medium	10						3.0	1.0	1.0	3	30		0.07		
			Environment	High	3				N			3.0	1.0	1.0	3	9			0.22
4			Fire/Explosion																
			Human Health																
			Environment																
5			Fire/Explosion																
			Human Health																
			Environment																
6			Fire/Explosion																
			Human Health																
			Environment																
7			Fire/Explosion																
			Human Health																
			Environment																
8			Fire/Explosion																
			Human Health																
			Environment																
9			Fire/Explosion																
			Human Health																
			Environment																
10			Fire/Explosion																
			Human Health																
			Environment																
Total Quantity Ratios															0.04	0.23	0.39		