IN THE MATTER	of the Resource Management Act 1991 (**RMA**)
AND	
IN THE MATTER	of an application by Taha Fertilizer Industries Limited for land use consent to store of Ouvea Premix in the former Mataura Paper Mill buildings under s 88 of the RMA
BETWEEN	**TAHA FERTILIZER INDUSTRIES LIMITED** Applicant
AND	**GORE DISTRICT COUNCIL** Consent Authority

MEMORANDUM OF LEGAL COUNSEL FOR TAHA FERTILIZER INDUSTRIES LIMITED

3 July 2015

Counsel Acting
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MAY IT PLEASE THE COMMISSIONERS -

INTRODUCTION

1. Counsel acts for Taha Fertilizer Industries Limited (**Taha**).

2. Taha seeks land use consent from Gore District Council (**Council**) to store of Ouvea Premix in the former Mataura Paper Mill buildings.

3. The application hearing was adjourned on 14 May 2015 pending the provision of further information by Taha as set out in the memoranda of counsel dated 20 and 28 May 2015, and the Commissioner's minute dated 22 May 2015.

4. Taha filed the first set of supplementary information on 29 May 2015 in a letter from Jacobs New Zealand Limited.

5. This memorandum addresses the second set of supplementary information to be provided under the Commissioners' directions. It also seeks further directions from the Commissioners as to the reconvening of the application hearing, including the process for notification, further submissions and rebuttal evidence.

SUPPLEMENTARY INFORMATION PROVIDED

6. The following supplementary information is filed with this memorandum:

   (a) Supplementary evidence from John Witter, Managing Director of Taha International for Industrial Services, W.L.L Bahrain and Chairman of Taha International S.A., Luxemburg. Mr Witter's evidence includes the following information:

      i. Details of Taha's management structure, including relationships between various companies and lines of reporting;

      ii. An update on recruitment activities for a New Zealand Director of Taha; and

iii. A list of appropriate Taha contacts.

(b) Supplementary evidence from Lindsay Buckingham, Taha Project Manager, providing an update on progress towards securing the site at the Awarua Industrial Park.

(c) Supplementary evidence from Steve Macknight, Structural Engineer, commenting on the stability of the chimney and the floor structure for the main storage building at 65-121 Kana Street.

(d) Supplementary evidence from Bruce Clarke, Executive Environmental Consultant, including:

i. A final statement of material stored on site (as confirmed by Taha);

ii. A simplified explanation of the chemistry of Ouvea Premix and the chemical reactions with water;

iii. A statement on the consenting requirements for air discharges;

iv. A statement on the Gore District Plan provisions compared to the Hazardous Substances and New Organism Regulations regarding material classification; and

v. A qualitative assessment of fire risk including potential for ammonia gas generation and a proposed fire response plan.

(e) Supplementary evidence from Ben Fountain, Senior Rivers Engineer, including:

i. Further comment on the flood impact on each of the buildings in flood events and a recommendation as to the most suitable locations within the buildings for storage;

ii. Further comment on the movement of water in the buildings in a flood (confirming that he would expect the 1 tonne bags to remain stationary during a flood);

iii. Further comment on the likely depth/volume of seepage into the buildings in a 2% AEP event;

iv. An assessment of estimated standing times for flood waters in flood events;

v. Further comment on how flood waters could be contained and to what degree;

vi. Further comment on gravel build up on the Mataura River north of the site and the impacts on the assessment; and

vii. A more detailed Flood Protection Plan.

(f) A Traffic Management Plan, prepared by Traffic Management Services Limited (I am advised that the Traffic Management Plan is reviewed annually).

(g) Further information provided by Greg Paterson, the building owner, including:

i. A marked up site layout plan showing the location of power generation activities in the main storage building; and

ii. A marked up site layout plan showing the location of rood repairs at 116-128 Kana Street.

FURTHER INFORMATION REMAINING TO BE PROVIDED

7. In additional to the supplementary information filed today, the Commissioners have also requested supplementary planning evidence regarding:

(a) a bond for removal of material and possibly disposal; and

(b) proposed consent conditions.

8. Taha has engaged an independent planning consultant, Allan Cubitt, to undertake this work.

9. Mr Cubitt is unable to finalise his supplementary evidence by 3 July 2015, due to pre-existing commitments and a need to review all relevant information that has been presented in respect of the application to date.

10. Mr Cubitt proposes to instead finalise this information and submit it to the Commissioners by 14 July 2015.

PEER REVIEW

11. I note that the Commissioners indicated in their Minute of 22 May 2015 that they may be seeking a peer review of the methodology used for the Hazard Identification and Risk Assessment (**HIRA**).

12. I have been advised a peer review has been undertaken by Brian Mills, Senior Scientist at Beca, and that Mr Mills is due to submit his draft report on 3 July 2015.

13. As requested in the memorandum of counsel dated 28 May 2015, Taha's experts would like the opportunity to review and provide comment on the draft report prior to it being finalised and distributed.

FURTHER SUBMISSIONS AND REBUTTAL

14. The Commissioners are to call further submissions on the supplementary information filed by Taha.

15. Taha and its experts have not provided comment or rebuttal on the evidence presented by submitters at the first hearing, as rebuttal may also be necessary following further submissions and any supplementary s 42A report. As such, Taha reserves the right to present rebuttal on all evidence presented at the hearing, any further evidence made available through further submissions or any further s 42A report.

16. I suggest any rebuttal is scheduled into the hearing timetable so that it can be circulated prior to the hearing being reconvened.

COUNSEL'S AVAILABILITY FOR HEARING

17. I advise that I presently have another hearing with a reserve date of 30 and 31 July 2015. That matter has a reasonable chance of settling. I also advise that I have pre-arranged leave outside New Zealand from (and including) 4 to 18 August 2015.

18. I understand the need to have the hearing of this application concluded in a timely way. I will of course advise the Commissioners as soon as possible as to whether the July hearing dates are required, and take all reasonable steps to make myself available for any dates outside those discussed above.

DIRECTIONS SOUGHT

19. Notwithstanding paragraphs [17] and [18], I suggest the following timeline moving forward taking into account the time required for remaining supplementary evidence, submissions and any rebuttal:

    (a) The Council provide Taha with a copy of the draft peer review of the HIRA by **6 July 2015**;

    (b) The experts engage in caucusing on the HIRA peer review and provide a joint statement by **16 July 2015**;

    (c) Mr Cubitt files his supplementary evidence on a bond and proposed consent conditions by **16 July 2015**;

    (d) The Council notifies the supplementary information filed by Taha, the HIRA peer review and any joint expert statement to submitters on **17 July 2015**;

    (e) Submitters provide any further submissions on supplementary information only (taking into account the 15 working days anticipated by the Commissioners in the minute dated 22 May 2015) by **31 July 2015;**

(f) Taha provides any rebuttal evidence by **14 August 2015**; and

(g) If considered necessary, as a decision cannot be made on the papers, a Hearing is reconvened sometime in/after the week commencing **24 August 2015**.

20. I respectfully request that the Commissioners issue directions giving effect to the timetable proposed under paragraph [19], or something similar that allows for the procedural steps outlined in order to enable a fair and efficient hearing.

Dated 3 July 2015

R Makgill
Counsel for Taha Fertilizer Industries Limited

IN THE MATTER	of the Resource Management Act 1991 (**RMA**)
AND	
IN THE MATTER	of an application by Taha Fertilizer Industries Limited for land use consent to store Ouvea Premix in the former Mataura Paper Mill buildings under s 88 of the RMA
BETWEEN	**TAHA FERTILIZER INDUSTRIES LIMITED** Applicant
AND	**GORE DISTRICT COUNCIL** Consent Authority

SUPPLEMENTARY EVIDENCE OF BRUCE PATERSON CLARKE FOR TAHA FERTILIZER INDUSTRIES LIMITED

3 July 2015

Counsel Acting
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INTRODUCTION

1. My name is Bruce Paterson Clarke and I am an Executive Environmental Consultant at Jacobs New Zealand Limited (**Jacobs**). My relevant qualifications and experience are described in my statement of evidence dated 11 May 2015.

SUMMARY OF EVIDENCE

2. I have been engaged by Taha Fertilizer Industries Limited (**Taha**) to conduct an assessment of the potential environmental and community risks pertaining to the storage of hazardous substances at the Mataura site.

3. My evidence addresses the further information requested by the Commissioners, namely:

   (a) A conclusive statement of material stored on the site;

   (b) A simplified explanation regarding the chemistry of Ouvea Premix and the chemical reactions with water;

   (c) A statement of the consenting requirements for air emissions under Environment Southland's Air Quality Plan;

   (d) A statement on the Gore District Plan (**District Plan**) provisions compared to the Hazardous Substances and New Organism (**HSNO**) Regulations regarding material classification; and

   (e) A qualitative assessment of fire risk, including potential for ammonia gas generation, and a suggested fire response plan.

CODE OF CONDUCT

4. I have read the Environment Court Code of Conduct for expert witnesses and agree to comply with it. I confirm that the topics and opinions addressed in this statement are within my area of expertise except where I state that I have relied on the evidence of other persons. I have not omitted to consider

materials or facts known to me that might alter or detract from the opinions I have expressed.

MATERIAL STORED ON THE SITE

5. The Commissioners have requested a definitive status of the material stored at the Mataura site, including the amount of material stored and where on site material is stored.

6. The letter from Jacobs to the Commissioners dated 29 May 2015, provided in **annexure "A"**, contains a definitive status of the material stored at the Mataura site. While I cannot talk to this information directly, I can advise that Taha has confirmed that the status provided in that letter continues to be accurate.

7. Based on this information, I understand the following materials are currently stored on site:

   (a) Ouvea Premix, made up of:

   - Cast-House Ouvea Premix: 7,556 tonnes;
   - Landfill Ouvea Premix: 1,614 tonnes;
   - Bag-house Ouvea Premix: 774 tonnes;
   - MRP Bag-House Ouvea Premix 8 tonnes;

   (b) Sulphate of Ammonia: 8 tonnes;

   (c) Citric Acid: 350 kg;

   (d) Diesel: 100 litres.

8. Appendix B of the letter dated 29 May 2015 also contains a Site Layout Plan identifying where on the site materials are stored. I understand from Taha that this Site Layout Plan remains accurate.

CHEMISTRY OF OUVEA PREMIX

Overview

9. In my statement of evidence, I presented an explanation of the chemistry of Ouvea Premix and the reaction of Ouvea Premix with water. The Commissioners have now asked for a more simple explanation of the chemistry in order to better understand the potential and actual environmental effects.

10. While the explanation provided in my statement of evidence is a simplification of the chemistry, I have tried to simplify this explanation further here. I note that this simplification is for the purpose of enabling the Commissioners and submitters to understand the basic elements of the chemistry. It should not in any way be used to draw conclusions on the chemistry without reference to the more detailed explanation I have provided in my statement of evidence.

Production and Composition

11. As discussed at the hearing, Ouvea Premix is a product of the Aluminium Dross recovery and recycling process. The main difference between Aluminium Dross and Ouvea Premix is reflected in the fact that Ouvea Premix, unlike Aluminium Dross, is not a Class 4.3 Spontaneous combustible material when wet. This is due to that fact that a large portion of the methane- and hydrogen- generating elements in Aluminium Dross (being Aluminium metals and carbides) have been removed from the material, leaving a relatively benign product.

12. For example, the Safety Data Sheet (**SDS**) for Aluminium Dross (**annexure "B"**, also contained in the letter dated 29 May 2015) shows a much high proportion of aluminium (10-90%) than the SDS for Ouvea Premix (2-4%) (**annexure "C"**, also contained in the letter dated 29 May 2015)[1]. The SDS for Ouvea Premix shows that this decrease is made up for by a much higher proportion of Aluminium nitrides and oxides. These are relatively benign in comparison aluminium, as these elements are not as readily reactive as the

[1] Note that the SDS for Ouvea Premix was updated on 18 June 2015 to amend a minor error from the version provided by Jacobs on 29 May 2015.

high levels of aluminium metal and aluminium carbide contained in aluminium dross.

13. As described in my statement of evidence, there are three types of Ouvea Premix stored at the Mataura site:

    (a) *Cast-House Ouvea Premix*, which is produced in the cast-house. Cast-House Ouvea Premix is the standard Ouvea Premix and is generally what is being referred to when people are discussing Ouvea Premix. Cast-House Ouvea Premix is the predominant material stored at the Mataura site and has between 24 to 40% Aluminium Nitride (**ALN**)

    (b) *Landfill Ouvea Premix*, which is produced from milled landfill material. Landfill Ouvea Premix has much lower ALN content than Cast-House Ouvea Premix ranging from 1 to 4%, as much of the nitrides have already leached from the product over time.

    (c) *Bag-House Ouvea Premix*, which consists of material fines from the bag-house. Bag-House Ouvea Premix has a similar composition to Cast-House Ouvea Premix but is of a finer texture.

14. The current SDS for Cast-House Ouvea Premix (dated June 2015 – attached in **annexure "C"**) details the composition of Cast-House Ouvea Premix. The SDS was drafted based on material testing of six samples of Ouvea Premix, which was undertaken by Coal Research Laboratories Limited (**CRL**) in January 2013.

15. In summary, Cast-House Ouvea Premix consists of:

    (a) 25-50% aluminium oxide;

    (b) 24-40% aluminium nitride;

    (c) 5-30% magnesium aluminate; and

    (d) Minor quantities of other materials including aluminium, potassium fluoride and potassium chloride.

Reaction mechanism with water

17. My statement of evidence provides an explanation regarding the nature of the reaction of compounds contained in Ouvea Premix with water, in particular in regard to the generation of ammonia. Without detracting from the explanation I provided in my statement of evidence, the nature of the reactions may be summarised by the following two points:

    (a) When Ouvea Premix becomes wet, aluminium nitride in the premix reacts with water through a series of reactions to form ammonia. The reaction occurs on the surface of the individual particles. The aluminium nitride is initially converted to aluminium hydroxides, which form a physical barrier against further penetration of water into the particles. This limits the rate of reaction and consequent production of ammonia. As a result, under normal environmental conditions, it can take months to years for all aluminium nitride in the material to react and generate ammonia.

    (b) As ammonia is highly soluble in water, it tends to remain in aqueous solution. Given that the ammonia is generated by reaction with water, the ammonia will tend to enter into and remain in solution. Any ammonia released to air is therefore a very minor fraction of the overall amount of ammonia produced in the process.

18. As demonstrated in my statement of evidence and Jacobs material testing, the reactions I have summarised above produce the following results:

    (a) When the Ouvea Premix is fully immersed in water, the ammonia generated will generally dissolve into water. In this situation, the amount of ammonia gas generated is negligible.

    (b) When Ouvea Premix is damp or no longer immersed in water, the reaction mechanism will tend to slowly release ammonia gas over time. This reaction mechanism is not instantaneous, and, therefore, there is no potential to generate a large concentrated gas cloud.

19. The actual ammonia generation potential is regulated by the reaction mechanism of ALN with water, the amount of product that gets wet, the

amount of ALN contained in the Ouvea Premix (which varies between batches processed and between Cast-House and Landfill Ouvea Premix) and temperature of the water. As such, variations in any of these factors will vary the amount or rate in which ammonia and ammonium is generated, and therefore the resulting effects.

Release of Ammonia, Fluoride and Nitrate in waterways in a flood

20. In my HIRA Report, I assessed the potential for Ouvea Premix to release ammonia (converted to ammonium), fluoride and nitrate into the waterways following an extreme flood event that results in full inundation of the buildings to 2.0m deep. The release potential was compared against relevant standards and guidelines.

21. In summary, I concluded that:

    (a) The predicted concentration of ammonia in the Mataura River as a result of a flood after mixing is well below the ANZECC[1] freshwater guideline for protection of aquatic ecosystems. As such, the discharge of ammonia to the waterways is not expected to reach a level that adversely affects the aquatic ecology;

    (b) The predicted concentration of fluoride in the Mataura River as a result of a flood event is below the New Zealand Drinking Water Standards Maximum Acceptable Value for fluoride. As such, the discharge of fluoride to the waterways is not expected to reach a level that adversely affects drinking water; and

    (c) The predicted concentration of fluoride in the Mataura River as a result of a flood event is well below the NIWA-determined freshwater chronic – high conservation value systems. As such, the discharge of nitrate to the waterways is not expected to reach a level that adversely affects conservation values.

22. As such, the effects of any discharge to the waterway during a flood event have been assessed as minor and the risks are acceptable.

[1] Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000, Australian and New Zealand Environmental Conservation Council (ANZECC)

Discharge of Ammonia gas following a flood

23. In my Hazard Identification and Risk Assessment (**HIRA**) Report, I also assessed the potential of Ouvea Premix to produce ammonia gas following an extreme flood event. The release potential was also compared against relevant standards and guidelines.

24. I concluded that:

    (a) The predicted maximum 1-hour average concentration of ammonia gas following a flood event is below the No Adverse Effects Level for Human Equivalent Concentrations (NOAL(HEC)) for ammonia, being a level of continuous exposure below which there are no observable health effects to any person exposed to the gas. As such, the discharge of ammonia gas is not expected to result in any health effects to any exposed individual; and

    (b) At the predicted concentrations, people in the area would typically not be able to smell any ammonia odour, which is below the odour threshold[2]. As such, the modelling indicated that the consequences of the ammonia gas released as a result of an extreme flood event at the site will have very limited off-site effects.

25. The peak of the flood, as indicated in Mr Fountain's supplementary evidence, is expected to last up to 24 hours. Our air dispersion modelling assessment has assumed a maximum discharge rate of ammonia to air over a 48 hour period (maximum period of wetting), with this rate reducing overtime as the material dries out. This is a conservative assumption, and the actual drying out phase may take longer than this.

26. Given the above conclusions, the effects of any discharge to air during a flood event have been assessed as acceptable.

[2] Occupational Health and Safety Guideline for Ammonia, US Department of Health and Human Services and US Department of Labor, 1992.

CONSENTING REQUIREMENTS FOR AIR DISCHARGES

27. The Commissioners have asked for a definitive status of the release of fugitive ammonia emissions as a result of the proposed storage activities under Environment Southland's Regional Air Quality Plan for Southland which is operative since 1 March 1999 (**Air Quality Plan**).

28. Under normal storage conditions where the product is dry, there will be no emissions to air. As such, the rules of the Air Quality Plan are not triggered. However, as discussed, if the product gets wet, for example through dampness or leaks in the building, there is potential for the generation of ammonia gas. The question then becomes whether this fugitive discharge of ammonia gas requires resource consent under the Air Quality Plan.

29. The relevant rules of the Air Quality Plan are found under Sections 5 (discharges from industrial or trade premises), 6 (discharges from any other place or source) and 7 (odour).

30. Section 5 of the Air Quality Plan relates to discharges from industrial or trade premises, which are defined to include "any premises used for any industrial or trade purposes". Ouvea Premix is produced from an industrial process, and is stored to ultimately be further processed into fertiliser. As such, the site in which it is stored can be considered an industrial or trade premises.

31. Rule 5.5.2 provides that discharges of contaminants to air for certain activities are discretionary activities, and relates primarily to industrial processes. As such, storage of hazardous substances in of itself does not trigger this rule.

32. Rule 5.5.3 lists the criteria whereby discharges from industrial premises are permitted. Aside from rules 5.5.3(1) relating to storage for retail and 5.5.3(3) relating to of fuel, no other rules relate specifically to storage. As such, any discharges associated with the storage of Ouvea Premix are not covered by this rule.

33. Rule 5.5.4 permits discharges from industrial or trade processes that are not permitted activities under Rule 5.5.3, and which are smaller in size or output

than those in Rule 5.5.2, so long as certain criteria are met regarding chimney heights and draft fans.

34. In regard to Rule 5.5.4, "Industrial or Trade Processes" are defined as:

> "Includes every part of a process from the receipt of raw material to the dispatch or use in another process or disposal of any product or waste material, and any intervening storage of the raw material, partly processed matter, or product".

35. As such, I consider any discharges associated with the storage of Ouvea Premix to be covered by Rule 5.5.4. The storage activities do not require the use of any chimneys, discharge smoke or particulate matter or result in any visible discharges from chimneys or other outlets. In my opinion the criteria set out under Rule 5.5.4 are met.

36. I should note that Jacobs made the same assessment with regards to Taha's storage activities at Liddel and Annan Street in Invercargill, which have land use consent from Invercargill City Council. As with Mataura, Jacobs assessed the storage activities in Invercargill as not requiring an air discharge permit from Environment Southland.

GORE DISTRICT PLAN AND HSNO

37. At the Hearing, I provided a brief explanation as to how the descriptions and classifications used in the District Plan for Class 6 Poisonous Substances and Class 9 Agrichemicals are not consistent with those used in HSNO, and in particular the classifications as contained in the Hazardous Substances (Classification) Regulations 2001 (Classification Regulations). As requested by the Commissioners, this section provides a further description of my explanation.

38. The intention of HSNO legislation and regulation is to characterise the level of hazard (explosiveness, flammability, toxicity, corrosiveness and ecotoxicity) posed by the substances based on a series on scientific thresholds of human and environmental risk (classifications). The Classification Regulations set out a series of classes based on the hazard types against international convention and then delineate further the types of

hazards under those particular classes using risk based thresholds. As a result of this classification process, the intrinsic hazard posed in the handling, storage, and use of a particular substance can be quickly determined. For example a Class 6.1a acutely toxic substance is far more hazardous that a 6.1e acutely toxic substance, and a 6.1 acutely toxic substance is more hazardous that a 6.3 substance which is irritating to skin.

39. The descriptions contained in Table 6.1 of the District Plan do not match those in the Classification Regulations. For example:

(a) Table 6.1 of the District Plan refers to "Class 6.3 Toxic to skin", while the Classification Regulations refer to Class 6.3 substances as including those that are irritating to skin, which is quite different from being toxic to skin.

(b) Table 6.1 also refers to "Class 6 Poisonous Substances", which implies that all the substances in this category are poisonous. This is not strictly correct as there are the Classification Regulations for Class 6 that include irritants to eyes and skin.

40. For the above reasons, I consider that the descriptions in Table 6.1 of the District Plan are confusing and could lead to misinterpretation as to the level of hazard posed.

41. Further, Table 6.2 of the District Plan sets out quantities for each substance class for determining restricted discretionary consent status. Under Class 6, all the subclasses are considered together and have the same threshold of 1,000kg. This is unlike the preceding classes whereby sub-classes have differing thresholds presumably based on the level of risk. As a result, the total quantity threshold set for Class 6 applies to all of the subclasses with no consideration given to the actual level of hazard posed for the different subclass categories, which are quite different.

42. The approach described above has resulted in substances that are relatively benign in terms of toxicity having the same quantity threshold under the District Plan rule as those which are highly toxic. There is no distinction as to the level of risk they pose, which is an important aspect when considering land use activities. I consider this lack of differentiation in the level of hazard

posed via the different subclasses for Class 6 Poisonous Substances in the District Plan is a significant deficiency and makes it hard for communities to assess for themselves as to the actual level of risk posed by an activity.

CONSEQUENCE ANALYIS OF A FIRE

43. My statement of evidence includes a consequence analysis of the risks involved in storing Ouvea Premix. The Commissioners have asked me to further elaborate on the consequence analysis should a fire occur in one of more of the buildings.

44. Ouvea Premix, as discussed in paragraph [59] of my statement of evidence, is not a readily combustible material. It has a high melting point of around 2000 degrees Celsius where the material will start to melt and decompose. The potential for Ouvea Premix to decompose in a building fire is therefore very low.

45. Whilst Ouvea Premix is relatively stable in a fire, the bulker bags used to store the material being constructed of polyethylene and plastic could melt and burn in a building fire, thereby exposing the Ouvea Premix material to water being used to extinguish the fire. In such a situation, ammonia could be generated and released as ammonia gas. The rate of reaction of the water with the ALN contained in the Ouvea Premix may increase as the water temperature will be higher than that in a flood event and temperature is one or the parameters which control the rate of reaction.

46. Ammonia gas is, however, very combustible and will readily decompose when it comes into contact with the flames. This self-limiting process means that it is highly unlikely that any ammonia gas generated during a fire will have offsite consequences.

47. After the fire has been extinguished through either the sprinkler system or fire hoses, the residual firewater will be in contact with the Ouvea Premix, given that some bags used to contain the material will likely have melted or been burnt during the fire. The ALN contained in the Ouvea Premix will react slowly with the firewater, which in terms of volume will be significantly less than that which occurs during a flood event.

48. I have assessed the consequences of residual fire water being in contact with Ouvea Premix following a fire as a credible accident scenario. In particular, I have assessed two scenarios based on a set of assumptions and using the SCREEN 3 air dispersion model to predict downwind ammonia concentrations. The scenarios assessed are:

    (a) Scenario 1: Fire in Main Storage Building containing 5,000 T of Ouvea Premix with 20% of bags being damaged (realistic scenario)

    (b) Scenario 2: Fire in Main Storage Building containing 5,000 T of Ouvea Premix with 100% of bags being damaged (worst case scenario)

49. According to the Site Layout Plan, the Main Storage Building at 65-121 Kana Street contains approximately 4,850 T of Ouvea Premix. The Northern and Eastern Buildings contain approximate 3,480 T and 2,200 T respectively. As such, a conservative approach has been taken in assuming a fire occurs in the Main Storage Building, and the total stored amount has been rounded up to 5,000 T.

Scenario 1: Fire in Main Storage Building containing 5,000 tonnes of Ouvea Premix with 20% of the bags damaged (realistic scenario)

50. Table 1 identifies the parameters and assumptions for the Scenario 1 credible accident scenario.

Table 1 Scenario 1 parameters and assumptions

Parameter	Assumption	Quantity
Area affected by fire	One area is affected by fire, assume the larger building with area of around 5000 m^2	5,000 m^2 building footprint
Amount of Ouvea Premix stored in building	Assume half of all Ouvea Premix is stored in affected building	5,000 tonnes
Amount of Ouvea Premix affected by fire	20% of bags affected by fire	1,000 tonnes
Amount of Ouvea Premix in contact with fire water	Assume 40% wetting of exposed Ouvea Premix	400 kg
Amount of ammonia generated from reaction of water with premix	0.53 kg/tonne released over a 48-hour period	212 kg NH_3

Parameter	Assumption	Quantity
Amount of ammonia released from building	Assume all of ammonia released from bags is released from the building	212 kg NH_3
Discharge rate of ammonia from site	Assume ammonia is discharged at a continuous rate over 48 hours	1.2 g/s
Area of discharge	Defined building area used for area source emission	5,000m^2
Discharge rate of ammonia	Discharged constantly over the total area at height of 3m above ground.	2.4 x 10^{-4} g/m^2/s

51. Figure 1 shows the maximum predicted 1-hour average concentrations of ammonia with distance from the source.

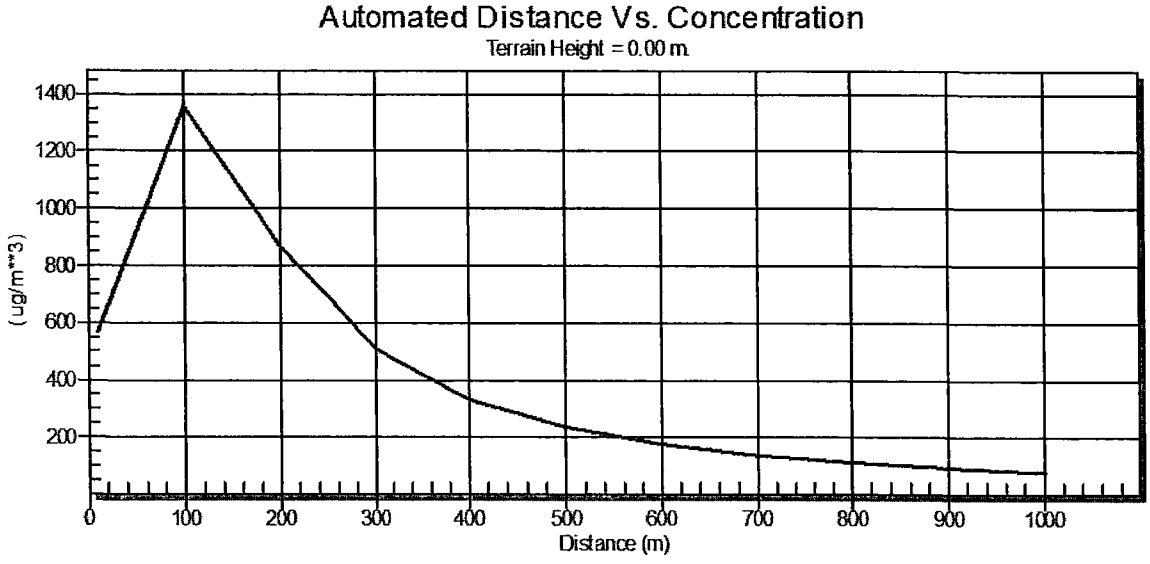

Figure 1 Maximum Predicted 1-hour Average Concentrations of Ammonia with Distance from the Fire Damaged Building with 20 % of Bags Damaged

52. The highest ground level concentration of 1.3 mg/m3 occurs at a point 100 metres downwind of the fire damaged building with 20% of the bags damaged. This is well below the NOAEL(HEC) concentration of ammonia which is 2.3 mg/m^3, which is the level of continuous exposure below which will not result in observable health effects. The highest predicted concentration is also below the Californian Acute REL (Reference Exposure Level) of 3.2 mg/m^3, which is the level of short term (e.g. 1-hour) exposure below which there are no observable health effects.

Scenario 2: Fire in Main Storage Building containing 5,000 tonnes of Ouvea Premix with 100% of the bags damaged (worst case scenario)

53. Table 2 identifies the parameters and assumptions for the Scenario 2 credible accident scenario.

Table 2: Scenario 2 parameters and assumptions

Parameter	Assumption	Quantity
Area affected by fire	One area is affected by fire, assume the larger building with area of around 5000 m^2	5000 m^2 building footprint
Amount of Ouvea Premix stored in building	Assume half of all Ouvea Premix is stored in affected building	5,000 tonnes
Amount of Ouvea Premix affected by fire	100% of bags affected by fire	5,000 tonnes
Amount of Ouvea Premix in contact with fire water	Assume 40% wetting of exposed Ouvea Premix	2,000 tonnes
Amount of ammonia generated from reaction of water with premix	0.53 kg/tonne released over a 48-hour period	1,060 kg NH_3
Amount of ammonia released from building	Assume all of ammonia released from bags is released from the building	1,060 kg NH_3
Discharge rate of ammonia from site	Assume ammonia is discharged at a continuous rate over 24 hours	6.1 g/s
Area of discharge	Defined building area used for area source emission	5,000m^2
Discharge rate of ammonia	Discharged constantly over the total area at height of 3m above ground.	1.2 x 10^{-3} g/m^2/s

54. Figure 2 shows the maximum predicted 1-hour average concentrations of ammonia with distance from the source.

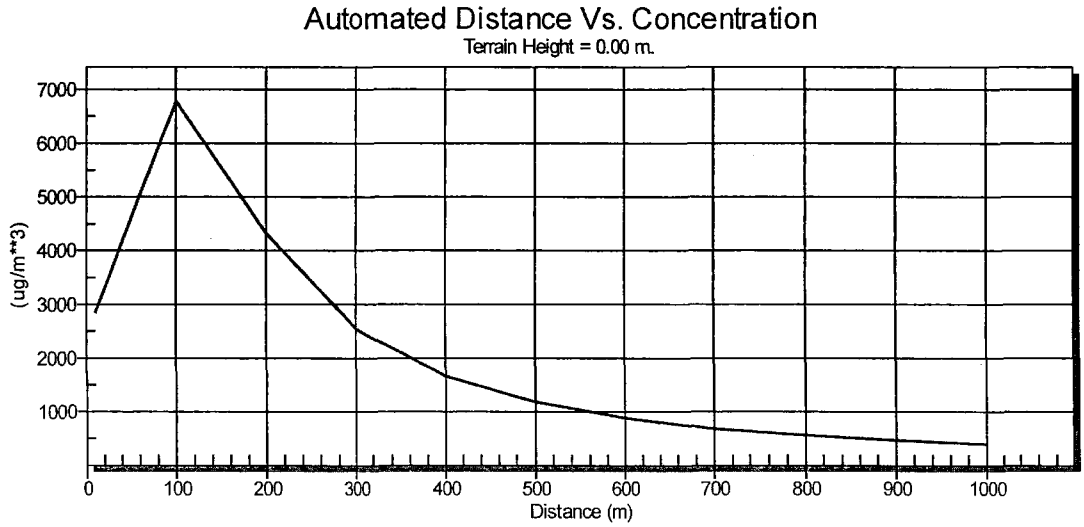

Figure 2 Maximum Predicted 1-hour Average Concentrations of Ammonia with Distance from the Fire Damaged Building with 100% of Bags Damaged

55. The highest maximum ground level concentration of 6.7 mg/m^3 occurs at a point 100 metres downwind of the fire damaged building with 100% of the bags damaged and is above the NOAEL(HEC) concentration of ammonia which is 2.3 mg/m^3.

56. The model shows that the predicted concentrations rapidly decline with distance with the NOAEL(HEC) being reached at around 320 metres from the site and the Californian REL of 3.2 mg/m^3 being reached at 280 metre downwind from the site.

57. The maximum predicted concentration is above the odour threshold of 3.8mg/m^3 and as such people living close by to the site may be able to smell ammonia.

58. However, at the maximum concentration predicted, the discharge would not result in eye irritation or potential exacerbation of asthma which tend to occur as Ms Wickham points out in her evidence at 73 mg/m^3. I therefore conclude that this level of ammonia gas and odour would not be regarded as objectionable or offensive and as such the health and odour effects on people living or working in the surrounding area are acceptable.

59. The meteorological conditions that the highest concentrations are predicted to occur by the SCREEN3 model are for low wind speeds around 1 m/s and atmospheric stability category G. These are very stable conditions which

provide poor dispersion. These types of meteorological conditions limit dispersion of generated contaminated and, based on the wind rose data contained in the HIRA (Figure 3), the days with wind speeds less that 1m/s occur around 8.6 - 11.5 percent of the time.

FIRE RESPONSE

60. I understand from Greg Paterson, the building owner, the fire sprinkler system is to be re-commissioned as per the specifications outlined in the letter from Graham Wyatt, Fire Sprinkler Engineer (**annexure "D"**). I note that, once re-commissioned, the fire sprinkler system includes direct Fire Brigade monitoring.

61. I also understand Mr Nathan Burgess, the Taha Plant Manager, is in the process of consulting with the local fire service regarding their capabilities in a fire and flood. I note that the SDS recommends that in a fire in which Ouvea Premix is present that the extinguishing media to be used is water fog, foam, carbon dioxide or dry chemical. In the fire risk assessment, I have assumed the use of water as an extinguishing media.

REBUTTAL

62. There are a number of matters presented by submitters at the Hearing that I would like to provide a rebuttal on. In particular, I would like to make a rebuttal on a number of matters raised by Environment Southland and Ms Louis Wickham for Public Health South.

63. However, I understand that I will have the opportunity to make a rebuttal following circulation of my supplementary evidence and the further submission period. As such, I reserve the right to make a rebuttal once the further submission period has closed.

64. I would also like to further refine the conclusions in my HIRA once I have received additional information from Alliance Meatworks regarding the location of the company's water takes from Mataura River and the associated river race. I understand Alliance agreed to provide this information to the Commissioners.

CONCLUSION

65. In summary, I conclude that:

(a) The assumptions and information used to derive the ammonia emission rate used to conduct the HIRA is appropriate and conservative in nature.

(b) The findings of the HIRA and dispersion modelling, including the new credible accident scenario of fire damaged Ouvea Premix bags drying out after a fire, indicates that the consequences of ammonia gas released on the health and amenity of people leaving and working in the surrounding area is acceptable.

(c) The effects on the Mataura River in the event of an extreme flood event which results in some bags being damaged in the store and their contents discharged into the river are acceptable as any material released from the site will rapidly disperse down the river during the flood, and as such there will not be an area of concentrated Ouvea Premix.

(d) The discharge of ammonia into the river will be diffuse over a widespread area and at low concentrations as the release rate is controlled by the reaction mechanism.

(e) The fire sprinkler system is set to be re-commissioned and will include direct Fire Brigade Monitoring.

Dated this 3rd day of July 2015

Bruce Clarke

Bruce Clarke

Annex A. Jacobs Letter to Commissioners, 29 May 2015

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29 May 2015

Commissioner Weatherall & Commissioner Pullar
C/o. Howard Alchin, Senior Planner
Gore District Council
PO Box 8
Gore 9740

Mataura Resource Consent Hearing
IZ001300

Provision of Supplementary Information

Dear Commissioners,

1. Introduction

Taha Fertilizer Industries Limited (Taha) seeks land use consent from Gore District Council (Council) to store Ouvea Premix plus a small number of other hazardous substances in minor quantities in the former Mataura Paper Mill buildings. The resource consent application hearing was adjourned on 14 May 2015 pending the provision of further information as requested by the Commissioners.

On 20 May 2015, Counsel filed a Memorandum of Counsel outlining the information Taha would provide to the Commissioners and a timeframe for providing this information. The timeframe included the provision of readily available information by 29 May 2015, and the provision of all remaining information by 3 July 2015.

By the 29 May 2015, the applicant agreed to provide the following information:

(a) an assessment of flood protection measures that can be permanently installed, including a proposed timeframe for permanent installation;

(b) a definitive status of what material is currently stored on site and where it is stored, including:

  i. a marked-up site layout plan showing the quantities of material and where material is stored;

  ii. an assessment on whether other material could be permanently removed from the site (e.g. Sulphate of Ammonia and Citric Acid Crystals); and

  iii. if any movements are proposed as per (ii), an outline of steps taken to instigate this removal, traffic management, proposed consultation and a timeframe;

(c) an outline of the process for drafting Safety Data Sheets (SDS) and obtaining the Status of Substance (SoS) for Ouvea Premix, including independent tests that have been undertaken and the status of other mixes;

(d) the correct SDS for Ouvea Premix and Aluminium Dross, and the full EPA SoS decision document with appendices;

(e) the correct street address for buildings;

(f) a summary of communications with NZTA;

(g) a draft communications plan through the Community Liaison Group;

(h) a detailed timeframe for removal; and

(i) more detail on company structure and relationships between companies and key personnel.

In your Minute of 22 May 2015, you accepted the provision of information and timeframe, which was again confirmed by the applicant in the Memorandum of Counsel, dated 28 May 2015.

For completeness and ease of reference, this letter provides a package of information I have obtained from Taha representatives, Jacobs New Zealand Limited (Jacobs) and Greg Paterson to respond to the information requests, and particularly the information Taha agreed to provide by 29 May 2015.

2. Flood protection measures to be permanently installed

Appendix A contains a memorandum from Nathan Burgess, Plant Manager at Taha, providing an update on Taha's consideration of permanently installing flood protection measures.

In summary, through consultation with Mr Tony Dackers of Fire Compliance Limited, Taha has identified that, from a fire safety point of view, it will not be possible to permanently install steel panels across the "man doors" (i.e. the doors used to enter and exit the building). However, it will be possible to permanently install steel panels across the roller doors as these doors are only used for loading and unloading materials. Doing so would reduce the time required for installing flood response measures in a flood situation.

Taha is assessing which doors could be permanently blocked without affecting loading operations. The outcome of this assessment will be provided as part of the Flood Protection Plan as supplementary evidence by 3 July 2015.

3. Definitive status of material stored on site

Taha has confirmed that the following list of materials represents an accurate reflection of the material currently stored at Mataura:

- Ouvea Premix, made up of:
    - Cast-House Ouvea Premix: 7,556 tonnes
    - Landfill Ouvea Premix: 1,614 tonnes
    - Bag-house Ouvea Premix: 774 tonnes
    - MRP Bag-House Ouvea Premix 8 tonnes
- Sulphate of Ammonia: 8 tonnes

- Citric Acid: 350 kg
- Diesel: 100 litres

The list is based on TNL's trucking records of material that has been transported from the NZAS smelter to the site. As such, I understand that any variance from this list is expected to be minimal.

Appendix B contains a Site Layout Plan, which has been marked-up by Taha, indicating exactly in which buildings and where in the buildings material are stored and estimated amounts. It should be noted that the Site Layout Plan is based on a visual inspection of the site so the actual amounts are an approximate. As such, the total of amounts in the Site Layout Plan varies slightly from the definitive amount indicated in this memo.

Regarding the non-Ouvea material, Taha has undertaken an assessment of which of these materials could be removed permanently. Appendix C contains a memo from Mr Burgess detailing the outcome of this assessment.

In summary, the sulphate of ammonia is the only (non-Ouvea) material Taha considers could be removed from the site. Taha has suggested this material could be removed and transported to Taha's storage site on Liddel St, which has resource consent to store up to 200 tonnes of sulphate of ammonia. The diesel is required for forklifts and the citric acid crystals are used as a mitigation measure to reduce ammonia gas emissions in the building. As such, Taha does not consider removing these materials to be viable.

Taha has advised that the intention is also to remove the 8 tonnes of MRP Bag-House material from the site and return it to Taha Asia Pacific prior to obtaining resource consent for storage.

4. Safety Data Sheets and Status of Substance for Ouvea Premix

Appendix D contains a memo from Jacobs to clarify the current status of the Cast-House Ouvea Premix Safety Data Sheet (SDS) and Status of Substance (SoS). The memo also describes the process by which the Ouvea Premix SoS request was made, how the SDS was drafted (including independent testing of Ouvea Premix for composition analysis) and subsequent material testing on Ouvea Premix. The memo also provides a status update on SDS's for Landfill and Bag-House Ouvea Premix.

The memo contains the current SDS for Cast-House Ouvea Premix (dated 12 August 2013). I have also attached the SDS for Aluminium Dross, which I obtained from Taha, as Appendix E to this report. I understand Jacobs was not involved in drafting this SDS.

5. Correct Street Address

I have confirmed with Greg Paterson that the correct street address for the buildings occupied by Taha is as follows:

- The buildings on the river-side of Kana Street have the street address 65-121 Kana Street (Valuation No. 29860/430.00); and
- The buildings on the bank-side of Kana Street have the street address 116-128 Kana Street (Valuation No. 29860/499.00)

6. Communications with NZTA

Appendix F contains a file note regarding the current status of consultation with NZTA. In summary, NZTA provided written approval on the original consent application on 3 October 2014. Through the Officer's section 95 report, we were advised that NZTA had withdrawn its approval. We were further advised from NZTA on 26 March 2015 that NZTA had withdrawn approval as they had concerns about the access arrangements and particularly whether loading / unloading would occur on site.

I discussed NZTA's concerns about loading with James Coutts, Planning Advisor at NZTA. Subsequently, I provided information to NZTA on 7 May 2015 confirming that loading / unloading will occur on site. This will be addressed in the Traffic Management Plan, which is currently being drafted. We have not received any further communications from NZTA on the matter.

7. Draft communications plan through the Community Liaison Group

Taha has advised that they will set up a Community Liaison Group, as suggested by the Commissioners. Appendix G contains a memo from Mr Burgess regarding the status of discussions with the Community Liaison Group. In summary, Mr Burgess has confirmed that Alan Taylor, Howard Alchin and Lindsay Buckingham will meet to discuss the scope and format of the Community Liaison Group on 11 June 2015 and develop a communications plan.

8. Detailed timeframe for removal

Appendix H provides an updated and a more detailed schematic of the project management plan for Taha to develop the site at Awarua and move materials from the Mataura site to Awarua, which was drafted by Mr Lindsay Buckingham, Project Manager. This document will form part of supplementary evidence to be provided by Mr Buckingham by 3 July 2015, including an update on progress with confirming the Awarua site.

9. Company structure and personnel

Mr John Witter is the Managing Director for Taha International for Industrial Services (Bahrain) and Chairman of Taha International S.A (Luxemburg). Mr Witter has provided an overview of the company structure and relationships, and this information will be presented as evidence from Mr Witter by 3 July 2015. In summary:

- Taha International S.A. is the registered company for Taha with the registered company headquarters based in Luxemburg. Taha International Industrial Services W.L.L is the operational company for Taha, with the operational headquarters based in Bahrain.

- Taha Asia Pacific Industries Limited and Taha Fertilizer Industries Limited are New Zealand registered companies. Both companies report to a New Zealand-based Director, who reports to the Company's Chief Operating Officer, who then reports to Mr Witter and the Board of Directors.

- Both the New Zealand Director and Chief Operations Officer positions are currently vacant and the Board is actively recruiting to fill these positions. Two candidates have been short listed and will be interviewed by Taha's equity investors next month. Both candidates have extensive operational experience in the aluminium industry, specifically in the field of dross processing.

- Until the New Zealand Director position is filled, the Board has engaged Mr Buckingham to manage the New Zealand-based operations and specifically to secure an integrated site in

Southland. Br Buckingham reports directly to the Board of Directors. For the time-being, NZ-based managers are channelling information through Mr Buckingham to the Board.

For all matters relating to Taha's operations in New Zealand, Mr Buckingham is the primary contact. This will remain the case until a New Zealand Director has been appointed. Mr Buckingham's contact details are 0275255443 or lindsay.buckingham@xtra.co.nz.

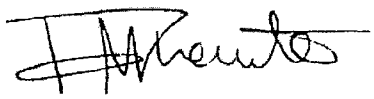
For all operational matters relating to Taha Asia Pacific Industries Limited and its activities at the Tiwai Point Smelter, Maurice Shaw, Plant Manager, is the primary contact. Mr Shaw's contact details are 021 550 218 or maurice@tahacorp.com.

For all operational matters relating to Taha Fertilizer Industries Limited and its activities at Bond Row and in Mataura, Nathan Burgess, Plant Manager, is the primary contact. Mr Burgess's contact details are 027 230 8663 or nathan@tahacorp.com.

10. Next steps

I trust the information I have provided is sufficient. As agreed, Taha and Jacobs will provide all remaining information requested by the Commissioners by 3 July 2015.

Yours sincerely



Tess Drewitt
Environmental Consultant
04 914 8414
Tess.Drewitt@Jacobs.com

CC: Lindsay Buckingham, Project Manager
John Witter, Taha Board of Directors
Nathan Burgess, Taha Plant Manager
Maurice Shaw, Taha Plant Manager
Robert Makgill, Counsel for Taha

Appendix A. Permanent installation of flood protection measures

Memorandum

To: Tess Drewitt, Environmental Consultant, Jacobs

CC: Maurice Shaw, Lindsay Buckingham, Michael Oldenhof, John Witter, Frank Pollmann, Robert Makgill

From: Nathan Burgess, Plant Manager, Taha Fertiliser Industries

Date: 28/05/2015

Re: Assessment of Flood protection measures that could be permanently installed.

PRE FITTING FLOOD PROTECTION PANELS

At the hearing for Taha's resource consent application, it was suggested as a precautionary measure, and to reduce time taken to install panels in a flood event, where possible steel panels forming part of the buildings flood protection, could be fitted permanently.

On Mon 18th May I contacted Tony Dackers, Managing Director of Fire Protection Compliance Limited, for information on which doors could have panels permanently fitted, which would block the door off meaning it could no longer be used as a fire escape.

Tony suggested that permanently blocking the doors with steel panels would not be an allowable practice, as the doorways need to be accessible and usable if there was a fire or emergency situation where people needed to evacuate the building.

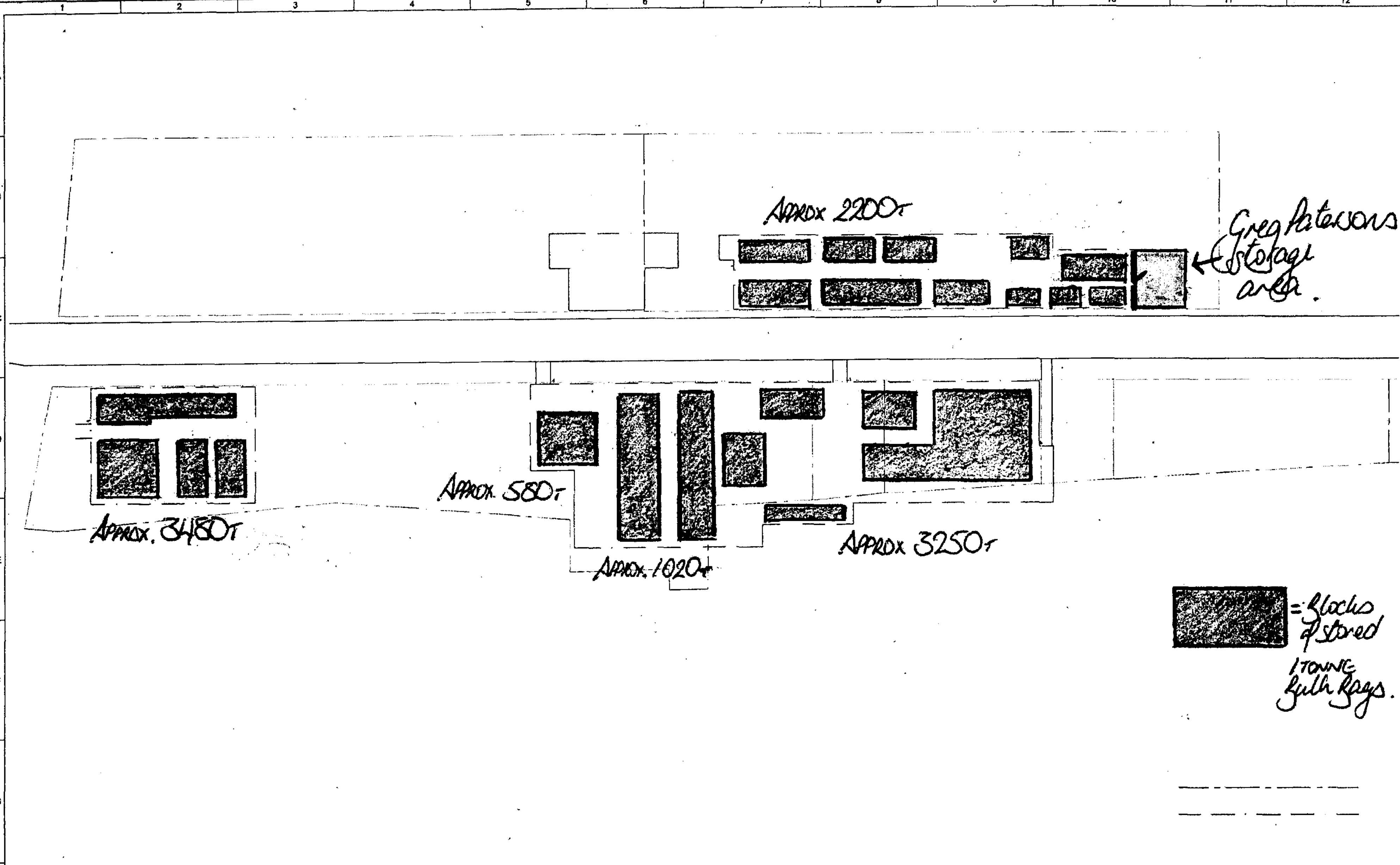
The opportunity exists for some of the larger (roller) doors to have the steel panels fitted to them permanently. These doors are primarily used for loading and unloading goods or vehicle access to the buildings so wouldn't necessarily be used as an exit/escape door in a fire or an emergency situation.

This option has been confirmed as being allowable by Tony Dackers, Managing Director of Fire Protection Compliance Limited.

Erecting these panels on these doors would minimise the overall time to install all panels in a flood event as the time taken and difficulty to fit panels to the larger doors far exceeds fitting panels to the 'man doors'.

We will assess which roller doors will not be required for moving and or removing product, and take the steps to get them fitted where possible. The outcome will be presented as part of the Flood Protection Plan as supplementary evidence by 3 July 2015.

Appendix B. Site Layout Plan



APPROVAL ISSUE

REV	DATE	DRAWN	REVD	APPD	REVISION
C	09-03-15	DCC	TD	NC	SITE LAYOUT PLAN SHOWING HAZARDOUS STORAGE ONLY
B	23-09-14	DCC	TD	NC	APPROVAL ISSUE
A	18-09-14	DCC	TD		CLIENT REVIEW ISSUE

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CLIENT: TAHA ASIA PACIFIC LIMITED

PROJECT: LAND USE CONSENTS FOR THE STORAGE OF HAZARDOUS SUBSTANCES

DRAWN	DRAWING CHECK	REVIEWED	APPROVED
DCC	TD	NC	NC
DESIGNED: TD	DESIGN REVIEW: NC	DATE 23-09-2014	DATE 23-09-2014

TITLE: MATAURA KANA STREET SITE PLAN

SCALE: 1:500 | DRAWING NO.: AE04729-NEP-DG-0002 | REV: C

JACOBS

29 May 2015
Mataura Resource Consent Hearing

Appendix C. Removal on non-Ouvea product

Memorandum

To: Tess Drewitt, Environmental Consultant, Jacobs

CC: Maurice Shaw, Lindsay Buckingham, Michael Oldenhof, John Witter, Frank Pollmann, Robert Makgill

From: Nathan Burgess, Plant Manager, Taha Fertiliser Industries Limited

Date: 28/05/2015

Re: Removal of non Ouvea product

Removal of non Ouvea product

Currently at the former Carter Holt Harvey paper mill in Mataura, Taha Asia Pacific/Taha Fertiliser Industries are storing its product 'Ouvea Premix'.

Currently in storage at the site is 9952 tonne of Ouvea premix, 8 tonne of Sulphate of Ammonia, approx. 350 kilograms of Citric Acid, and up to 100 litres of diesel.

During discussion arising from the recent Resource Consent application hearing, the possibility of removing 'non Ouvea' products from the facility has been mooted.

The removal of the bulk bags containing Sulphate of Ammonia could be easily achieved. This would be best done by back loading a truck returning from Dunedin, using TNL our regular transport company.

At the time of removing the SOA, the 8.473 tonne of MRP Bag House fines (stored in 1t Bulk Bags) could also be removed. This product would be returned to Taha Asia Pacific.

I would suggest that the removal of the Citric Acid would be unwise, as this product is there as a mitigation measure should an isolated amount of Ouvea happen to become wet. (The Citric Acid is utilised to absorb any Ammonia if it is in fact being produced)

In summary the following steps could be achieved:

- Transport SOA to Liddel Street storage facility (Invercargill), which has resource consent to store up to 200 tonne of SOA.
- Transport MRP Bag House fines to Taha Asia Pacific.
- Leave Citric Acid in situ.

Appendix D. SDS and SoS

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Memorandum

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Date	25 May 2015
To	Tess Drewitt, Environmental Consultant, Jacobs
From	Chris Bender, Air Quality Scientist, Jacobs
Subject	**Supplementary information re Safety Data Sheets and Status of Substance for Ouvea Premix**

1. Purpose

This memo provides an overview of the process that Jacobs New Zealand Limited (Jacobs) has followed to:

(a) Apply for the Status of Substance (SoS) for Cast-House Ouvea Premix from the Environmental Protection Authority (EPA); and

(b) Draft the finalised Safety Data Sheet (SDS) for Cast-house Ouvea Premix.

This memo also provides a summary of the material testing that has been undertaken to date to support to SoS and SDS for Cast-House Ouvea Premix, and the status of the SDS's currently being drafted for the following additional materials stored at the Mataura site:

(a) Landfill Ouvea Premix

(b) Bag-house Ouvea Premix

This memo is provided as supplementary information for Taha Fertilizer Industries Limited's (Taha) resource consent application to store Ouvea Premix at its storage site in Mataura.

2. Status of Substance

2.1 What is a status of substance

Anyone can make a SoS request to the EPA to determine whether a substance is hazardous and, if so, whether it is covered by an existing approval. Based on information provided in the application, including product composition, uses, toxicity, and flammability, the advice provided by the EPA determines:

- Whether or not a substance is hazardous
- Whether the substance is covered by an existing approval
- Whether a new approval is required

- What the hazard classifications of the substance are.[1]

2.2 Ouvea Premix Status of Substance

In December 2011, Jacobs (then SKM) applied for a SoS for Cast-house Ouvea Premix. The SoS application was based on testing of Ouvea Premix samples through X-Ray Fluorescence (XRF) analysis undertaken by Coal Research Laboratories (CRL). XRF analysis measures the intensity of X-rays fluoresced by individual elements in a sample. As such, XRF analysis is limited in that it shows the elements present in an individual sample, irrespective of the different compounds in the sample that may contain those elements. XRF testing provides a simple quantitative analysis of a material.

On 7 March 2012, the EPA issued a Determination of the Status of Ouvea Premix based on the information available at the time. The determination said that Ouvea Premix is considered to be hazardous and falls in to the group standard approval *"Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2006 [HSNOT Approval Number HSR002503]"*. The preliminary hazard classification assigned to Ouvea Premix was:

- 6.3A (skin irritant)
- 6.4A (eye irritant)
- 9.1C (aquatic irritant)

Under these classifications, Ouvea Premix is not classified as a Dangerous Good for transport. As such, the Land, Transport, Civil Aviation and Maritime Transport rules for dangerous goods do not apply.

3. Safety Data Sheet

3.1 What is a Safety Data Sheet

The EPA's website describes a Safety Data Sheet (SDS), previously called a Material Safety Data Sheet (MSDS), as a document designed to protect the health and safety of people in the workplace by providing information on the hazards of substances and how they should be safely used, stored, transported and disposed of. SDSs also describe emergency procedures, such as what to do in the event of a spill or fire. SDS's must include information on the material, including:

- hazards identification
- composition and information on ingredients
- first air and fire-fighting measures
- physical and chemical properties
- transport and disposal considerations.[2]

---

[1] Explanation sourced from http://www.epa.govt.nz/hazardous-substances/about/SOS/Pages/default.aspx

[2] Explanation sourced from http://www.epa.govt.nz/hazardous-substances/using-storing/Pages/Safety-data-sheets.aspx

3.2 SDS for Ouvea Premix

Following the provision of the EPA's determination, Jacobs prepared a SDS for Cast-House Ouvea Premix, again based on the results of the XRF analysis, which was also provided to the EPA.

Appendix A contains an internal memo dated 24 April 2012 about the HSNO controls for Ouvea Premix. The memo includes (as Appendices) the original SoS application, the SoS determination dated 7 March 2012 and the draft MSDS for Ouvea Premix based on XRF analysis (dated 10 May 2012).

In January 2013, Jacobs arranged for as series of laboratory tests to be performed on six samples of Cast-House Ouvea Premix, which were provided by Taha to determine the composition of the premix. The six samples were sent to CRL for X-Ray Diffraction (XRD) analysis. XRD analysis measures the intensity of crystal diffraction peaks due to the individual chemical compounds in the sample. Non-crystalline (amorphous) compounds cannot be identified by XRD. However, the compounds in Cast-House Ouvea Premix consist almost entirely in crystalline form, and so are well-suited for identification by XRD. As such, XRD analysis, unlike XRF analysis, can estimate percentages of each compound in the Ouvea Premix samples, as opposed to just the elemental composition.

XRD testing provides a qualitative and quantitative analysis of the material. The XRD results give measure and determination of the chemical compounds in Cast-House Ouvea Premix. As such, the results of the tests were used to update the Cast-House Ouvea Premix SDS to its current form. The revised and current SDS, dated 12 August 2013, is attached as Appendix B.

The revised composition of Ouvea Premix as determined by XRD does not change the hazard classification of the substance for the purpose of the SoS, as none of the bulk components of the substance are hazardous in themselves beyond what was originally assumed.

4. Further Material Testing

In 2015, Taha was in contact with the EPA to enquire about the necessary approvals to transport Ouvea Premix off-shore. The EPA suggested that, based on the information available, the Ouvea Premix could be classified as a Class 4.3 hazardous substance (substances which in contact with water emit flammable gases) and be treated as a dangerous good for transport under UN3170 "Aluminium smelting by-products or aluminium re-melting by-products". The EPA noted that if, when tested, the product does not meet the defining criteria for class 4.3 then it would not need to be assigned to UN3170.

Following these communications, Jacobs sent a sample of the Cast-House Ouvea Premix to CRL to conduct a gas evolution analysis of the material and identify whether the material meets the thresholds for a class 4.3 substance. The analysis was undertaken by CRL according to section 4.3 of the UN Part 3 classification procedures, testing methods and criteria relating to class 3 materials.

The gas evolution analysis found that hazardous gasses are capable of being produced on water contact, as is consistent with the available literature. The rate of gas evolution (0.74 L/kg/hr) is less than the limit of 1 L/kg/hr that would classify the sample as a packing group III. The findings of the gas analysis are attached in Appendix C.

As such, the gas analysis confirmed the original assessment that the Ouvea Premix is classified a Class 6 and 9 hazardous substance and not a Class 4.3 substance.

5. Safety Data Sheets for Other Mixes

Taha has asked Jacobs to prepare SDS's for other material mixes stored at the Mataura site, being:

(a) Landfill Ouvea Premix; and

(b) Bag-house Ouvea Premix.

The SDS for the Landfill Ouvea Premix has been prepared as a draft using independent laboratory test results from samples provided by Taha in December 2014.

The SDS for the Bag-House Ouvea Premix material has not yet been prepared, as we consider laboratory tests are warranted to determine the composition of the material. It is likely that the substance will have a slightly different composition from Cast-House Ouvea Premix as it will consist of a finer fraction of the material. A will be sent to CRL for testing on 29 May 2015. We would recommend both XRD and XRF analysis on the sample. The turn-around time for these analyses is dependent on laboratory workload, but is usually around one to two weeks. A formal status of substance application with EPA would be considered following interpretation of these results.

The finalised SDS's for Landfill and Bag-House Ouvea Premix can be submitted as supplementary information by 3 July 2015.

A formal SoS assessment from the EPA has not been requested for either Landfill or Bag-House Ouvea Premix. However, based on the similarities in composition and toxicity, we would expect both mixes to fall under the same group standard and have the same hazard classifications as Ouvea Premix. This is based on the existing analysis of these materials and the largely mechanical processing of the dross materials at the NZAS site.

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Memorandum

Supplementary information re Safety Data Sheets and Status of Substance for Ouvea Premix

Chris Bender, Air Quality Scientist, Jacobs

Appendix A. HSNO Controls, SDS and SoS

Internal Memo

To	Nic Conland	**Date**	24 April 2012
From	Tim Strange	**Project No**	AE04036
Copy			
Subject	**Description of Hazardous Substances Controls for Ouvea Premix**		

1. Introduction

This document describes the controls that need to be in place for Ouvea Premix under the Hazardous Substances and New Organisms Act 1996.

2. HSNO Classification

The Environmental Protection Authority (EPA) has classified Ouvea premix as:

- **6.3A** Skin irritant
- **6.4A** Eye irritant
- **9.1C** Aquatic ecotoxicant

This product has been assigned to the 'Additives, Process Chemicals and Raw Materials (Subsidiary hazard)' group standard **HSR002503.**

A copy of the Status of Substance request and the letter from the EPA providing the classification of this product is provided in **Appendix A** and **B**. It is recommended that a copy of these be retained on file as a record of the classification under the HSNO regime.

3. HSNO Controls

In order to comply with the Hazardous Substances and New Organisms Act 1996, this product must be controlled in the manner that meets the conditions of the 'Additives, Process Chemicals and Raw Materials (Subsidiary hazard) Group Standard 2006, which are set out in Schedule 1 of the Group Standard.

The Group Standard refers to the following regulations and guidance documents:

- Labelling of Hazardous Substances: Hazard and Precautionary Information (July 2006)
- Hazardous Substances (Identification) Regulations 2001
- The Land Transport Rule
- The Civil Aviation Rule
- The Maritime rule

- Hazardous Substances (Emergency Management) Regulations 2001
- Hazardous Substances (Disposal) Regulations 2001
- Site and Storage Conditions for Toxic, Corrosive and Ecotoxic Substances (July 2006)
- UN Model Regulations
- Hazardous Substances (Tank Wagons and Transportable Containers) Regulations 2004
- Workplace Exposure Standards. Occupational Safety and Health Service, Department of Labour, January 2002.

The following sections describe the relevant requirements as of 26 April 2012. However, any amendments to the Group Standard or associated regulations should be monitored in order to determine whether the requirements change.

Currently this product is not classified as a Dangerous Good for transport. Therefore the Land Transport, Civil Aviation and Maritime Transport rules for DGs do not apply.

3.1 Labelling

This substance may not be sold or supplied unless labelled according to these provisions.

3.1.1 Hazard information

1) Label must provide:
- Product name
- Contact details for NZ importer, supplier or manufacturer
- A 24 hour emergency telephone number

2) Label must state "Read label before use'.

3) The label must include the information contained in **Appendix C**. This information has been obtained from the 'Labelling of Hazardous Substances (hazard and precautionary information)' document published by ERMA New Zealand (now the EPA):

3.1.2 Small Packages

If this product is contained in small packages (5kg or less) the pictogram in column 3 of Table 1 is not required. Neither are the signal words, hazard or response statements for the 9.1C classification.

3.1.3 Disposal information

The label must describe an appropriate means for disposing of the substance (see Disposal below for what is considered to be appropriate)

3.1.4 Multiple packages

If labelling is obscured by outer packaging, the outer packaging must be labelled as per the Table in Appendix C.

3.1.5 Exporting

If this product is being exported from New Zealand it must be labelled as per the Table in Appendix C.

3.1.6 Bulk Transport

If this product is being transported in bulk it must be labelled as per the Table in Appendix C.

3.2 Approved Handler

Approved handler requirements do not apply to this product.

3.3 Material Safety Data Sheets

The following requirements relate to the Material Safety Data Sheets (MSDSs) for this product:

- When selling or supplying this product a safety data sheet will need to be provided unless one has already been provided to the receiver.
- An MSDS should be carried when transporting this product
- The MSDS must be available in every place of work where this product is being manufactured, stored or used
- The MSDS must be readily available (within 10 minutes) and be easy to understand by any fully trained worker
- If asked the manufacturer or supplier of the premix must provide a MSDS to any person in charge of a place of work where this product is stored or used.

3.3.1 Contents of MSDS

Information on an MSDS must provide the following information in the order listed below:

Identification of the substance and supplier

- Product name
- Recommended uses
- Name of supplier, NZ contact details including emergency contact

Hazards identification

- Describe hazards of the substance, which may include its HSNO hazard classification
- Hazard information, including signal words, hazard statement(s) and precautionary statement(s)

Composition/information on ingredients

- Chemical identity of each hazardous ingredient, their CAS number and their concentration ranges

First aid measures

- First aid instructions according to each relevant route of exposure
- Whether medical attention is required and its urgency
- Information on the most important symptoms and effects, acute and delayed, from exposure

Fire fighting measures

- Information on the appropriate type of extinguishers or fire fighting agents, including extinguishers that may not be appropriate for a particular situation
- Any advice on hazards that may arise from combustion products; and
- Precautions for fire fighters and protective clothing requirements

Accidental release measures

- Advice on protective clothing requirements and emergency procedures
- Any environmental precautions from accidental spills and release
- Advice on how to contain and clean up a spill or release

Handling and storage

- Precautions for safe handling
- Conditions for safe storage, including incompatibilities

Exposure controls/personal protection

- Exposure limits set for the substance or any of its components, or in their absence, relevant overseas exposure limits
- Engineering controls
- Individual protection measures, including PPE

Physical and Chemical Properties

- Description of relevant physical and chemical properties for the substance, including units of measurement and reference conditions where appropriate

- Where necessary for interpretation of data reported, the method of determination

Stability and reactivity

- An indication of the chemical stability of the substance under normal anticipated storage and handling conditions
- List of conditions to avoid to prevent a hazardous situation
- Information on incompatible substances or materials

Toxicological information

- A full description of the tox effects including the symptoms or signs of injury or ill health associated with each likely route of exposure
- The dose, concentration or conditions of exposure likely to cause injury or ill health
- Summary of data used to identify health effects

Ecological information

- Ecotoxicity
- Persistence and degradability
- Mobility

Disposal considerations

- Disposal methods (including packaging)
- Special precautions to be undertaken during disposal
- Any methods of disposal that should not be used

Transport information

- The UN number – **If applicable**
- The proper shipping name – **If applicable**
- UN Dangerous Goods class and subsidiary risk – **If applicable**
- UN Packing Group – **If applicable**

Regulatory info

- HSNO approval number and/or title of the Group Standard
- Info on conditions of the group standard and any other regulatory requirements

Other information

- Date of preparation or revision of the MSDS
- Key/legend to abbreviations an acronyms used

A copy of the MSDS for this product is provided in **Appendix D.**

3.4 Site and Storage

Site storage conditions apply when the quantity of this product at any site exceeds 1000 kg. If this quantity is exceeded the relevant conditions set out in **'Site and Storage Conditions for Toxic, Corrosive and Ecotoxic Substances'** must be complied with.

For this product the current requirements relate to Emergency Response Plans and signage as described below.

3.4.1 Emergency Response Plan

An Emergency Response Plan will need to be prepared, or if there is an existing plan, information regarding this product must be included in it. The requirements of an Emergency Response Plan are described below.

Content of Plan

An emergency response plan must describe all of the reasonably likely emergencies that may arise from the breach or failure of the conditions on substances of the hazard classifications concerned.

For each emergency, the plan must:

a) Describe the actions to be taken to—
- warn people at the place, and in surrounding areas that may be adversely affected by the emergency, that an emergency has occurred
- advise those people about the actions they should take to protect themselves
- help or treat any person injured in the emergency
- manage the emergency so that its adverse effects are first restricted to the area initially affected, then as soon as practicable reduced in severity, then if reasonably possible eliminated
- if any of the substances concerned remain, re-establish the conditions imposed on it when it was approved

b) Identify every person with responsibility for undertaking any of the actions described in subclause (a) (or any part of any of those actions) and give information on—
- how to contact the person
- any skills the person is required to have
- any actions that person is expected to take

c) Specify—

- how to obtain information about the hazardous properties of and means of controlling the substance or substances that may be involved
- actions to be taken to contact any emergency service provider
- the purpose and location of each item of equipment or material to be used to manage the emergency
- how to decide which actions to take
- the sequence in which actions should be taken.

Availability of equipment, materials, and people

All equipment and materials described in an Emergency Response Plan, and all responsible people described in an emergency response plan who are on duty, must—

- be present at the location concerned; or
- be available to reach the location of the substance within the times specified in the plan; or
- in the case of a trained person, be available to provide the advice or information specified in the plan within a time specified in the plan.

Availability of plans

An emergency response plan must be available to every person identified in (b) above as being responsible for executing the plan or a specific part of it, and to every emergency service provider identified in it.

Testing plans

An Emergency Response Plan must be tested at least every 12 months; and the test must demonstrate that every procedure or action in the plan is workable and effective. If there is a change to the persons, procedures, or actions specified in an emergency response plan, the plan must be tested within 3 months of the change; and the test must demonstrate that:

- the changed persons can perform their functions under the plan
- each changed procedure or action is workable and effective.

The carrying out and the results of every test must be documented and the documentation must be retained for at least 2 years.

Plan can be part of other management documentation

An Emergency Response Plan can be part of any other management documentation for an emergency whether:

- required by the Hazardous Substances and New Organisms Act 1996 or some other Act, or
- undertaken by a person or organisation for some other reason.

3.4.2 Signage

Duties of persons in charge of places in respect of signage

The person identified as being in charge in the Emergency Response Plan must ensure that appropriate signage is provided. The signage requirements are provided below:

Signage requirements

If this product is located in a building (but not within a specific Hazardous Substance storage room or compartment within that building) there must signage at every vehicular and pedestrian access to the building as well as at every vehicular and pedestrian access to land where the building is located. The signage must:

- state that hazardous substances are present
- describe the general type of hazard
- advise the action to be taken in an emergency

If hazardous substances are located in a particular room or compartment within a building or in an outdoor area signage must be erected at each entrance to the room/compartment or next to the storage area. This signage must:

- state that hazardous substances are present
- describe the general type of hazard of each of them
- advise the action to be taken in an emergency.

3.5 Packaging

When filled and closed packaging:

- Must not leak
- Should maintain its ability to retain contents, if parts are removed and packaging is resealed
- Must not react with the product in a way that weakens the packaging

If packaging has been used to store another substance previously:

- The substances must be compatible
- All practicable steps must be taken to remove all residues from the original substance

When the product is packed in quantities smaller than 400 kg packaging must comply with requirements of Schedule 4 of the Hazardous Substances (Packaging) Regulations 2001. This requires packaging to comply with the following test:

Packaging must withstand the impact at any orientation of a drop of 0.5 m on to a hard surface without losing its ability to retain its contents. If/when tested t must be done using Ouvea premix or another substance similar in physical characteristics (density, viscosity and particle size.

The above tests must be done with the closure mechanism fully closed and, in the case of vented packaging, the vent must be sealed.

3.6 Equipment

People handling this product must wear protective clothing or equipment that is designed to ensure the person:

- does not come into contact with it
- is not exposed to a concentration of the substance that is greater than the work place exposure standard for the substance

This does not apply if the product is packed in closed containers that comply with the packaging requirements specified in **Section 3.5**.

The supervisor of the place of work must ensure that PPE is accompanied by documentation containing information specifying:

- Circumstances in which PPE should be used
- Requirements for maintaining PPE

Equipment used to handle this product must retain the substance, without leaking at all temps and pressures for which the equipment is intended to be used. It must also dispense or apply the substance without leakage at a rate and in a manner that the equipment is designed for.

Equipment must be accompanied by documentation containing information about the use and maintenance of the equipment to enable the equipment to be used and maintained.

3.7 Transportation

This product is not classified as a Dangerous Good for transport, therefore the Land Transport, Civil Aviation and Maritime Transport rules for Dangerous Goods do not apply.

If using Tank Wagons or UN approved transportable containers for transport they must meet the requirements of the Hazardous Substances (Tank Wagons and Transportable Containers) Regulations 2004.

If being carried on a passenger service vehicle the product must:

- Be packed in a sealed container
- Not exceed 5 kg per package

3.8 Disposal

If necessary to dispose of this product, it must be disposed of by:

- Exporting from NZ as waste
- Treating it so that it is no longer a hazardous substance
- Discharging it into the environment in way that has no significant environmental effect

Treating includes depositing it in a landfill, incinerator or sewage facility providing this renders the substance non-hazardous by a means other than dilution, or where the concentration of the substance from the landfill does not exceed any relevant tolerable exposure limit.

3.8.1 Disposal of Packaging

The following requirements apply to packaging:

- Used to contain this product
- That has been in direct contact with it
- That is no longer to be used to contain the substance and is intended for disposal

If packaging is to be disposed of it must

- Be rendered incapable of containing any substance
- Be disposed of in a manner that is consistent with that of the substance it contained

However, packaging may be reused or recycled if:

- It has been treated to remove any residue
- The residue has been rendered non-hazardous

3.9 Exposure Limits

3.9.1 Workplace Exposure Standards

No specific Time Weighted Average (TWA) or Short Term Exposure Limit (STEL) has been assigned to this product. However, the following TWAs are relevant to the ingredients in this product:

- TWA – Aluminium oxide 10 mg/m^3
- TWA – Copper (dust) 1 mg/m^3
- TWA – Silicon 10 mg/m^3
- TWA – Manganese (dust) 1 mg/m^3
- TWA – Beryllium 0.002 mg/m^3

Definitions:

Time-Weighted Average (WES-TWA)

Most WES in New Zealand have a eight-hour TWA, representing a work shift of 8 hours over one day. This means that the value assigned for a WES-TWA should not be exceeded over the period of 8 hours during a working shift.

Short-Term Exposure Limit (WES-STEL)

The 15-minute exposure standard. Applies to any 15-minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply.

Yours sincerely

Tim Strange
Environmental Consultant
Phone: +64 4 914 8466
E-mail: tstrange@globalskm.com

Appendix A Status of Substance Request

Environmental Protection Authority
Te Mana Rauhī Taiao

APPLICATION FORM
STATUS OF SUBSTANCE

Form HS6A for Advice on the Status of a Substance

(If your substance is a pesticide or veterinary medicine, please use application form HS6B)

Send by post to: Environmental Protection Authority, PO Box 131, Wellington 6140 OR email to: sos@epa.govt.nz
Payment must accompany application; see our fees and charges schedule for details. Please allow 20 working days for processing.

Name of Product(s)

Ouvea Premix

Date

21 December 2011

Instructions to complete form

You need to ensure that all relevant information is provided in full before you send in the form. If the form is incomplete, we will be unable to process your application and will need to contact you to fill in the missing information.

Product name – this is the name of the product/substance for which you are seeking advice.

Synonyms – list alternative names for the product/substance for which you are seeking advice.

Uses – please be as specific as possible

Physical form – please indicate whether the substance is a solid, liquid or gas.

Proposed group standard the substance will fall under –A list of the group standards and their documents containing information about the group standard can be found at http://www.epa.govt.nz/hazardous-substances/about/approvals/group-standards/Pages/default.aspx

Full composition

If you do not have access to the full composition of the substance, you will need to ask the company who does to supply the information to the EPA directly, with an appropriate cover letter to ensure that we can link your application to that information.

Please ensure that the composition totals 100%. If it doesn't we will not be able to start work on your application. If the composition of your substance includes ranges [e.g. 5-10%] for different components, please indicate where possible if some ingredients are optional, or are not always present [for example a base paint with a range of different pigments which may be used in varying proportions]. In the column headed 'function' please indicate what the purpose of the component is within the mixture.

Please check that the names of components and their accompanying CAS numbers match. A useful website for checking these details is ChemID Plus http://chem.sis.nlm.nih.gov/chemidplus/. If these details don't match, we will need to ask you for more information i.e. to confirm whether the name or the CAS number is correct.

MSDS – please attach a Material Safety Data Sheet for the substance if you have one. The MSDS is not a substitute for the other information on the form, but may assist us with related information.

Initial fee – if the request requires more than 1 hour to complete, you will be asked whether you wish to continue, and a *further fee* will apply.

1. Company details

Company name: Taha Fertilisers Industries Limited

Company address: C/- SKM, Level 3, 86 Customhouse Quay, Wellington

Postal address: SKM, PO Box 10-283, Wellington 6143
[if different to company address]

Contact name: Tim strange

Job title: Environmental Consultant

Contact person phone: 04 914 8466

Contact person e-mail: tstrange@globalskm.com

2. Please indicate which options you would like:

I would like informal advice on whether the substance is hazardous in terms of the HSNO Act	Yes
I would like informal advice on whether the substance is covered by an approval under the HSNO Act.	Yes
I would like the HSNO classification for the substance.	Yes

3. Product name

Ouvea Premix

4. Synonyms

None

5. Physical form

Solid

6. Uses

This product is used as an ingredient in the manufacture of Taha Fertiliser

7. Proposed group standard the substance will fall under

HSR002503

8. Full composition

(attach if insufficient room. **NB:** We cannot process your application without full composition details.)

8.1. Components

CAS number	Component name	Function of component	Percentage (specify w/w or w/v*)
1344-28-1	Aluminium oxide	Intermediary product	75-95
Not available	Metal fluoride salts	Intermediary product	0-15
7440-50-8	Copper	Intermediary product	<0.1
Not available	Metal nitrides	Intermediary product	<3
7439-95-4	Magnesium	Intermediary product	<1
7440-21-3	Silicon	Intermediary product	<1
7439-89-6	Manganese	Intermediary product	<1
7439-89-6	Iron	Intermediary product	<1.5
7440-02-0	Nickel	Intermediary product	<0.1
7440-41-7	Beryllium	Intermediary product	<0.02

If any of the components in Table 8.1 react to give new substances upon mixing, please indicate the FULL COMPOSITION of the final formulation in table 8.2. New substances and amounts of any left-over components should be included.

8.2. Final Composition

CAS number	Component name	Function of component	Percentage (specify w/w or w/v*)

* If the units are w/v, what is the density of the substance?

9. Flashpoint (if flammable)

NA

10. pH (if an aqueous liquid)

9.7

11. MSDS attached

No

12. Initial fee is included

Yes

Please refer to *Fees & Charges Schedule* (http://www.epa.govt.nz/about-us/fees/Pages/default.aspx)
(If fee is not included, you will be invoiced and processing will not start until payment is received)

SINCLAIR KNIGHT MERZ
SKM

Appendix B Status of Substance Decision

Environmental
Protection Authority
Te Mana Rauhī Taiao

7 March 2012

File Ref R:DMHS-02-10-01
SOS #1001568

Tim Strange
Taha Fertilisers Industries Limited
SKM, PO Box 10283
Wellington 6143

Dear Tim

Determination of the Status of Ouvea Premix

Thank you for your application to determine if Ouvea Premix is considered to be hazardous and if it is covered by an existing approval under the Hazardous Substances and New Organisms (HSNO) Act 1996.

Based on the information available and the details you have provided, our advice is that Ouvea Premix is considered to be hazardous and will fall into the group standard approval ***Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2006 [HSNOT Approval Number HSR002503],*** which has an approval under the HSNO Act. A copy of this group standard can be found on the EPA website at http://www.epa.govt.nz/hazardous-substances/about/approvals/group-standards/Pages/default.aspx

If you consider that Ouvea Premix may fit more appropriately into a different group standard, or if you use Ouvea Premix for a different purpose, you may move the product to another group standard providing it fits within the scope of that group standard. You do not need to contact us further in this situation but must ensure that the appropriate conditions are applied. If you need further help regarding which group standard may be applicable, please contact us for advice. In further correspondence with us regarding Ouvea Premix, please be sure to quote our reference number (SOS1001568).

Please also note that although we consider the product, Ouvea Premix to be covered by an existing approval, the constituent components will need their own individual approvals if they are to be separately imported. Therefore, if you are intending to manufacture Ouvea Premix in New Zealand, you will need to ensure that each component has its own approval under the HSNO Act. Your supplier should be able to advise you on this.

For your information, the preliminary hazard classification assigned to Ouvea Premix is 6.3A (skin irritant), 6.4A (eye irritant), 9.1C (aquatic ecotoxicant).

The folloing substances may require notification to the New Zealand Inventory of Chemicals (NZIoC):
Aluminium Carbide, CAS#1299-86-1
Aluminium Nitride CAS#24304-00-5

PH +64 4 916 2426
FAX+64 4 914 0433
EMAIL info@epa.govt.nz

BP House
20 Customhouse Quay
Private Bag 63002, Waterloo Quay
Wellington 6140, New Zealand

www.epa.govt.nz

This advice is provided in good faith and to the best of our ability given the information available.

Note: The 'User Guide to Thresholds and Classifications under the HSNO Act' has been revised (March 2008). An electronic version is available at http://www.epa.govt.nz/Publications/ER-UG-03-2.pdf.

Yours sincerely

Benjamin Sowman
Administration Assistant
Hazardous Substances

SKM

Appendix C Hazard and Precautionary Information to be included on labelling for Ouvea premix

Classification	Transport of DG pictogram	GHS Pictogram	Signal Word	Hazard statement code	Precautionary statement codes			
					Prevention	Response	Storage	Disposal
6.3A	NA		Warning	H315 - Causes skin irritation	P264 - Wash hands thoroughly after handling	P302 + P352 - IF ON SKIN: Wash with plenty of soap and water	No storage statements	P501
					P280 - Wear protective gloves	P321 - Specific treatment: use of specific cleansing agent not required.		
						P332 + P313 - If skin irritation occurs: get medical advice/attention		
						P362 - Take off contaminated clothing and wash before re-use		
6.4A	NA	No pictogram	Warning	H320 - Causes eye irritation	P264 - Wash eyes thoroughly after handling	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.	No storage statements	P501
						P337 + P313 - If eye irritation persists; get medical advice/attention		
9.1C	NA	No pictogram	No signal word	H412 - Harmful to aquatic life with long lasting effects	P273 - Avoid release to the environment	No response statements	No storage statements	P501

Note: The classification in the left hand column does not need to be included on the label

SINCLAIR KNIGHT MERZ
SKM

Appendix D Draft Material Safety Data Sheet for Ouvea

MATERIAL SAFETY DATA SHEET

Ouvea Premix

Date: 10 May 2012

PRODUCT AND COMPANY INFORMATION

PRODUCT NAME:	Ouvea Premix
DESCRIPTION:	Solid grey powder
PRODUCT USE:	Ingredient in the preparation of mineral fertiliser
SUPPLIER::	Taha Fertilizer Industries Limited
CONTACT INFORMATION:	Telephone: 03 218 1002; Address: 162b Bond Row, Invercargill, New Zealand
EMERGENCY PHONE:	

HAZARD IDENTIFICATION

DANGEROUS GOODS		Not applicable
HSNO CLASSIFICATION	**6.3A**	**Skin irritant.**
	6.4A	**Eye irritant.**
	9.1C	**Aquatic ecotoxicant**
SIGNAL WORDS:		**WARNING**
HAZARD STATEMENT:	H315	Causes skin irritation.
	H320	Causes eye irritation.
	H412	Harmful to aquatic life with long lasting effects.
PREVENTION STATEMENTS:	P264	Wash hands and eyes thoroughly after handling.
	P280	Wear protective gloves.
	P273	Avoid release to the environment.
RESPONSE STATEMENTS:	P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
	P321	Specific treatment: use of specific cleansing agent not required.
	P332 + P313	If skin irritation occurs: get medical advice/attention.
	P362	Take off contaminated clothing and wash before re-use.
	P305 + P351	IF IN EYES: Rinse cautiously with water for several minutes.
	P338	Remove contact lenses, if present and easy to do so. Continue rinsing.
	P337 + P313	If eye irritation persists; get medical advice/attention.

COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS No.	Concentration (%)
Aluminium oxide	1344-28-1	75-95
Metal fluoride salts	Not available	0-15
Copper	7440-50-8	<0.1
Metal nitrides	Not available	<3
Magnesium	7439-95-4	<1
Silicon	7440-21-3	<1
Manganese	7439-89-6	<1
Iron	7439-89-6	<1.5
Nickel	7440-02-0	<0.1
Beryllium	7440-41-7	<0.02

FIRST AID MEASURES

SKIN CONTACT:	Quickly remove contaminated clothing and wash before re-use. Wash skin with plenty of soap and water. Seek medical attention if irritation persists.
EYE CONTACT:	Remove contact lenses if present. Cautiously rinse eye with gently running water for 15 minutes. Do not rub the eye. Seek medical attention if eye irritation persists.
INHALATION:	If inhaled, remove to fresh air.

INGESTION:	Rinse mouth. Do NOT induce vomiting. Seek medical attention.

FIRE FIGHTING MEASURES

HAZARDS:	Non-flammable.
EXTINGUISHING MEDIA:	Water fog, foam, Carbon dioxide or dry chemical.
PROTECTIVE CLOTHING:	Wear protective gloves.
OTHER INFORMATION:	Do not allow washings to reach aquatic environment.

ACCIDENTAL RELEASE MEASURES

SPILL CLEAN UP METHOD:	Contain and recover. Use appropriate tools to put the spilled solid in a convenient waste disposal container. Avoid contamination of waterways. If material does enter waterways contact the local authority.
PROTECTIVE CLOTHING:	Wear protective gloves.

HANDLING AND STORAGE

HANDLING:	Wear gloves. Avoid contact with the skin and eyes Ecotoxic in the environment, avoid loss into waterways.
STORAGE:	Keep containers tightly closed.

EXPOSURE CONTROL/PERSONAL PROTECTION

ENGINEERING CONTROLS:	Handle in well ventilated area
PERSONAL PROTECTION:	Wear gloves.
EXPOSURE LIMITS:	No exposure limits have been specifically assigned to this product and there are no Short Term Exposure Limits (STELs). TWA – Aluminium oxide 10 mg/m^3 TWA – Copper (dust) 1 mg/m^3 TWA – Silicon 10 mg/m^3 TWA – Manganese (dust) 1 mg/m^3 TWA – Beryllium 0.002 mg/m^3

PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Solid (grey powder)
pH:	Not applicable
SOLUBILITY:	Negligible
BOILING POINT:	2980°C
MELTING POINT:	2072°C

STABILITY AND REACTIVITY

STABILITY:	Stable, will not polymerise
REACTIVITY:	Reactive with acids

TOXICOLOGICAL INFORMATION

SKIN CONTACT:	May cause skin irritation
EYE CONTACT:	May cause eye irritation

ECOLOGICAL INFORMATION

Ecotoxic in the environment. Avoid loss into waterways.

DISPOSAL CONSIDERATIONS

CONTAINER DISPOSAL:	Dispose of empty containers safely. Avoid contamination of any water suppl with product or empty container.
PRODUCT DISPOSAL:	Dispose of product safely. Avoid contamination of any water supply with product or empty container.

TRANSPORT INFORMATION

UN NUMBER:	Not applicable
PROPER SHIPPING NAME:	Not applicable
DANGEROUS GOODS	Not applicable

CLASS	
PACKING GROUP:	Not applicable

NZ REGULATORY INFORMATION

HSNO APPROVAL NUMBER:	HSR002503
GROUP STANDARD:	Additives, Process Chemicals and Raw Materials (Subsidiary hazard)
HSNO CLASSIFICATIONS:	6.3A Skin irritant
	6.4A Eye irritant
	9.1C Aquatic ecotoxicant
HSNO CONTROLS:	Approved handler requirements: Not applicable

OTHER INFORMATION

ISSUE DATE:	22 March 2012
DEFINITIONS:	TWA – Time Weighted Average (The 8 hour time-weighted average exposure standard designed to protect the worker from the effects of long term exposure)

Appendix B. Current SDS for Cast-House Ouvea Premix

MATERIAL SAFETY DATA SHEET

Ouvea Premix

Date: 12 August 2013

PRODUCT AND COMPANY INFORMATION

PRODUCT NAME:	Ouvea Premix
DESCRIPTION:	Solid grey powder
PRODUCT USE:	Ingredient in the preparation of mineral fertiliser
SUPPLIER::	Taha Fertilizer Industries *Limited*
CONTACT INFORMATION:	Telephone: 03 218 1002; Address: 162b Bond Row, Invercargill, New Zealand
EMERGENCY PHONE:	

HAZARD IDENTIFICATION

DANGEROUS GOODS		Not applicable
HSNO CLASSIFICATION	**6.3A**	**Skin irritant.**
	6.4A	**Eye irritant.**
	9.1C	**Aquatic ecotoxicant**
SIGNAL WORDS:		**WARNING**
HAZARD STATEMENT:	H315	Causes skin irritation.
	H320	Causes eye irritation.
	H412	Harmful to aquatic life with long lasting effects.
PREVENTION STATEMENTS:	P264	Wash hands and eyes thoroughly after handling.
	P280	Wear protective gloves.
	P273	Avoid release to the environment.
RESPONSE STATEMENTS:	P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
	P321	Specific treatment: use of specific cleansing agent not required.
	P332 + P313	If skin irritation occurs: get medical advice/attention.
	P362	Take off contaminated clothing and wash before re-use.
	P305 + P351	IF IN EYES: Rinse cautiously with water for several minutes.
	P338	Remove contact lenses, if present and easy to do so. Continue rinsing.
	P337 + P313	If eye irritation persists; get medical advice/attention.

COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS No.	Concentration (%)
Aluminium oxide (Al_2O_3)	1344-28-1	25-50
Aluminium nitride (AlN)	24304-00-5	25-40
Magnesium Aluminate ($MgAl_2O_4$)	12068-51-8	5-30
Cryolite (Na_3AlF_6)	7429-90-5	2-4
Aluminium (Al)	7429-90-5	2-4
Sodium aluminate ($NaAl_{11}O_{17}$)	1302-42-7	2-5
Potassium Fluoride (KF)	7789-23-3	<1
Potassium Chloride (KCl)	7447-40-7	<1
Fluorite (CaF_2)	7789-75-5	<1
Quartz (SiO_2)	14808-60-7	<1

FIRST AID MEASURES

SKIN CONTACT:	Quickly remove contaminated clothing and wash before re-use. Wash skin with plenty of soap and water. Seek medical attention if irritation persists.
EYE CONTACT:	Remove contact lenses if present. Cautiously rinse eye with gently running water for 15 minutes. Do not rub the eye. Seek medical attention if eye irritation persists.
INHALATION:	If inhaled, remove to fresh air.

INGESTION:	Rinse mouth. Do NOT induce vomiting. Seek medical attention.

FIRE FIGHTING MEASURES

HAZARDS:	Non-flammable.
EXTINGUISHING MEDIA:	Water fog, foam, Carbon dioxide or dry chemical.
PROTECTIVE CLOTHING:	Wear protective gloves.
OTHER INFORMATION:	Do not allow washings to reach aquatic environment.

ACCIDENTAL RELEASE MEASURES

SPILL CLEAN UP METHOD:	Contain and recover. Use appropriate tools to put the spilled solid in a convenient waste disposal container. Avoid contamination of waterways. If material does enter waterways contact the local authority.
PROTECTIVE CLOTHING:	Wear protective gloves.

HANDLING AND STORAGE

HANDLING:	Wear gloves. Avoid contact with the skin and eyes Ecotoxic in the environment, avoid loss into waterways.
STORAGE:	Keep containers tightly closed.

EXPOSURE CONTROL/PERSONAL PROTECTION

ENGINEERING CONTROLS:	Handle in well ventilated area
PERSONAL PROTECTION:	Wear gloves.
EXPOSURE LIMITS:	No exposure limits have been specifically assigned to this product. Exposure limits for *individual constituents are provided below:* TWA – Aluminium oxide 10 mg/m^3 TWA – Aluminium nitride 2 mg/m^3 (as Al) TWA – Cryolite 2.5 mg/m^3 (as F) TWA – Aluminium 5 mg/m^3 (resp) STEL – Sodium aluminate 2 mg/m^3 TWA – Potassium Chloride 3 mg/m^3 TWA – Potassium Fluoride 2.5 mg/m^3 (as F) TWA – Fluorite 2.5 mg/m^3 (as F) TWA – Quartz 10 mg/m^3

PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Solid (grey powder)
pH:	Not applicable
SOLUBILITY:	Negligible
BOILING POINT:	2980°C
MELTING POINT:	2072°C

STABILITY AND REACTIVITY

STABILITY:	Stable, will not polymerise
REACTIVITY:	Reactive with acids

TOXICOLOGICAL INFORMATION

SKIN CONTACT:	May cause skin irritation
EYE CONTACT:	May cause eye irritation

ECOLOGICAL INFORMATION

Ecotoxic in the environment. Avoid loss into waterways.

DISPOSAL CONSIDERATIONS

CONTAINER DISPOSAL:	Dispose of empty containers safely. Avoid contamination of any water supply with product or empty container.
PRODUCT DISPOSAL:	Dispose of product safely. Avoid contamination of any water supply with product or empty

container.

TRANSPORT INFORMATION

UN NUMBER:	Not applicable
PROPER SHIPPING NAME:	Not applicable
DANGEROUS GOODS CLASS	Not applicable
PACKING GROUP:	Not applicable

NZ REGULATORY INFORMATION

HSNO APPROVAL NUMBER:	HSR002503
GROUP STANDARD:	Additives, Process Chemicals and Raw Materials (Subsidiary hazard)
HSNO CLASSIFICATIONS:	6.3A Skin irritant
	6.4A Eye irritant
	9.1C Aquatic ecotoxicant
HSNO CONTROLS:	Approved handler requirements: Not applicable

OTHER INFORMATION

ISSUE DATE:	12 August 2013
DEFINITIONS:	TWA – Time Weighted Average (The 8 hour time-weighted average exposure standard designed to protect the worker from the effects of long term exposure)
	STEL – Short Term Exposure Limit (The acceptable average exposure over a short period of time, usually 15 minutes)

Appendix C. Gas Evolution Analysis

Title:	**Dried oxide (Ouvea Premix)** **Gas evolution analysis**
CRL Reference:	**15-11008-B**
Client Name:	**Jacobs New Zealand LTD** **Attention: Chris Bender**
Client Address:	**PO Box 10-283,** **Wellington, 6143**
Date of Issue:	**5 May 15**
Author:	*Ben Rumsey - Research Officer*

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Background

A sample of dried oxide (Ouvea Premix) (SKM Ref 573/4) was supplied to CRL for testing according to section 4.3 of the UN Part 3 classification procedures, test methods and criteria relating to class 3 materials. Division 4.3 relates to substances which in contact with water emit flammable gasses.

The below information can be found relating to the substance supplied for testing.

- UN number 3170, Aluminum smelting by-products or Aluminum remelting by-products or Aluminum Dross
- Hazard class 4.3 (Dangerous when wet),
- Packing group 2 or 3.

Results – Test N.5

Test 33.4.1.4.3.2	No spontaneous ignition, small gas bubbles (as received sample)
Test 33.4.1.4.3.3	No spontaneous ignition, small gas bubbles (as received sample)
Test 33.4.1.4.3.4	No spontaneous ignition, small gas bubbles (as received sample)
Test 33.4.1.4.3.5	No spontaneous ignition, gas results below (powdered sample)

Substance	***Rate of gas emission (L/kg.h)***	***Ignition (yes/no)***	***Result***
Dried oxide (Ouvea premix)	*0.74*	*No*	*Not 4.3*

Total gas evolution (7hrs @ 20°C): 5.20 Litres/kg of sample = 0.74 Litres/kg.hr

Gas composition analysis:

Methane	%	8.9
Carbon dioxide	%	<0.01
Ethylene	%	<0.0010
Ethane	%	<0.0010
Hydrogen	%	91.1
Carbon monoxide	%	<0.0040
Ammonia*	%	Not observed

**Ammonia by difference – no observable odour of ammonia was detected.*

Analysis performed on an Agilent micro gas chromatograph; using BOC alpha and Beta gas standards.

The above gas analysis shows hazardous gasses are capable of being produced on water contact, as is consistent with the available literature. The rate of gas evolution (0.74 L/kg/hr) is less than, but close to the limit of 1 L/kg/hr that would classify the sample as a packing group III.

Please note that this report represents results based upon the sample as provided by the client. The findings constitute no warranty of the samples representativeness of any goods and strictly relate to the sample.

Appendix E. Aluminium Dross SDS

Rio Tinto Alcan

United States/NA

1. Product and company identification

Product name	: ALUMINUM DROSS - (MMC)
Synonym	: Dross (remelt aluminium).
Material uses	: Other non-specified industry: Process by-product to be recycled.
Supplier/Manufacturer	: Rio Tinto Alcan Dubuc plant 2040, Ch. de la Réserve Saguenay, Québec, Canada G7H 5B3 Tel: 1-418-699-6305
Code	: 157
In case of emergency	: +1 215 207 0061 (Rio Tinto Alcan) For advice on chemical emergencies, spillages, fires or first aid.
e-mail address of person responsible for this SDS	: rta.msds@riotinto.com
Product type	: solid (Powder.)

2. Hazards identification

Emergency overview

Physical state	: Solid. [Powder.]
Color	: Gray.
Signal word	: DANGER!
Hazard statements	: SUBSTANCES DANGEROUS WHEN WET. REACTS WITH WATER TO RELEASE FLAMMABLE GAS. REACTS WITH WATER TO RELEASE TOXIC GAS.
Precautionary measures	: Use only with adequate ventilation. Keep away from heat, sparks and flame. Keep away from water or moist air. Keep container tightly closed.
OSHA/HCS status	: Hazard communication Standard (HCS) does not apply to Waste material
Routes of entry	: Dermal contact. Inhalation.

Potential acute health effects

Inhalation	: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	: Release toxic substances when wet.
Skin	: May cause skin irritation. May cause skin sensitization.
Eyes	: May cause eye irritation.

Potential chronic health effects

Chronic effects	: Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
Carcinogenicity	: Contains material which may cause cancer.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.

2. Hazards identification

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Target organs : Contains material which may cause damage to the following organs: lungs, upper respiratory tract, skin, eyes, nose/sinuses.

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
wheezing and breathing difficulties

Skin : Adverse symptoms may include the following:
irritation
redness

Eyes : Adverse symptoms may include the following:
irritation
watering
redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

Name	CAS number	%
aluminium	7429-90-5	10 - 90
aluminium oxide	1344-28-1	10 - 50
silicon carbide	409-21-2	1 - 30
aluminium nitride	24304-00-5	2 - 10
silicon	7440-21-3	0 - 15
lithium	7439-93-2	0 - 10
Zinc	7440-66-6	0 - 10
tetraaluminium tricarbide	1299-86-1	<5
magnesium oxide	1309-48-4	<5
copper	7440-50-8	0 - 5
magnesium	7439-95-4	0 - 5
Iron	7439-89-6	0 - 2
manganese	7439-96-5	0 - 2
nickel	7440-02-0	0 - 2
tin	7440-31-5	0 - 2
lithium chloride	7447-41-8	<1
chromium	7440-47-3	0 - 0.5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if irritation occurs.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if symptoms occur.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. In case of inhalation of decomposition products in a fire, symptoms may be delayed.

Ingestion : Wash out mouth with water. Get medical attention if adverse health effects persist or are severe.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. See Section 8 for information on appropriate personal protective equipment.

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

Flammability of the product : Contact with water liberates toxic, extremely flammable gas. Runoff to sewer may create fire or explosion hazard.

Extinguishing media

Suitable : Use dry chemical powder. Use approved Class D extinguisher or smother with dry sand, dry clay or dry ground limestone. Cover with dry earth, sand or other non-combustible material.

Not suitable : Do not use water. Violent reaction may occur. Products: Ammonia., H_2 and CH_4

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
Ammonia.
Hydrogen
Methane
metal oxide/oxides
hydrochloric acid vapor

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus during long or intense exposure or when spray processing.

Special remarks on explosion hazards : Molten aluminium may explode on contact with water or moisture, and may react violently with rust, certain metal oxides and nitrates.

6. Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Keep away from water. Do not breathe dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Recycle, if possible. Avoid allowing the spilled material to get wet or using water to clean up spillages or residues, unless the quantity remaining is very small. Use spark-proof tools and explosion-proof equipment. Waste must be disposed of according to applicable regulations.

Large spill : Recycle, if possible. Avoid allowing the spilled material to get wet or using water to clean up spillages or residues, unless the quantity remaining is very small. Use spark-proof tools and explosion-proof equipment. Waste must be disposed of according to applicable regulations. Avoid creating dusty conditions and prevent wind dispersal.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Avoid creating dusty conditions and prevent wind dispersal. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not breathe dust. Avoid release to the environment. Use only with adequate ventilation. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use only non-sparking tools. Protect from moisture. Keep away from acids.

Storage : Store in accordance with local regulations. Keep away from water. Eliminate all ignition sources if safe to do so. Avoid creating dusty conditions and prevent wind dispersal. Product ready for remelting must be kept dry.
Contains moisture-sensitive material. Store in a dry place.

8. Exposure controls/personal protection

Ingredient	Exposure limits
aluminium	**OSHA PEL (United States, 11/2006).** TWA: 5 mg/m³, (as Al) 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³, (as Al) 8 hour(s). Form: Total dust **ACGIH TLV (United States, 2/2010).** TWA: 1 mg/m³ 8 hour(s). Form: Respirable fraction; see Appendix C
aluminium oxide	**OSHA PEL (United States, 6/2010).** TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³ 8 hour(s). Form: Total dust **ACGIH TLV (United States, 2011).** TWA: 1 mg/m³, (Respirable fraction)
silicon carbide	**ACGIH TLV (United States, 2/2010).** TWA: 0.1 f/cc 8 hour(s). Form: Fibrous TWA: 10 mg/m³ 8 hour(s). Form: Inhalable fraction.

8. Exposure controls/personal protection

	TWA: 3 mg/m³ 8 hour(s). Form: Respirable fraction **OSHA PEL (United States, 6/2010).** TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³ 8 hour(s). Form: Total dust
silicon	**OSHA PEL (United States, 11/2006).** TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³ 8 hour(s). Form: Total dust
magnesium oxide	**ACGIH TLV (United States, 2/2010).** TWA: 10 mg/m³ 8 hour(s). Form: Inhalable fraction. **OSHA PEL (United States, 6/2010).** TWA: 15 mg/m³ 8 hour(s). Form: Total particulates
copper	**ACGIH TLV (United States, 2/2010).** TWA: 1 mg/m³, (as Cu) 8 hour(s). TWA: 0.2 mg/m³ 8 hour(s). Form: Fume **OSHA PEL (United States, 6/2010).** TWA: 1 mg/m³ 8 hour(s). Form: Dusts and mists TWA: 0.1 mg/m³ 8 hour(s). Form: Fume
manganese	**ACGIH TLV (United States, 2/2010).** TWA: 0.2 mg/m³, (as Mn) 8 hour(s). **OSHA PEL (United States, 6/2010).** CEIL: 5 mg/m³, (as Mn) Form: Fume
tin	**ACGIH TLV (United States, 2/2010).** TWA: 2 mg/m³ 8 hour(s).

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Engineering controls may be required to control the primary or secondary risks associated with this product. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Recommended: If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators.

Hands : Wear suitable gloves.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If operating conditions cause high dust concentrations to be produced, use dust goggles. Recommended: face shield

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Recommended: For handling molten metal: Clothing must be resistant to drops of molten metal and radiant heat.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

8. Exposure controls/personal protection

Other protection : For handling molten metal: Approved safety helmet with neck protection.
For handling molten metal: Safety boots or shoes with spats.

Personal protective equipment (Pictograms) :

9. Physical and chemical properties

Physical state	: Solid. [Powder.]
Flash point	: Not applicable.
Burning time	: Not applicable.
Burning rate	: The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits.
Auto-ignition temperature	: Not applicable.
Flammable limits	: Not available.
Color	: Gray.
Odor	: Ammonia.
pH	: Not applicable.
Boiling/condensation point	: Not applicable.
Melting/freezing point	: Not available.
Relative density	: 2.2 to 3 [Water = 1]
Bulk Density	: Not available.
Granulometry	: Not available.
Vapor pressure	: Not applicable.
Vapor density	: Not applicable.
Odor threshold	: 0.04 to 53 ppm (Ammonia.)
Evaporation rate	: Not applicable.
Viscosity	: Not applicable.
Solubility	: Partially soluble in the following materials: cold water and hot water.
Physical/chemical properties comments	: Not available.

10. Stability and reactivity

Chemical stability : The product may not be stable under certain conditions of storage or use. See "Possibility of Hazardous Reactions" for further information.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Molten metal may cause explosive spattering in contact with water.

Avoid all possible sources of ignition (spark or flame). Molten metal may cause explosive spattering in contact with water.

Incompatible materials : Reactive or incompatible with the following materials: acids and alkalis.
water
In the form of particles, may explode when mixed with halogenated acids, halogenated solvents, bromates, iodates or ammonium nitrate. Aluminum particles on contact with copper, lead, or iron oxides can react vigorously with release of heat if there is a source of ignition or intense heat.

10. Stability and reactivity

Hazardous decomposition products : Contact with water liberates toxic, extremely flammable gas.

Possibility of hazardous reactions : Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions may include the following:
contact with water
Reactions may include the following:
liberation of toxic gas
liberation of flammable gas Fine dust presents an explosion hazard if dispersed in air at high concentrations.

11. Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
aluminium	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>2350 mg/l	4 hours
silicon	LD50 Oral	Rat	3160 mg/kg	-
Iron	LD50 Oral	Rat	7500 mg/kg	-
	LCLo Inhalation Dusts and mists	Rat	250 mg/m³	6 hours
manganese	LD50 Oral	Rat	9 g/kg	-
lithium chloride	LD50 Dermal	Rabbit	1629 mg/kg	-
	LD50 Oral	Rat	1530 mg/kg	-

Conclusion/Summary : Not applicable

Chronic toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Iron	Sub-chronic LOAEL Oral	Rat	26 mg/kg	12 weeks
	Sub-chronic NOAEL Inhalation Dusts and mists	Rat	5 mg/m³	4 weeks

Conclusion/Summary : Repeated or prolonged exposure to the substance can produce lung damage.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
lithium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Skin - Severe irritant	Rabbit	-	24 hours 500 milligrams	-

Conclusion/Summary

Skin : May cause skin irritation.

Eyes : Irritating to eyes.

Respiratory : May cause respiratory irritation.

Sensitizer

Conclusion/Summary

Skin : May cause sensitization by skin contact.

Carcinogenicity

Conclusion/Summary : Contains material which may cause cancer.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA

11. Toxicological information

aluminium	A4	-	-	-	-	-
silicon carbide	A2	-	-	-	-	-
magnesium oxide	A4	-	-	-	-	-
nickel	A5	2B	-	+	Possible	-

Mutagenicity

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : No teratogenic effect.

Reproductive toxicity

Conclusion/Summary : No known significant effects or critical hazards.

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

Toxicity

Product/ingredient name	Test	Result	Species	Exposure
aluminium	OECD	EC50 >100 mg/l	Fish - Salmo trutta	96 hours
-	OECD	EC50 >100 mg/l	Daphnia - Daphnia magna	48 hours
-	OECD	EC50 >100 mg/l	Algae - Selenastrum capricornutum	72 hours
aluminium oxide	OECD 203 Fish, Acute Toxicity Test	EC50 >100 mg/l	Fish - Salmo trutta	96 hours
-	OECD 202 *Daphnia* sp. Acute Immobilization Test and Reproduction Test	EC50 >100 mg/l	Daphnia - Daphnia magna	48 hours
-	OECD 201 Alga, Growth Inhibition Test	EC50 >100 mg/l	Algae - Selenastrum capricornutum	72 hours
manganese	-	Acute EC50 40000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
Growth	-	Acute EC50 31000 ug/L Fresh water	Aquatic plants - Duckweed - Lemna minor	4 days
Intoxication	-	Chronic NOEC 28000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours

Conclusion/Summary : May cause long-term adverse effects in the aquatic environment.

Persistence/degradability

Conclusion/Summary : Not applicable.

Mobility : Not mobile under normal environmental conditions. May be leached from the ground at low pH (<5.5) or high pH (>8.5)

13. Disposal considerations

Waste disposal : Recycle, if possible. The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN3170	ALUMINUM REMELTING BY-PRODUCTS	4.3	III		-
TDG Classification	UN3170	ALUMINIUM DROSS	4.3	III		**Special provisions** Rail transport is possible only via special permit #SP4406 - Dross in vented box car.
Mexico Classification	UN3170	ALUMINUM REMELTING BY-PRODUCTS	4.3	III		-
ADR/RID Class	UN3170	ALUMINUM REMELTING BY-PRODUCTS	4.3	III		-
IMDG Class	UN3170	ALUMINUM REMELTING BY-PRODUCTS	4.3	III		-
IATA-DGR Class	UN3170	ALUMINUM REMELTING BY-PRODUCTS	4.3	III		-

PG* : Packing group

15. Regulatory information

HCS Classification : Water-reactive material

U.S. Federal regulations : **TSCA 8(a) IUR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: aluminium: Fire hazard, reactive

Clean Water Act (CWA) 307: Zinc; copper; nickel; chromium

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

15. Regulatory information

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

State regulations

Massachusetts : The following components are listed: ALUMINUM; ALUMINUM OXIDE; SILICON CARBIDE; SILICON DUST; LITHIUM; ZINC; MAGNESIUM OXIDE FUME; COPPER; MAGNESIUM; MANGANESE; NICKEL; TIN

New York : The following components are listed: Zinc; Copper; Nickel

New Jersey : The following components are listed: ALUMINUM; ALUMINUM OXIDE; alpha-ALUMINA; SILICON CARBIDE; SILICON; LITHIUM; ZINC; ALUMINUM CARBIDE; MAGNESIUM OXIDE; COPPER; MAGNESIUM; MANGANESE; NICKEL; TIN

Pennsylvania : The following components are listed: ALUMINUM; ALUMINUM OXIDE (AL2O3); SILICON CARBIDE (SIC); SILICON; LITHIUM; ZINC; MAGNESIUM OXIDE (MGO); COPPER FUME; MAGNESIUM; MANGANESE; NICKEL; TIN

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
nickel	Yes.	No.	No.	No.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

Canadian NPRI : The following components are listed: Aluminum; Aluminum oxide; Zinc; Copper; Manganese; Nickel

Canada inventory : All components are listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: Not determined.
China inventory (IECSC): Not determined.
Japan inventory: Not determined.
Korea inventory: Not determined.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Philippines inventory (PICCS): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

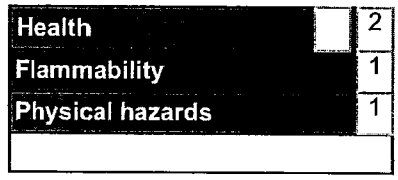
Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

16. Other information

Label requirements : SUBSTANCES DANGEROUS WHEN WET. REACTS WITH WATER TO RELEASE FLAMMABLE GAS. REACTS WITH WATER TO RELEASE TOXIC GAS.

Hazardous Material Information System (U.S.A.) :



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Date of printing : **10/25/2012.**

Date of issue : 10/25/2012.

Date of previous issue : No previous validation.

Version : 1

Prepared by : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Appendix F. Status of consultation with NZTA

JACOBS

File Note

Level 3, 86 Customhouse Quay,
PO Box 10-283
Wellington, New Zealand
T +64 4 473 4265
F +64 4 473 3369
www.jacobs.com

Date 20 May 2015

From Tess Drewitt

Subject **Summary of communications with NZTA**

1. Purpose

This file note provides an update on consultation with NZTA to date regarding Taha Fertilizer Industries Limited's (Taha) resource consent application to store hazardous substances at its storage facility in Mataura.

2. Pre-application

The Gore District Council (Council) requires resource consent applicants to consult with NZTA regarding resource consent applications to conduct activities that may affect State Highways.

Jacobs New Zealand Limited (Jacobs) consulted with NZTA in September 2014 prior to submitting the original application, which included the fertiliser manufacturing plant. NZTA provided written approval on 3 October 2014. This approval is attached in Appendix A.

3. Section 95 decision

Subsequently to submitting the resource consent application, we were advised, through the Council's section 95 report, that NZTA had withdrawn their written approval. We did not receive notice directly from NZTA that their approval had been withdrawn or NZTA's reasons for withdrawal.

4. Pre-hearing

After the section 95 decision was made, Taha made the decision to no longer pursue the fertiliser manufacturing facility on site. As such, the resource consent application was updated to narrow the scope of activities just to storage.

During the notification period, on 26 March 2915, James Coutts of NZTA emailed the Council to advise that NZTA would be withdrawing their written approval for the resource consent application. The Council subsequently forwarded this email to me, in which Mr Coutts stated:

> *We need to be certain about the on-site loading and traffic management, and although this is mentioned in the body of the application, it says refer to Appendix B – but it seems there is a plan missing from this appendix and the loading/unloading arrangements are not clear.*

On receiving this email, I phoned Mr Coutts to discuss NZTA's concerns with the proposal. Mr Coutts expressed NZTA's main concerns were:

(1) Where the trucks will be accessing the site and confirmation that site access will be onsite; and

(2) Confirmation as to whether there will be cross-road movements and, if so, that there will be a traffic management plan in place.

I advised I would seek the necessary confirmation from Taha.

On 7 May 2015, I emailed Mr Coutts to confirm that Taha had advised all access will be onsite and that there will be no cross-road movements. I also provided a marked-up site layout plan indicating where the loading/unloading areas are on site. My email to Mr Coutts is attached in Appendix B.

I received no further feedback from NZTA on the matter.

I note that NZTA did not make a submission on the resource consent or appear at the hearing as an affected party.

JACOBS

File Note

Summary of communications with NZTA
Tess Drewitt

Appendix A

NZ TRANSPORT AGENCY
WAKA KOTAHI

Level 2, AA Centre
450 Moray Place
PO Box 5245
Moray Place
Dunedin 9058
New Zealand
T 64 3 951 3009
F 64 3 951 3013
www.nzta.govt.nz

03 October 2014

Jacobs New Zealand Limited
PO Box 10-283
WELLINGTON 6143

Attention: Tess Drewitt

Dear Tess

Taha Fertliser Industries Limited – Fertiliser Processing Plant - SH 93 - Mataura

Thank you for forwarding details of the above-mentioned land use proposal for our consideration and comment. We understand the applicant proposes to operate a fertiliser processing plant at 109 and 116-130 Kana Street, Mataura.

We are satisfied that the proposed activity is unlikely to have an adverse effect on the safety and functionality of the State highway adjacent to the subject site. Accordingly, please find enclosed the NZ Transport Agency's written approval to your proposed activity for your information and further action.

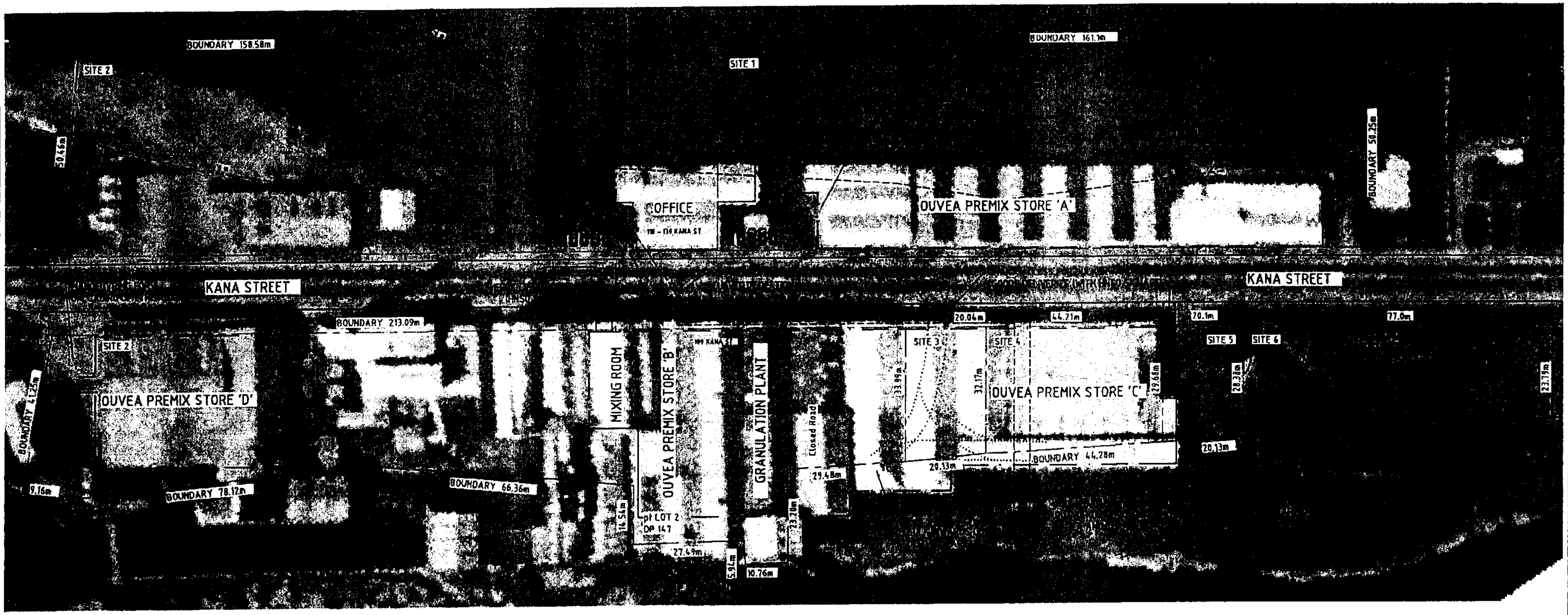
Please do not hesitate to contact me if you have any queries regarding the above information.

Yours sincerely

Tony MacColl
Senior Planning Advisor

cc SNM - Southland
Opus International Consultants, PO Box 647, Invercargill

File Ref: RM/14/71/93/214063



SITE PLAN

SCALE 1:500 (A1)

SITE DETAILS

SITE 1 AREA – 8894 m2
LEGAL DESCRIPTION SECTION 5 BLOCK XVI TOWN OF MATAURA BRIDGE (CT SL41/253)

SITE 2 AREA – 16837 m2
LEGAL DESCRIPTION SECTION 4 BLOCK XVI, TOWN OF MATAURA BRIDGE
CLOSED RD BLOCK I, TOWN OF MATAURA BRIDGE
PART SECTION 11 BLOCK I TOWN OF MATAURA BRIDGE
LOT 1 & PART LOT 2, DP 147
(CT SL81/35)

SITE 3 AREA – 663 m2
LEGAL DESCRIPTION PART SECTION 11 BLOCK I TOWN OF MATAURA BRIDGE (CT SL48/22)

SITE 4 AREA – 1366 m2
LEGAL DESCRIPTION SECTION 10 & PART SECTION 11 BLOCK I TOWN OF MATAURA BRIDGE (CT SL41/253)

SITE 5 AREA – 582 m2
LEGAL DESCRIPTION SECTION 12 BLOCK I TOWN OF MATAURA BRIDGE (CT SL238/98)

SITE 6 AREA – 2008 m2
LEGAL DESCRIPTION SECTION 7 & 8 BLOCK I TOWN OF MATAURA BRIDGE (CT SL7/126)

APPLICANT TAHA ASIA PACIFIC INDUSTRIES LTD
ADDRESS 109 & 116-130 KANA STREET, MATAURA

Approved
Tony MacColl
Senior Planning Advisor
Southern Region - Dunedin
NZ Transport Agency
3.10.14

KEY:
SITE BOUNDARY
BUILDING PERIMETER

NOTE : BOUNDARY DIMENSIONS APPROXIMATE ONLY

APPROVAL ISSUE

REV	DATE	DRAWN	REVD	APPD	REVISION
B	23-09-14	DCC	TD	NC	APPROVAL ISSUE
A	18-06-14	DCC	TD		CLIENT REVIEW ISSUE

JACOBS

TAHA ASIA PACIFIC LIMITED
LAND USE CONSENTS FOR THE STORAGE OF HAZARDOUS SUBSTANCES

DCC | TD | NC | NC
TD | NC | 23.09.2014 | 23.09.2014

MATAURA
KANA STREET SITE PLAN

1:500 | AE04729-NEP-DG-0002 | B

GORE DISTRICT COUNCIL

AFFECTED PERSON(S) CONSENT FORM

To: **Resource Consents Section**
Gore District Council
P O Box 8
GORE

Tony MacColl
Senior Planning Advisor
Southern Region - Dunedin
NZ Transport Agency

I/We _____

(full names)

being the
- owner
- occupier
- owner and occupier

of the property situated at State Highway 93 (SH93)

(address and/or legal description of your property)

have read and understand the information on the reverse side of this page and consent to the proposal by:

Taha Fertiliser Industries Limited
(name of applicant(s))

to: Operate a fertiliser processing plant

(description of proposed activity)

on the following property: 109 and 116-130 Kana Street (SH93) Mataura
(address of application site)

as outlined in the application submitted and on the associated plans signed by me/us.

Signed: _____

Date: 3-10-14 **Telephone:** 03 951 3009

If you have any queries regarding the Resource Consent process and the role and rights of adversely affected person(s), please contact:

Resource Consents Section
Gore District Council
P O Box 8
Gore

Telephone: (03) 208 9080
Facsimile: (03) 208 8875

before you complete and sign this form and the associated plans.

JACOBS

File Note

Summary of communications with NZTA
Tess Drewitt

Appendix B

Drewitt, Tess

From: Howard Alchin <HAlchin@goredc.govt.nz>
Sent: Friday, 27 March 2015 9:17 AM
To: Drewitt, Tess
Cc: Rosie Given; James.Coutts@nzta.govt.nz
Subject: FW: Taha Fertiliser Industries

Hi Tess,
Please see the email below from NZTA. This may be something you will wish to follow up. On the basis of storage alone – you may consider NZTA to be not affected. I would be interested in your comments.

Kind regards

Howard W Alchin | Senior Planner
T: 03 2090330 | **DDI**: 03 209 0387 | **M**: 027 616 2824| **E**: HAlchin@goredc.govt.nz | **W**: goredc.govt.nz
Gore District Council, 29 Civic Avenue,PO Box 8, Gore, 9740.

GO RURAL
DISTRICT COUNCIL CITY
RE LIVING

From: James Coutts [mailto:James.Coutts@nzta.govt.nz]
Sent: Thursday, 26 March 2015 4:20 p.m.
To: Howard Alchin
Subject: Taha Fertiliser Industries

Hi Howard

We'd like to withdraw our written approval for this application. We need to be certain about the on-site loading and traffic management, and although this is mentioned in the body of the application, it says refer to Appendix B – but it seems there is a plan missing from this appendix and the loading/unloading arrangements are not clear.

A submission will follow sometime before the closing date of April 14.

Regards,

James Coutts / Planning Advisor
Planning and Investment

DDI 64 3 955 2930
E james.coutts@nzta.govt.nz / **W** nzta.govt.nz
Dunedin Office / Level 2 AA Centre, 450 Moray Place, Dunedin
PO Box 5245, Moray Place, Dunedin 9058, New Zealand

NZ TRANSPORT AGENCY
WAKA KOTAHI

Please consider the environment before printing this email

Find the latest transport news, information, and advice on our website:
www.nzta.govt.nz

JACOBS

File Note

Summary of communications with NZTA
Tess Drewitt

Appendix C

Drewitt, Tess

From: Drewitt, Tess
Sent: Thursday, 7 May 2015 4:54 PM
To: 'James Coutts'
Subject: RE: Taha resource consent application
Attachments: Mataura loadingunloading.pdf

Hi James

In addition, please find attached a marked up site layout plan showing access points.

Hopefully this provides the clarification you were after

Kind regards

Tess

From: Drewitt, Tess
Sent: Thursday, 7 May 2015 4:39 PM
To: 'James Coutts'
Subject: RE: Taha resource consent application

Hi James

I am just seeking clarification on one more point from Taha. In the mean time I can advise the following:

Nathan Burgess, a Site Manager for Taha, spoke with the manager at TNL freight, the company that previously did the loading and unloading for Taha at the site, to confirm site access arrangements. The TNL freight manager assured that trucks can remain off the road when loading/unloading at the site, and that this is the practice that was used for the unloading. In particular, trucks load in the following on-site areas:

- The turning bay to the south of the main riverside building (marked "C" on the attached plan);
- The turning bay to the north of the smaller riverside building (marked "D"); and
- Another off-site area outside the eastern buildings (marked "A") [note: exactly where this area is is what I am seeking clarification on]

I should note also that only one side of the truck needs to be accessed as the forklift used for loading and unloading has extended forks. As such, there is no need for the forklift to access the road in either of the above circumstances.

If considered necessary, Taha can also obtain a traffic management plan. However, this may not be required given the ability for trucks to load and unload onsite and there will be no cross-road movements.

I trust this is enough information for now. I will update you on access to store A as soon as I receive this information.

Kind regards

Tess

Tess Drewitt | Jacobs | Environmental Consultant | ANZ Infrastructure & Environment | +64 4 914 8414 | Tess.Drewitt@jacobs.com | www.Jacobs.com

From: James Coutts [mailto:James.Coutts@nzta.govt.nz]
Sent: Thursday, 7 May 2015 4:32 PM
To: Drewitt, Tess
Subject: RE: Taha resource consent application

Hi Tess

Can you get back to us as soon as possible on this please. We have to make a decision about attending the hearing or not, and the associated preparation work.

Thanks

James Coutts / Planning Advisor

Planning and Investment

DDI 64 3 955 2930

E james.coutts@nzta.govt.nz / **W** nzta.govt.nz

NZ TRANSPORT AGENCY
WAKA KOTAHI

Please consider the environment before printing this email

From: Drewitt, Tess [mailto:Tess.Drewitt@jacobs.com]
Sent: Tuesday, 5 May 2015 9:19 a.m.
To: James Coutts
Subject: Taha resource consent application

Hi James

Apologies for not getting back to you earlier.

As I recall, you asked us for information on:

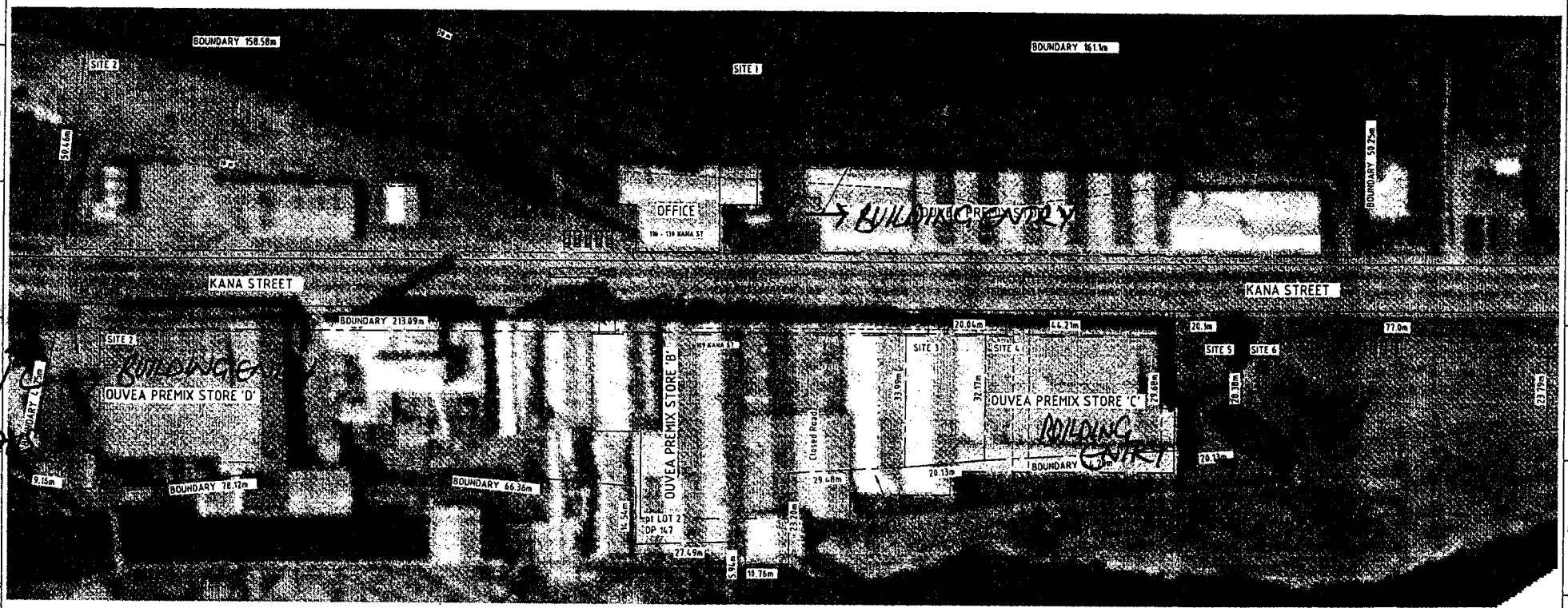
(1) Where trucks will be accessing the site, with confirmation that access will be onsite; and
(2) Confirmation as to whether there will be cross-road movements (and if cross-road movements are required that there will be a Traffic Management Plan in place).

I am just getting confirmation from Taha on the points above, and hope to respond later today.

Kind regards

Tess

Tess Drewitt | Jacobs | Environmental Consultant | ANZ Infrastructure & Environment | +64 4 914 8414 | Tess.Drewitt@jacobs.com | www.Jacobs.com



LOAD/UNLOAD FROM THIS SIDE

SITE PLAN
SCALE 1:500 [A1]

SITE DETAILS

SITE 1 AREA - 8894 m2
LEGAL DESCRIPTION SECTION 5 BLOCK XVI TOWN OF MATAURA BRIDGE (CT SL47/253)

SITE 2 AREA - 16837 m2
LEGAL DESCRIPTION SECTION 4 BLOCK XVI ,TOWN OF MATAURA BRIDGE
CLOSED RD BLOCK I , TOWN OF MATAURA BRIDGE
PART SECTION 11 BLOCK I TOWN OF MATAURA BRIDGE
LOT 1 & PART LOT 2, DP 147
(CT SL81/35)

SITE 3 AREA - 663 m2
LEGAL DESCRIPTION PART SECTION 11 BLOCK I TOWN OF MATAURA BRIDGE (CT SL48/22)

SITE 4 AREA - 1366 m2
LEGAL DESCRIPTION SECTION 10 & PART SECTION 11 BLOCK I TOWN OF MATAURA BRIDGE (CT SL41/253)

SITE 5 AREA - 582 m2
LEGAL DESCRIPTION SECTION 12 BLOCK I TOWN OF MATAURA BRIDGE (CT SL238/98)

SITE 6 AREA - 2008 m2
LEGAL DESCRIPTION SECTION 7 & 8 BLOCK I TOWN OF MATAURA BRIDGE (CT SL7/126)

APPLICANT TAHA ASIA PACIFIC INDUSTRIES LTD
ADDRESS 109 & 116-130 KANA STREET, MATAURA

KEY:
SITE BOUNDARY
BUILDING PERIMETER

NOTE - BOUNDARY DIMENSIONS APPROXIMATE ONLY

APPROVAL ISSUE

REV	DATE	DRAWN	REVD	APPD	REVISION
C	09-03-15	DCC	TD	MC	SITE LAYOUT PLAN SHOWING HAZARDOUS STORAGE ONLY
B	23-09-14	DCC	TD	MC	APPROVAL ISSUE
A	16-09-14	DCC	TD		CLIENT REVIEW ISSUE

JACOBS
Level 5
50 Customhouse Quay
WELLINGTON 6011
NEW ZEALAND
Tel +64 4 473 4265
Fax +64 4 473 3369
Web www.jacobs.com

CLIENT TAHA ASIA PACIFIC LIMITED
PROJECT LAND USE CONSENTS
FOR THE STORAGE OF HAZARDOUS SUBSTANCES

DRAWN	DRAWING CHECK	REVIEWED	APPROVED
DCC	TD	NC	NC
DESIGNED	DESIGN REVIEW		
TD	MC	09-03-2015	DATE 23-09-2014

TITLE
MATAURA
KANA STREET SITE PLAN

SCALE	DRAWING No	REV
1:500	AE04729-NEP-DG-0002	C

Appendix G. Community Liaison Group

Memorandum

To: Tess Drewitt, Environmental Consultant, Jacobs

CC: Maurice Shaw, Lindsay Buckingham, Michael Oldenhof, John Witter, Frank Pollmann, Robert Makgill

From: Nathan Burgess, Plant Manager, Taha Fertiliser Industries Limited

Date: 28/05/2015

Re: Mataura Liaison Group

TAHA / G.D.C MATAURA LIAISON GROUP

At the resource consent hearing, the Commissioners suggested that Taha instigate a Community Liaison Group, in conjunction with the Gore District Council that can relay information to the wider Mataura community regarding the happenings within the company and the storage facility.

The Community Liaison Group will give the public the opportunity to air their concerns and have them addressed through a community representative who is in direct contact with both Taha and Council representatives.

It has been proposed that this committee should consist of:

- Alan Taylor – Chair Mataura Community Board
- Howard Alchin – Gore District Council
- Lindsay Buckingham – Latitude 46 Consultancy (Taha representative)
- Robert Makgill (Legal Counsel for Taha)

I have discussed this matter with Howard, Alan Taylor and Lindsay Buckingham, who have agreed to form a Community Liaison Group. Due to prior commitments next week, the inaugural meeting will be held on Thursday 11 June 2015. Maurice Shaw and myself from Taha will also attend the meeting,

At the meeting, we will discuss a communication plan for communicating both with the community and the Commissioners on any developments or queries. The communications plan will be formalised and made available at a later date.

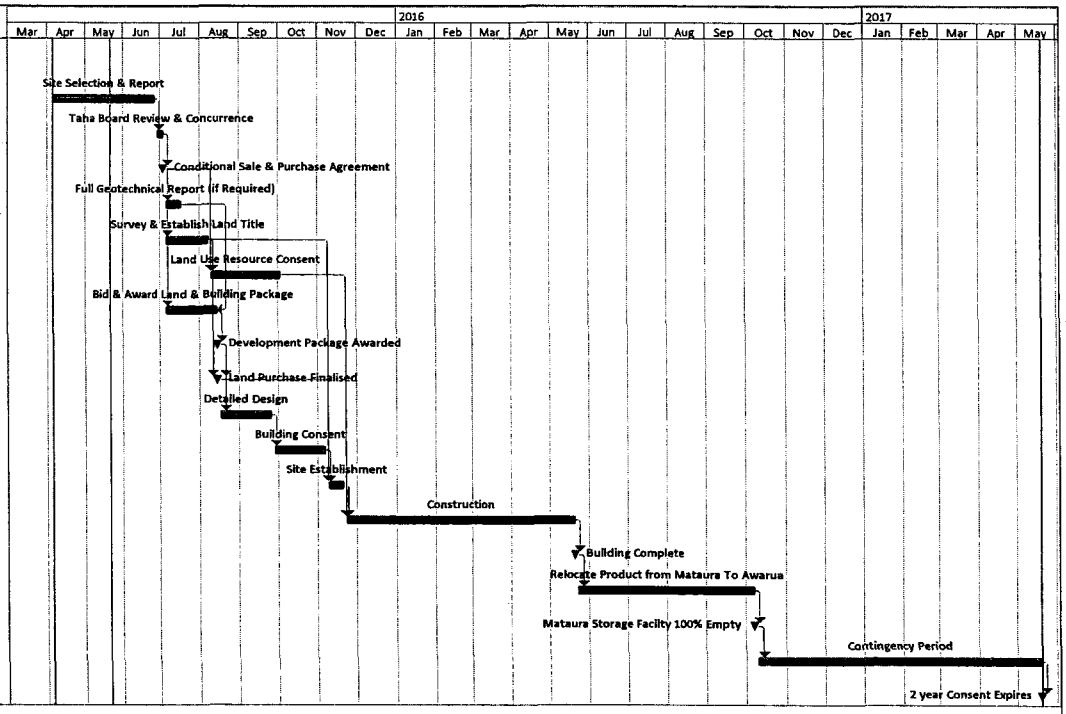
As Mr Makgill is based in Auckland, it is not considered practical for him to be routinely involved in the Community Liaison Group meetings. However, we will communicate the outcomes of the meeting to him and seek advice where required.

JACOBS

29 May 2015
Mataura Resource Consent Hearing

Appendix H. Project Management diagram

ID	Task Name	Duration
1	**STAGE 1: STORAGE FACILITY**	**555 days**
2	Site Selection & Report	12 wks
3	Taha Board Review & Concurrence	1 wk
4	Conditional Sale & Purchase Agreement	0 days
5	Full Geotechnical Report (if Required)	2 wks
6	Survey & Establish Land Title	5 wks
7	Land Use Resource Consent	8 wks
8	Bid & Award Land & Building Package	6 wks
9	Development Package Awarded	0 days
10	Land Purchase Finalised	0 days
11	Detailed Design	6 wks
12	Building Consent	6 wks
13	Site Establishment	2 wks
14	Construction	26 wks
15	Building Complete	0 days
16	Relocate Product from Mataura To Awarua	20 wks
17	Mataura Storage Facilty 100% Empty	0 days
18	Contingency Period	32 wks
19	2 year Consent Expires	0 days



Taha Corporation
Integrated Storage & Manufacturing Facility - Awarua Industrial Park, Invercargill
Master Schedule - 22 May 2015

Annex B. Safety Data Sheet – Aluminium Dross

Material Safety Data Sheet

Rio Tinto Alcan

United States/NA

1. Product and company identification

Product name	: ALUMINUM DROSS - (MMC)
Synonym	: Dross (remelt aluminium).
Material uses	: Other non-specified industry: Process by-product to be recycled.
Supplier/Manufacturer	: Rio Tinto Alcan Dubuc plant 2040, Ch. de la Réserve Saguenay, Québec, Canada G7H 5B3 Tel: 1-418-699-6305
Code	: 157
In case of emergency	: +1 215 207 0061 (Rio Tinto Alcan) For advice on chemical emergencies, spillages, fires or first aid.
e-mail address of person responsible for this SDS	: rta.msds@riotinto.com
Product type	: solid (Powder.)

2. Hazards identification

Emergency overview

Physical state	: Solid. [Powder.]
Color	: Gray.
Signal word	: DANGER!
Hazard statements	: SUBSTANCES DANGEROUS WHEN WET. REACTS WITH WATER TO RELEASE FLAMMABLE GAS. REACTS WITH WATER TO RELEASE TOXIC GAS.
Precautionary measures	: Use only with adequate ventilation. Keep away from heat, sparks and flame. Keep away from water or moist air. Keep container tightly closed.
OSHA/HCS status	: Hazard communication Standard (HCS) does not apply to Waste material
Routes of entry	: Dermal contact. Inhalation.

Potential acute health effects

Inhalation	: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	: Release toxic substances when wet.
Skin	: May cause skin irritation. May cause skin sensitization.
Eyes	: May cause eye irritation.

Potential chronic health effects

Chronic effects	: Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
Carcinogenicity	: Contains material which may cause cancer.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.

2. Hazards identification

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Target organs : Contains material which may cause damage to the following organs: lungs, upper respiratory tract, skin, eyes, nose/sinuses.

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
wheezing and breathing difficulties

Skin : Adverse symptoms may include the following:
irritation
redness

Eyes : Adverse symptoms may include the following:
irritation
watering
redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

Name	CAS number	%
aluminium	7429-90-5	10 - 90
aluminium oxide	1344-28-1	10 - 50
silicon carbide	409-21-2	1 - 30
aluminium nitride	24304-00-5	2 - 10
silicon	7440-21-3	0 - 15
lithium	7439-93-2	0 - 10
Zinc	7440-66-6	0 - 10
tetraaluminium tricarbide	1299-86-1	<5
magnesium oxide	1309-48-4	<5
copper	7440-50-8	0 - 5
magnesium	7439-95-4	0 - 5
Iron	7439-89-6	0 - 2
manganese	7439-96-5	0 - 2
nickel	7440-02-0	0 - 2
tin	7440-31-5	0 - 2
lithium chloride	7447-41-8	<1
chromium	7440-47-3	0 - 0.5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if irritation occurs.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if symptoms occur.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. In case of inhalation of decomposition products in a fire, symptoms may be delayed.

Ingestion : Wash out mouth with water. Get medical attention if adverse health effects persist or are severe.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. See Section 8 for information on appropriate personal protective equipment.

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

Flammability of the product : Contact with water liberates toxic, extremely flammable gas. Runoff to sewer may create fire or explosion hazard.

Extinguishing media

Suitable : Use dry chemical powder. Use approved Class D extinguisher or smother with dry sand, dry clay or dry ground limestone. Cover with dry earth, sand or other non-combustible material.

Not suitable : Do not use water. Violent reaction may occur. Products: Ammonia., H_2 and CH_4

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
Ammonia.
Hydrogen
Methane
metal oxide/oxides
hydrochloric acid vapor

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus during long or intense exposure or when spray processing.

Special remarks on explosion hazards : Molten aluminium may explode on contact with water or moisture, and may react violently with rust, certain metal oxides and nitrates.

6. Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Keep away from water. Do not breathe dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Recycle, if possible. Avoid allowing the spilled material to get wet or using water to clean up spillages or residues, unless the quantity remaining is very small. Use spark-proof tools and explosion-proof equipment. Waste must be disposed of according to applicable regulations.

Large spill : Recycle, if possible. Avoid allowing the spilled material to get wet or using water to clean up spillages or residues, unless the quantity remaining is very small. Use spark-proof tools and explosion-proof equipment. Waste must be disposed of according to applicable regulations. Avoid creating dusty conditions and prevent wind dispersal.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Avoid creating dusty conditions and prevent wind dispersal. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not breathe dust. Avoid release to the environment. Use only with adequate ventilation. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use only non-sparking tools. Protect from moisture. Keep away from acids.

Storage : Store in accordance with local regulations. Keep away from water. Eliminate all ignition sources if safe to do so. Avoid creating dusty conditions and prevent wind dispersal. Product ready for remelting must be kept dry.
Contains moisture-sensitive material. Store in a dry place.

8. Exposure controls/personal protection

Ingredient	Exposure limits
aluminium	**OSHA PEL (United States, 11/2006).** TWA: 5 mg/m³, (as Al) 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³, (as Al) 8 hour(s). Form: Total dust **ACGIH TLV (United States, 2/2010).** TWA: 1 mg/m³ 8 hour(s). Form: Respirable fraction; see Appendix C
aluminium oxide	**OSHA PEL (United States, 6/2010).** TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³ 8 hour(s). Form: Total dust **ACGIH TLV (United States, 2011).** TWA: 1 mg/m³, (Respirable fraction)
silicon carbide	**ACGIH TLV (United States, 2/2010).** TWA: 0.1 f/cc 8 hour(s). Form: Fibrous TWA: 10 mg/m³ 8 hour(s). Form: Inhalable fraction.

8. Exposure controls/personal protection

	TWA: 3 mg/m³ 8 hour(s). Form: Respirable fraction **OSHA PEL (United States, 6/2010).** TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³ 8 hour(s). Form: Total dust
silicon	**OSHA PEL (United States, 11/2006).** TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³ 8 hour(s). Form: Total dust
magnesium oxide	**ACGIH TLV (United States, 2/2010).** TWA: 10 mg/m³ 8 hour(s). Form: Inhalable fraction. **OSHA PEL (United States, 6/2010).** TWA: 15 mg/m³ 8 hour(s). Form: Total particulates
copper	**ACGIH TLV (United States, 2/2010).** TWA: 1 mg/m³, (as Cu) 8 hour(s). TWA: 0.2 mg/m³ 8 hour(s). Form: Fume **OSHA PEL (United States, 6/2010).** TWA: 1 mg/m³ 8 hour(s). Form: Dusts and mists TWA: 0.1 mg/m³ 8 hour(s). Form: Fume
manganese	**ACGIH TLV (United States, 2/2010).** TWA: 0.2 mg/m³, (as Mn) 8 hour(s). **OSHA PEL (United States, 6/2010).** CEIL: 5 mg/m³, (as Mn) Form: Fume
tin	**ACGIH TLV (United States, 2/2010).** TWA: 2 mg/m³ 8 hour(s).

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Engineering controls may be required to control the primary or secondary risks associated with this product. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Recommended: If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators.

Hands : Wear suitable gloves.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If operating conditions cause high dust concentrations to be produced, use dust goggles. Recommended: face shield

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Recommended: For handling molten metal: Clothing must be resistant to drops of molten metal and radiant heat.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

8. Exposure controls/personal protection

Other protection : For handling molten metal: Approved safety helmet with neck protection.
For handling molten metal: Safety boots or shoes with spats.

Personal protective equipment (Pictograms) :

9. Physical and chemical properties

Physical state	: Solid. [Powder.]
Flash point	: Not applicable.
Burning time	: Not applicable.
Burning rate	: The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits.
Auto-ignition temperature	: Not applicable.
Flammable limits	: Not available.
Color	: Gray.
Odor	: Ammonia.
pH	: Not applicable.
Boiling/condensation point	: Not applicable.
Melting/freezing point	: Not available.
Relative density	: 2.2 to 3 [Water = 1]
Bulk Density	: Not available.
Granulometry	: Not available.
Vapor pressure	: Not applicable.
Vapor density	: Not applicable.
Odor threshold	: 0.04 to 53 ppm (Ammonia.)
Evaporation rate	: Not applicable.
Viscosity	: Not applicable.
Solubility	: Partially soluble in the following materials: cold water and hot water.
Physical/chemical properties comments	: Not available.

10. Stability and reactivity

Chemical stability : The product may not be stable under certain conditions of storage or use. See "Possibility of Hazardous Reactions" for further information.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Molten metal may cause explosive spattering in contact with water.

Avoid all possible sources of ignition (spark or flame). Molten metal may cause explosive spattering in contact with water.

Incompatible materials : Reactive or incompatible with the following materials: acids and alkalis.
water
In the form of particles, may explode when mixed with halogenated acids, halogenated solvents, bromates, iodates or ammonium nitrate. Aluminum particles on contact with copper, lead, or iron oxides can react vigorously with release of heat if there is a source of ignition or intense heat.

10. Stability and reactivity

Hazardous decomposition products : Contact with water liberates toxic, extremely flammable gas.

Possibility of hazardous reactions : Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions may include the following:
contact with water
Reactions may include the following:
liberation of toxic gas
liberation of flammable gas Fine dust presents an explosion hazard if dispersed in air at high concentrations.

11. Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
aluminium	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>2350 mg/l	4 hours
silicon	LD50 Oral	Rat	3160 mg/kg	-
Iron	LD50 Oral	Rat	7500 mg/kg	-
	LCLo Inhalation Dusts and mists	Rat	250 mg/m³	6 hours
manganese	LD50 Oral	Rat	9 g/kg	-
lithium chloride	LD50 Dermal	Rabbit	1629 mg/kg	-
	LD50 Oral	Rat	1530 mg/kg	-

Conclusion/Summary : Not applicable

Chronic toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Iron	Sub-chronic LOAEL Oral	Rat	26 mg/kg	12 weeks
	Sub-chronic NOAEL Inhalation Dusts and mists	Rat	5 mg/m³	4 weeks

Conclusion/Summary : Repeated or prolonged exposure to the substance can produce lung damage.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
lithium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Skin - Severe irritant	Rabbit	-	24 hours 500 milligrams	-

Conclusion/Summary

Skin : May cause skin irritation.

Eyes : Irritating to eyes.

Respiratory : May cause respiratory irritation.

Sensitizer

Conclusion/Summary

Skin : May cause sensitization by skin contact.

Carcinogenicity

Conclusion/Summary : Contains material which may cause cancer.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA

11. Toxicological information

aluminium	A4	-	-	-	-	-
silicon carbide	A2	-	-	-	-	-
magnesium oxide	A4	-	-	-	-	-
nickel	A5	2B	-	+	Possible	-

Mutagenicity

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : No teratogenic effect.

Reproductive toxicity

Conclusion/Summary : No known significant effects or critical hazards.

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

Toxicity

Product/ingredient name	Test	Result	Species	Exposure
aluminium	OECD	EC50 >100 mg/l	Fish - Salmo trutta	96 hours
-	OECD	EC50 >100 mg/l	Daphnia - Daphnia magna	48 hours
-	OECD	EC50 >100 mg/l	Algae - Selenastrum capricomutum	72 hours
aluminium oxide	OECD 203 Fish, Acute Toxicity Test	EC50 >100 mg/l	Fish - Salmo trutta	96 hours
-	OECD 202 *Daphnia* sp. Acute Immobilization Test and Reproduction Test	EC50 >100 mg/l	Daphnia - Daphnia magna	48 hours
-	OECD 201 Alga, Growth Inhibition Test	EC50 >100 mg/l	Algae - Selenastrum capricornutum	72 hours
manganese	-	Acute EC50 40000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
Growth	-	Acute EC50 31000 ug/L Fresh water	Aquatic plants - Duckweed - Lemna minor	4 days
Intoxication	-	Chronic NOEC 28000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours

Conclusion/Summary : May cause long-term adverse effects in the aquatic environment.

Persistence/degradability

Conclusion/Summary : Not applicable.

Mobility : Not mobile under normal environmental conditions. May be leached from the ground at low pH (<5.5) or high pH (>8.5)

13. Disposal considerations

Waste disposal : Recycle, if possible. The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN3170	ALUMINUM REMELTING BY-PRODUCTS	4.3	III		-
TDG Classification	UN3170	ALUMINIUM DROSS	4.3	III		**Special provisions** Rail transport is possible only via special permit #SP4406 - Dross in vented box car.
Mexico Classification	UN3170	ALUMINUM REMELTING BY-PRODUCTS	4.3	III		-
ADR/RID Class	UN3170	ALUMINUM REMELTING BY-PRODUCTS	4.3	III		-
IMDG Class	UN3170	ALUMINUM REMELTING BY-PRODUCTS	4.3	III		-
IATA-DGR Class	UN3170	ALUMINUM REMELTING BY-PRODUCTS	4.3	III		-

PG* : Packing group

15. Regulatory information

HCS Classification : Water-reactive material

U.S. Federal regulations : **TSCA 8(a) IUR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: aluminium: Fire hazard, reactive

Clean Water Act (CWA) 307: Zinc; copper; nickel; chromium

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

15. Regulatory information

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

State regulations

Massachusetts : The following components are listed: ALUMINUM; ALUMINUM OXIDE; SILICON CARBIDE; SILICON DUST; LITHIUM; ZINC; MAGNESIUM OXIDE FUME; COPPER; MAGNESIUM; MANGANESE; NICKEL; TIN

New York : The following components are listed: Zinc; Copper; Nickel

New Jersey : The following components are listed: ALUMINUM; ALUMINUM OXIDE; alpha-ALUMINA; SILICON CARBIDE; SILICON; LITHIUM; ZINC; ALUMINUM CARBIDE; MAGNESIUM OXIDE; COPPER; MAGNESIUM; MANGANESE; NICKEL; TIN

Pennsylvania : The following components are listed: ALUMINUM; ALUMINUM OXIDE (AL2O3); SILICON CARBIDE (SIC); SILICON; LITHIUM; ZINC; MAGNESIUM OXIDE (MGO); COPPER FUME; MAGNESIUM; MANGANESE; NICKEL; TIN

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
nickel	Yes.	No.	No.	No.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

Canadian NPRI : The following components are listed: Aluminum; Aluminum oxide; Zinc; Copper; Manganese; Nickel

Canada inventory : All components are listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: Not determined.
China inventory (IECSC): Not determined.
Japan inventory: Not determined.
Korea inventory: Not determined.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Philippines inventory (PICCS): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

16. Other information

Label requirements : SUBSTANCES DANGEROUS WHEN WET. REACTS WITH WATER TO RELEASE FLAMMABLE GAS. REACTS WITH WATER TO RELEASE TOXIC GAS.

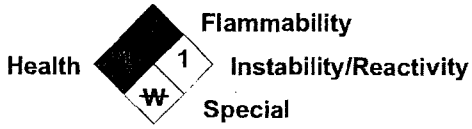
Hazardous Material Information System (U.S.A.) :

Health	2
Flammability	1
Physical hazards	1

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Date of printing	: **10/25/2012.**
Date of issue	: 10/25/2012.
Date of previous issue	: No previous validation.
Version	: **1**
Prepared by	: Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Annex C. Safety Data Sheet – Ouvea Premix

MATERIAL SAFETY DATA SHEET

Ouvea Premix

Date: 18 June 2015

PRODUCT AND COMPANY INFORMATION

PRODUCT NAME:	Ouvea Premix
DESCRIPTION:	Solid grey powder
PRODUCT USE:	Ingredient in the preparation of mineral fertiliser
SUPPLIER::	Taha Fertilizer Industries Limited
CONTACT INFORMATION:	Telephone: 03 218 1002; Address: 162b Bond Row, Invercargill, New Zealand
EMERGENCY PHONE:	

HAZARD IDENTIFICATION

DANGEROUS GOODS		Not applicable
HSNO CLASSIFICATION	**6.3A**	**Skin irritant.**
	6.4A	**Eye irritant.**
	9.1C	**Aquatic ecotoxicant**
SIGNAL WORDS:		**WARNING**
HAZARD STATEMENT:	H315	Causes skin irritation.
	H320	Causes eye irritation.
	H412	Harmful to aquatic life with long lasting effects.
PREVENTION STATEMENTS:	P264	Wash hands and eyes thoroughly after handling.
	P280	Wear protective gloves.
	P273	Avoid release to the environment.
RESPONSE STATEMENTS:	P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
	P321	Specific treatment: use of specific cleansing agent not required.
	P332 + P313	If skin irritation occurs: get medical advice/attention.
	P362	Take off contaminated clothing and wash before re-use.
	P305 + P351	IF IN EYES: Rinse cautiously with water for several minutes.
	P338	Remove contact lenses, if present and easy to do so. Continue rinsing.
	P337 + P313	If eye irritation persists; get medical advice/attention.

COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS No.	Concentration (%)
Aluminium oxide (Al_2O_3)	1344-28-1	25-50
Aluminium nitride (AlN)	24304-00-5	25-40
Magnesium Aluminate ($MgAl_2O_4$)	12068-51-8	5-30
Cryolite (Na_3AlF_6)	15096-52-3	3-6
Aluminium (Al)	7429-90-5	2-4
Sodium aluminate ($NaAl_{11}O_{17}$)	1302-42-7	2-5
Potassium Fluoride (KF)	7789-23-3	<1
Potassium Chloride (KCl)	7447-40-7	<1
Fluorite (CaF_2)	7789-75-5	<1
Quartz (SiO_2)	14808-60-7	<1

FIRST AID MEASURES

SKIN CONTACT:	Quickly remove contaminated clothing and wash before re-use. Wash skin with plenty of soap and water. Seek medical attention if irritation persists.
EYE CONTACT:	Remove contact lenses if present. Cautiously rinse eye with gently running water for 15 minutes. Do not rub the eye. Seek medical attention if eye irritation persists.
INHALATION:	If inhaled, remove to fresh air.

INGESTION:	Rinse mouth. Do NOT induce vomiting. Seek medical attention.

FIRE FIGHTING MEASURES

HAZARDS:	Non-flammable.
EXTINGUISHING MEDIA:	Water fog, foam, Carbon dioxide or dry chemical.
PROTECTIVE CLOTHING:	Wear protective gloves.
OTHER INFORMATION:	Do not allow washings to reach aquatic environment.

ACCIDENTAL RELEASE MEASURES

SPILL CLEAN UP METHOD:	*Contain and recover. Use appropriate tools to put the spilled solid in a convenient waste* disposal container. Avoid contamination of waterways. If material does enter waterways contact the local authority.
PROTECTIVE CLOTHING:	Wear protective gloves.

HANDLING AND STORAGE

HANDLING:	Wear gloves and eye protection. Avoid contact with the skin and eyes Ecotoxic in the environment, avoid loss into waterways.
STORAGE:	Keep containers tightly closed.

EXPOSURE CONTROL/PERSONAL PROTECTION

ENGINEERING CONTROLS:	Handle in well ventilated area
PERSONAL PROTECTION:	Wear gloves.
EXPOSURE LIMITS:	No exposure limits have been specifically assigned to this product. Exposure limits for individual constituents are provided below: TWA – Aluminium oxide 10 mg/m^3 TWA – Aluminium nitride 2 mg/m^3 (as Al) TWA – Cryolite 2.5 mg/m^3 (as F) TWA – Aluminium 5 mg/m^3 (resp) STEL – Sodium aluminate 2 mg/m^3 TWA – Potassium Chloride 3 mg/m^3 TWA – Potassium Fluoride 2.5 mg/m^3 (as F) TWA – Fluorite 2.5 mg/m^3 (as F) TWA – Quartz 10 mg/m^3

PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Solid (grey powder)
pH:	Not applicable
SOLUBILITY:	Negligible
BOILING POINT:	2980°C
MELTING POINT:	2072°C

STABILITY AND REACTIVITY

STABILITY:	Stable, will not polymerise
REACTIVITY:	Reactive with acids

TOXICOLOGICAL INFORMATION

SKIN CONTACT:	May cause skin irritation
EYE CONTACT:	May cause eye irritation

ECOLOGICAL INFORMATION

Ecotoxic in the environment. Avoid loss into waterways.

DISPOSAL CONSIDERATIONS

CONTAINER DISPOSAL:	Dispose of empty containers safely. Avoid contamination of any water supply with product or empty container.
PRODUCT DISPOSAL:	Dispose of product safely. Avoid contamination of any water supply with product or empty

container.

TRANSPORT INFORMATION

UN NUMBER:	Not applicable
PROPER SHIPPING NAME:	Not applicable
DANGEROUS GOODS CLASS	Not applicable
PACKING GROUP:	Not applicable

NZ REGULATORY INFORMATION

HSNO APPROVAL NUMBER:	HSR002503
GROUP STANDARD:	Additives, Process Chemicals and Raw Materials (Subsidiary hazard)
HSNO CLASSIFICATIONS:	6.3A Skin irritant
	6.4A Eye irritant
	9.1C Aquatic ecotoxicant
HSNO CONTROLS:	Approved handler requirements: Not applicable

OTHER INFORMATION

ISSUE DATE:	18 June 2015
DEFINITIONS:	TWA – Time Weighted Average (The 8 hour time-weighted average exposure standard designed to protect the worker from the effects of long term exposure)
	STEL – Short Term Exposure Limit (The acceptable average exposure over a short period of time, usually 15 minutes)

Annex D. Fire Sprinkler System

FIRE PROTECTION ENGINEERS LTD

57 Leith Street
Dunedin, 9016
PO Box 5168, Moray Place, 9058
Ph: (03) 479 0799 E: admin@fireprotectionengineers.co.nz

GJ Paterson
P O Box 43
Dunedin 9054
New Zealand

26th June 2015

Re Mataura Industrial Estate- Fire Sprinkler Reinstatement

Dear Greg
Further to recent discussion we advise on scope and progress regarding reinstatement of sprinkler protection to the Mataura Industrial Estate

Background
The purpose of the reinstatement of the sprinkler protection is to permit the inspection, testing and maintenance to recommence and records kept so a Building Warrant of Fitness may then be issued for the building

The reinstatement will on completion, provide sprinkler protection to all parts of the building that were sprinkler protected prior to isolating the systems including the fire cell to the south where removal of sprinkler protection consented.

Please see attached block plan illustrating this.

The work that is currently nearing completion will allow the systems to be reinstated. This means areas previously isolated prior to 1996, the secondary water supply and some other minor work is not identified as necessary for building code compliance and hence is not necessary for obtaining a BWOF. It is however an option to complete further work on site at some future date.

We convened a site visit where the following scope was defined prior to instructing Fire and Mechanical to proceed.

Fire and Mechanical Contracting (Phil Jackson) work scope

System No 1 and No 2

- Isolate 150mm sprinkler main feeding south area (covered by earlier building consent).
- Repair sprinkler pipe work old boiler house.
- Repairs to old engineers work shop area.
- Repair old machine Hall area.
- Carry out control valve over hauls
- Install new protection south end tank area, and throughout each levels replacing corrode pipe work.
- Check areas of pipe corrosion and scrap and paint.
- Conduct full air testing and re-instatement with water.

System No 3 - Old Drawing office

- Carry out valve over haul

- Replace 28 missing sprinkler heads and plates.
- Carry out system air testing including stores area.

System No 4 – Stores Building

- Carry out full system air test and re-instatement with water
- Install protection to MCC room
- Install and replace existing sprinkler protection (Badly corroded pipework) under floor old tank area.
- Carry out valve over haul

Fire Protection Compliance (Tony Dackers) Work Scope

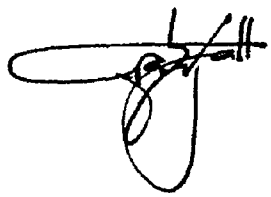
To reconnect the 4 valve sets to Direct Fire Brigade Monitoring
This will include

- New monitored power supply for common alarm monitoring equipment
- Install new ASE
- Check existing wiring from the 4 valve sets to vicinity valve sets 1&2
- Install new SDGs to each sprinkler FBA
- Obtain connection paperwork
- Commission and connect

It is anticipated all this work will be completed within 3 – 4 weeks and will then permit regular inspection, testing and maintenance to proceed and in turn issue of a BWOF

I would be pleased to provide further information on any point that requires clarification

Yours faithfully

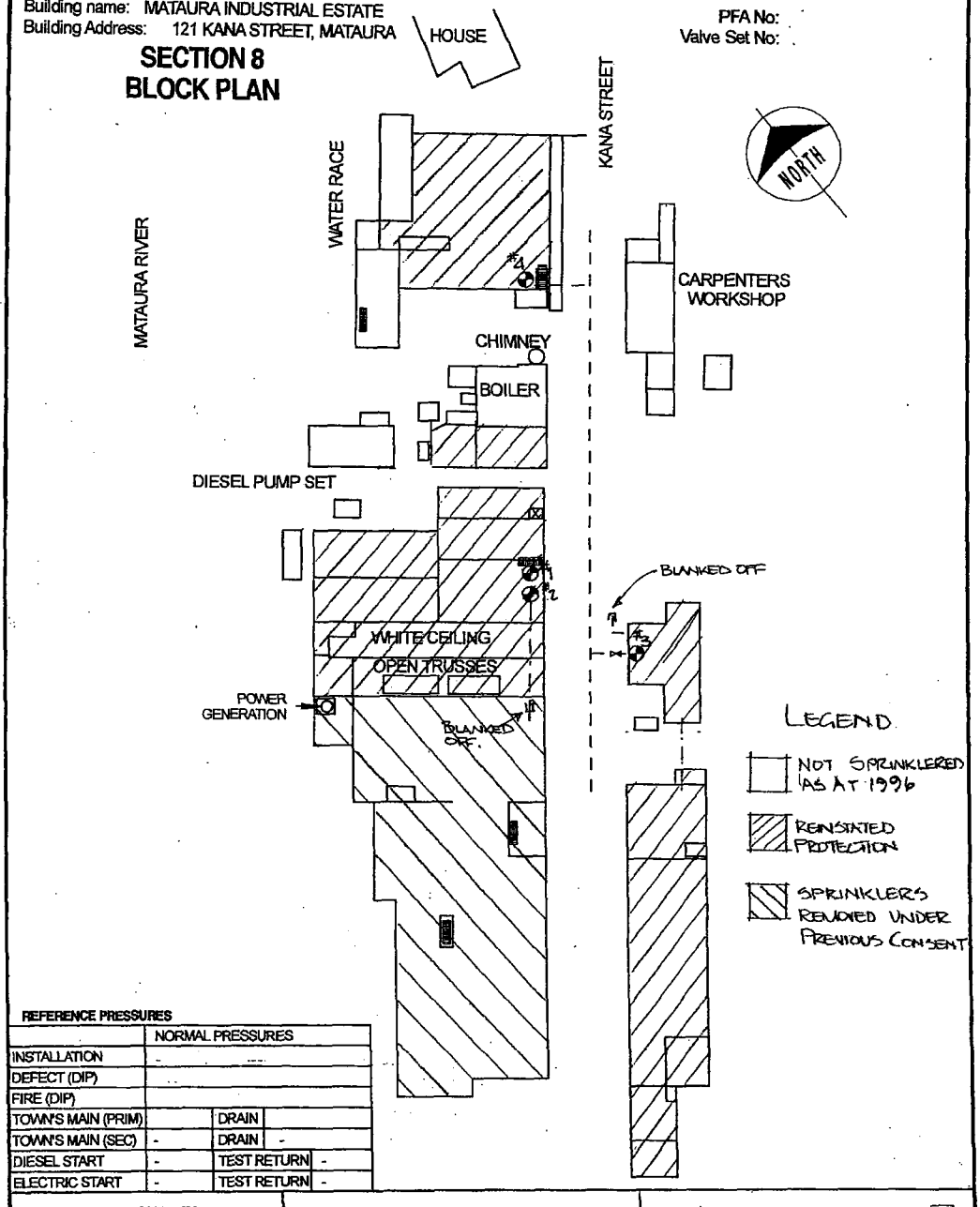


Graham Wyatt
REA, NZCE (mech)

Date:
Building name: MATAURA INDUSTRIAL ESTATE
Building Address: 121 KANA STREET, MATAURA

PFA No:
Valve Set No:

SECTION 8
BLOCK PLAN



REFERENCE PRESSURES

	NORMAL PRESSURES		
INSTALLATION	-		
DEFECT (DIP)			
FIRE (DIP)			
TOWN'S MAIN (PRIM)		DRAIN	
TOWN'S MAIN (SEC)	-	DRAIN	-
DIESEL START	-	TEST RETURN	-
ELECTRIC START	-	TEST RETURN	-

TO SHUT DOWN SYSTEM

NOTE: CLOSING MAIN STOP VALVE WILL AUTOMATICALLY CALL THE FIRE SERVICE

1. ENSURE NO FIRE EXISTS
2. CLOSE MAIN STOP VALVE
3. OPEN DRAIN VALVE
4. CONTACT SERVICE AGENT

CONTRACTOR NO:
VALVE RATIO
No: OF LEVELS
SCALE NTS
DRAWN BY

LEGEND

SPRINKLER VALVES
FIRE SPRINKLER INLET FSI
EXPOSURE HAZARD (E) FIRE ALARM PANEL
DRENCHERS X
DRAIN VALVES
ISOLATE VALVES X
FLOW SWITCHES
FIRE DOORS
STAIRS

IN THE MATTER	of the Resource Management Act 1991 (**RMA**)
AND	
IN THE MATTER	of an application by Taha Fertilizer Industries Limited for land use consent to store Ouvea Premix in the former Mataura Paper Mill buildings under s 88 of the RMA
BETWEEN	**TAHA FERTILIZER INDUSTRIES LIMITED** Applicant
AND	**GORE DISTRICT COUNCIL** Consent Authority

SUPPLEMENTARY EVIDENCE OF BENJAMIN HUGH FOUNTAIN FOR TAHA PACIFIC FERTILIZER INDUSTRIES LIMITED

24 June 2015

Counsel Acting
ROBERT MAKGILL
BARRISTER

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PO Box 77-037, Mt Albert, Auckland 1350

INTRODUCTION

1. My name is Benjamin Hugh Fountain.

2. My qualifications and experience are set out in my statement of evidence dated 11 May 2015.

CODE OF CONDUCT

3. I have read the Environment Court Code of Conduct for expert witnesses and agree to comply with it. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed. I have specified where my opinion is based on limited or partial information and identified any assumptions I have made in forming my opinions.

SUMMARY OF EVIDENCE

4. I have been engaged by Taha Fertilizer Industries Limited (**Taha**) to conduct an assessment of the potential flood hazards and existing flood protection measures at Taha's storage facility located at 121 Kana Street and 116-128 Kana Street, Mataura (together the "**site**").

5. My supplementary evidence addresses the further information that has been requested by the Commissioners, namely:

   (a) Further comment on the flood impact on each of the buildings in flood events and a recommendation as to the most suitable locations within the buildings for storage;

   (b) Further comment on the movement of water in the buildings in a flood (confirming that we would expect the 1 tonne bags to remain stationary during a flood);

   (c) Further comment on the likely depth/volume of seepage into the buildings in a 2% Annual Exceedance Probability (**AEP**) event;

(d) An assessment of estimated standing times for flood waters in flood events;

(e) Further comment on how flood waters could be contained and to what degree;

(f) Further comment on gravel build up on the Mataura River north of the site and the impacts on the assessment; and

(g) A more detailed Flood Protection Plan.

FLOOD IMPACT ON BUILDINGS

6. The flood assessment I undertook varies for each of the storage buildings on the Mataura site. Based on the high level flood risk analysis I conducted of the site from the Mataura River and Waikana Stream, the maximum estimated flooding depths above the floor levels for the 1% and 2% AEP events are shown in Figure 1.

7. Figure 1 distinguishes between the flood assessment for each building in a 2% AEP event, and an event larger than the 2% AEP event (i.e. the 1% AEP event). Figure 1 also distinguishes between installing or not installing flood protection measures prior to the flood. Flood protection measures include measures existing on site and those I have recommended be installed.

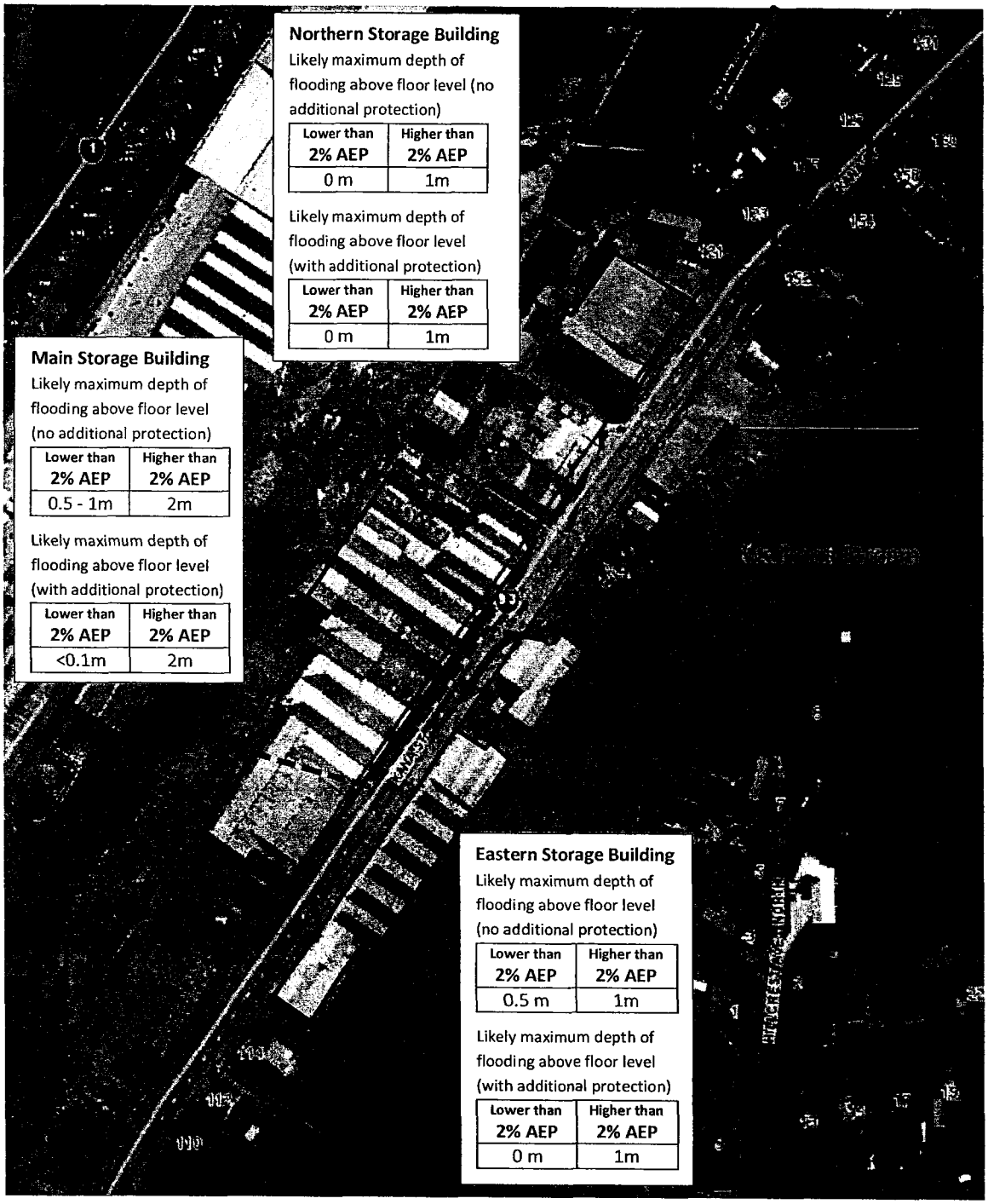


Figure 1: Taha storage site location and estimated depth of flooding with and without the recommended additional flood management measures (mapping taking from Gore District Council Intramaps)

Northern Storage Building

8. The Northern Storage Building is unlikely to be flooded from the Waikana Stream as it is upstream of the likely breakout locations and further from the stream.

9. This building also has a raised floor level above Kana St (see Figure 2) and so will also be less susceptible to flooding from the Mataura River. Furthermore there is a 2m floodwall on the northern boundary between 121 and 123 Kana Street to help protect this building from potential breakouts from the Mataura River (see Figure 3).

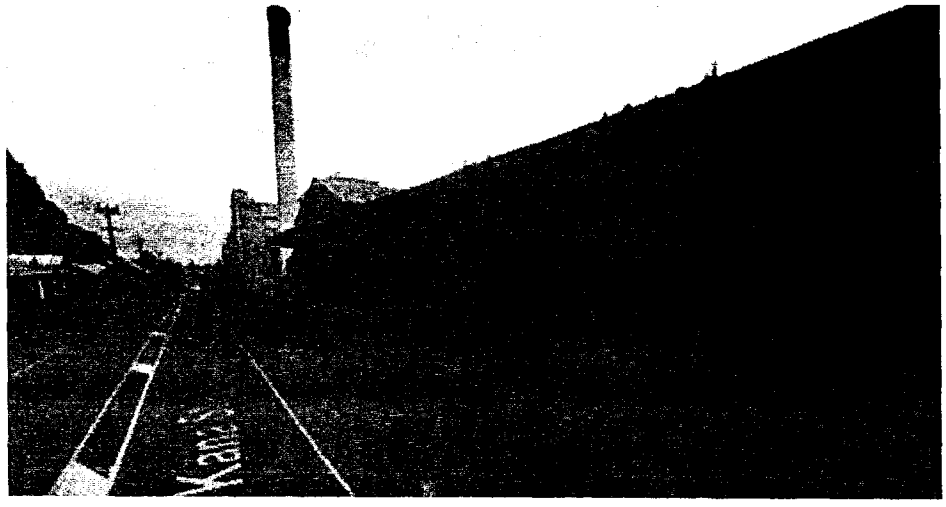


Figure 2: Northern Storage Building (source: Google Street View)

Figure 3: Flood Wall on the northern boundary of the Mataura storage site

Eastern Storage Building

10. The Eastern Storage Building is at risk from flooding from breakout flows from either the Waikana Stream or the Mataura River. However, this building has a raised floor level above Kana St (see Figure 4) and so will likely have less inundation depth than the Main Storage Building. Furthermore if the potential flood flows from the Waikana Stream could be diverted from passing down the back of the building (through the use of the recommended earth bund) it is likely that the building will be protected from floods up to the 2% AEP flood.

Figure 4: Eastern Storage Building

Main Storage Building

11. The Main Storage Building is only slightly raised above the overflow paths on Kana Street and therefore has a greater reliance on flood barriers to help prevent inundation of the floor level. Furthermore in the scenario of a stopbank breach during a 1% AEP flood in the Mataura River it is unlikely that flood flows could be kept out of the building, even with flood protection measures installed.

MOVEMENT OF WATER IN BUILDINGS

12. Both the Northern and Eastern Storage Buildings have raised floor levels above Kana Street and therefore will have lower depths of flows through the buildings, as indicated in Figure 1. In both of these buildings the flows through the buildings, even in the scenario of a stopbank failure during a 1% AEP flood in the Mataura River, will have a low risk of mobilising the 1 tonne storage bags in these buildings.

13. Flows through the Main Storage Building are likely in the event of a stopbank failure during a 1% AEP flood in the Mataura River. These flows will be reduced if the temporary flood barriers are installed across the entrances off Kana Street, as indicated in Figure 1.

14. Furthermore, flow through this building has one main exit point where bags of material could feasibly exit the building, being the roller door on the southern wall (circled in red in Figure 5). I understand the other exits at the rear of the building are permanently sealed. There is also a chained heavy duty 3m high mesh fence (green line in Figure 5) between the building and the flood wall that would capture any debris that is washed out of the rear of the building.

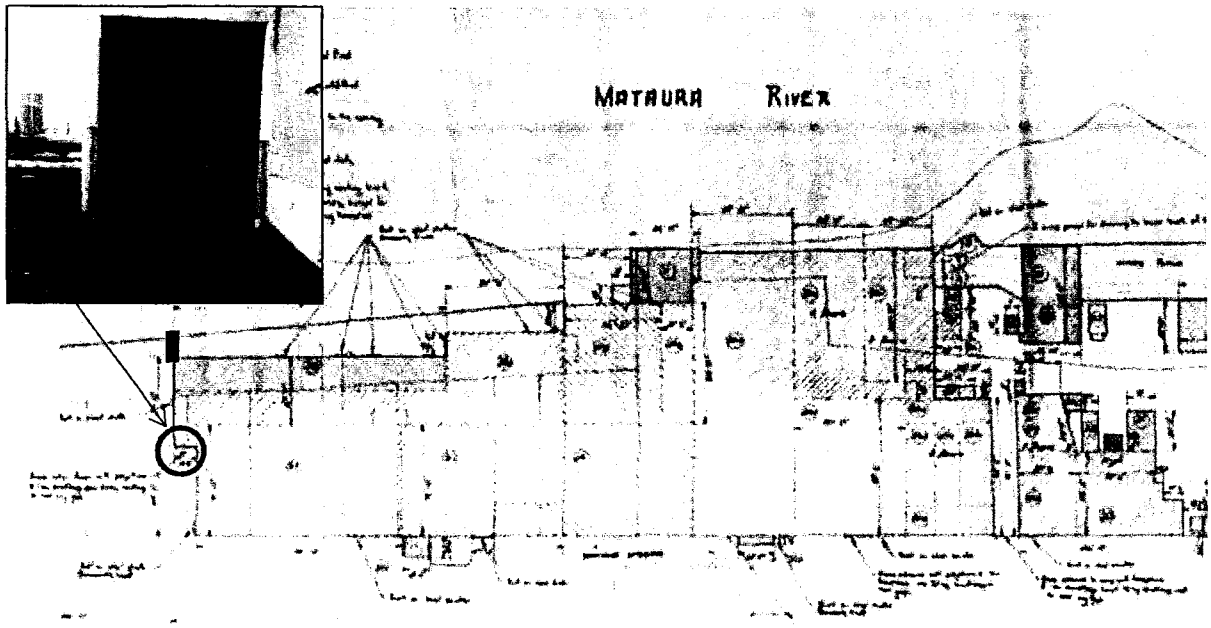


Figure 5: Main Storage Building

15. While there is a low risk of the 1 tonne storage bags mobilising during a flood, a further measure that could prevent any bags exiting the building is the installation of a solid barrier or a mesh gate across the southern roller door.

SEEPAGE

16. If the recommended flood protection measures are installed, including the diversion bund protecting the rear of the Eastern Storage Building, there is little risk of flood waters from the Waikana Stream entering either the Northern or Eastern Storage buildings.

17. In the event of the Waikana Stream spilling onto Kana Street there could be up to 1m deep flows adjacent to the Main Storage Building. With the temporary flood barriers in place much of the flooding will be kept out of the building, as indicated in Figure 1, however there may be some seepage.

18. It is not possible to predict the actual amount of seepage given this will depend on the adequacy of the sandbags that have been installed and other flood protection measures in a flood event. However, as provided in my statement of evidence, I consider that much of this seepage could be contained with sandbags and polythene, and captured or pumped out of the building.

FLOOD WATER STANDING TIMES

19. Flooding from the Waikana Stream is likely to rise and fall rapidly and will be short in duration. Flooding from the Mataura River is likely to be longer in duration due to the large catchment size.

20. Based on historical flooding the high flood water levels are unlikely to last more than a day (24 hours) and will quickly drain from around the site once the water level in the river recedes.

CONTAINMENT OF FLOOD WATERS

21. Once the flood waters have receded it will be possible to capture some of the water that will be released from the bags. As discussed in my statement of evidence, there are a number of sunken loading bays in the Main Storage Building and Eastern Storage Building that form readily available collection areas, see Figure 6. These could be sandbagged (as per the Flood Protection Plan) and water draining or swept into the collection area could be treated or stored.

22. To clarify, I am not suggesting flood waters up to 2m in the building could be contained through sandbagging. These flood waters will rapidly recede as the flood level decreases. Rather, I am suggesting that water remaining in the building once the substantial flood waters have receded (i.e. water contained in bags or sumps in the building) could be contained and pumped out of the building.

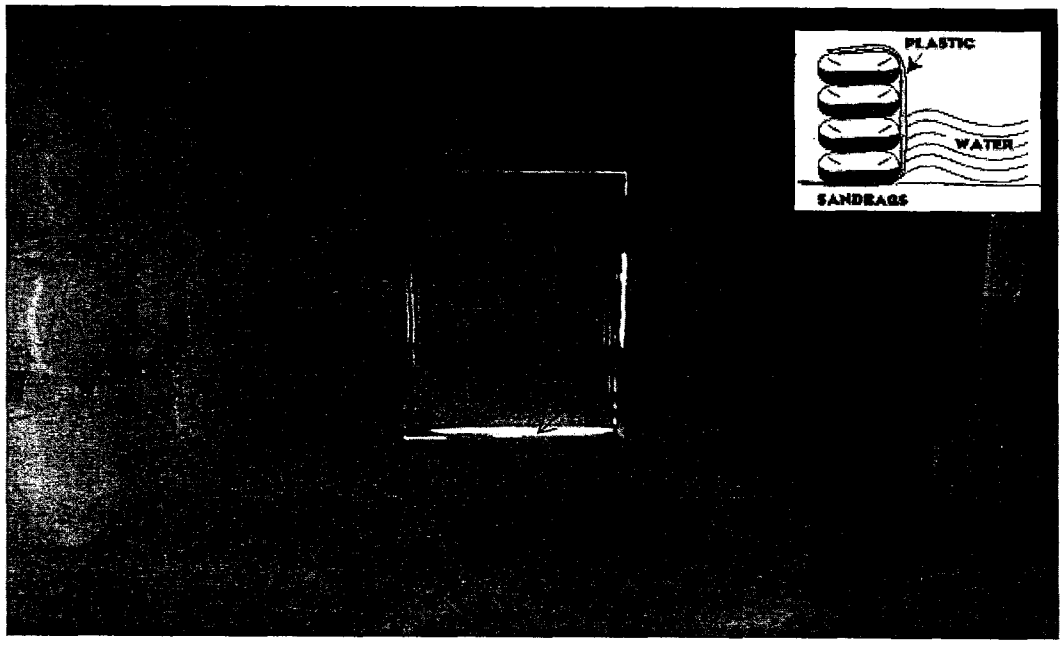


Figure 6: Sunken Loading Bay

GRAVEL BUILD UP IN MATAURA RIVER

23. I have had further discussions regarding the gravel build up with Environment Southland Engineer, Colin Young. Mr Young confirmed that Environment Southland's assessment is that the stopbanks will still protect Mataura from events up to the 1978 flood magnitude. They consider the gravel build up upstream of the waterfall will have little impact on the flood levels of an event of this size.

FLOOD PROTECTION PLAN

24. I have provided suggestions for an updated Flood Protection Plan, which incorporates the recommended flood protection measures. Taha's updated draft Flood Protection Plan is attached in to my evidence as **annexure "A"**.

CONCLUSION

25. In summary, I am of the view that:

(a) The flood assessment I undertook varies for each of the buildings on the Mataura site depending on flood size, building location, floor levels and flood protection measures.

(b) In the 2% AEP event:

i. flood waters are unlikely to enter the Northern Storage Building;

ii. flood waters are likely to enter the Eastern Storage building to a depth of 0.5m, but are unlikely to enter the building if existing flood protection measures are employed and an earthbund is constructed, as recommended in my statement of evidence; and

iii. flood waters are likely to enter the Main Storage Building up to 1.0m, but with the installation of existing flood protection measures this will reduce to an estimated maximum depth of <0.1m;

(c) In the 1% AEP event, regardless of flood protection measures, flood waters are likely to enter the:

i. Northern Storage Building to a maximum depth of 1.0m (regardless of flood protection measures);

ii. Eastern Storage Building to a depth a maximum depth of 1.0m; and

iii. Main Storage Building to a maximum depth of 2.0m.

(d) There is a low risk of 1 tonne bags being mobilised in a 1% AEP event in the main buildings. However the bags, if moved, could only exit the building through the roller door on the Southern wall. As a

further precaution, a barrier or solid mesh gate across the Southern exit could be installed.

(e) In a 2% AEP event where flood protection measures are installed, there may be seepage into the Main Storage Building. I consider this seepage could be contained and either pumped out of the building or released into the adjacent waterway once the flooding has subsided.

(f) Flood water standing times for Waikana Stream will be short, however as the catchment for Mataura River is larger, flood water standing times are estimated to be up to 24 hours.

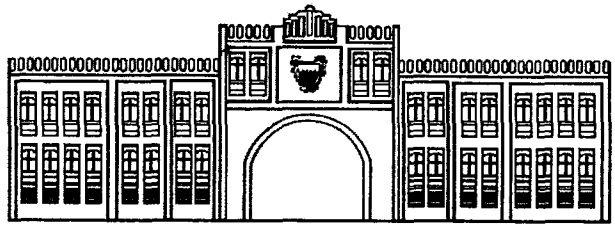
(g) Once flood waters have subsided, water remaining in the building (e.g. water in bags or sumps) could be contained through a combination of sandbagging and plastic covering, and pumped out of the building or released into the adjacent waterway.

(h) An updated Flood Protection Plan has been provided.

Dated this 24th day of June 2015

Ben Fountain

ANNEXURE "A": DRAFT FLOOD PROTECTION PLAN



Taha Fertilizer Industries Limited

FLOOD PROTECTION PLAN

- Draft
- 23 June 2015

Taha Fertilizer industries Limited

FLOOD PROTECTION PLAN

- Draft
- 23 June 2015

Taha – Asia Pacific Region
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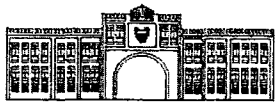
PO Box 1784
Invercargill 9810, New Zealand
Tel: +64 3 218 5944 x 5945
Web: www.tahacorp.com



Contents

1. Flood Protection Plan

1.1. Purpose

Taha's storage site in Mataura is located within an area identified on the Gore District Plan planning maps as potentially flood prone from the Mataura River in floods larger than that of 1978, which had an estimated 50-60 year return period, or a stop bank breach in smaller floods.

As such, it is therefore appropriate for the site to have a Flood Protection Plan. The use and maintenance of a Flood Protection Plan relevant to the site is also a condition of Taha's resource consent to store Class 6 and 9 hazardous substances at the site, which is provided in Appendix A.

1.2. Scope

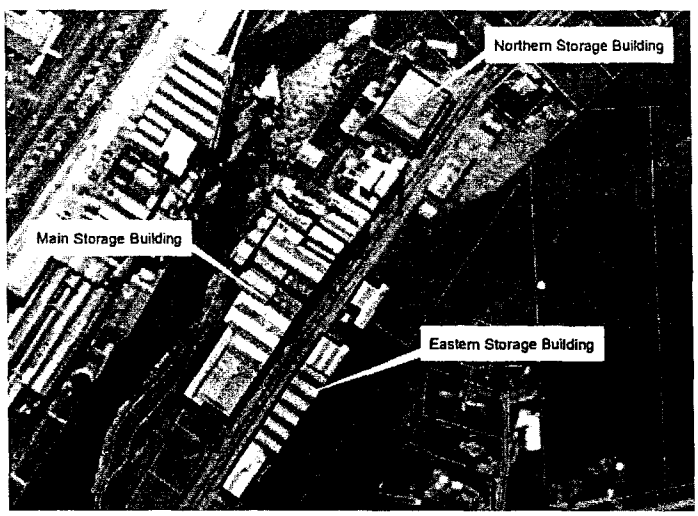
The Flood Protection Plan relates primarily to flood protection and response at Taha's storage site at 65-121 and 116-128 Kana Street.

The Flood Protection Plan refers specifically to the three main buildings on site, being:

- The Main Storage Building, located on 65-121 Kana Street
- The Northern Storage Building, located on 65-121 Kana Street
- The Eastern Storage Building, located on 116-128 Kana Street

The Flood Protection Plan specifically covers flood protection measures in relation to Taha's operations. As such, it does not specifically provide for flood protection of the power generation activities, or other unrelated activities on site.

The Flood Protection Plan is an evolving document and will be reviewed every 6-months as part of the 6-monthly audit.



2. Preparation

2.1. Existing flood protection measures

In response to earlier floods, a number of flood mitigation measures have been built on the site to prevent water entering the site and buildings in the event of a flood.

Permanent measures include:

- **A flood water retaining wall** along the majority of the north-western boundary of 65-121 Kana Street with the Mataura River, built to withstand 600 mm above the highest recorded flood (50-60 year event in 1978);
- **Earth bund** north of 116-128 Kana Street *[proposed]* to redirect flood water from the Waikana Stream down Kana Street and prevent flood water from the Waikana Stream entering the buildings; and
- **Permanently fitted panels/shutters** *[proposed]* to all roller doors/vehicle access doors, and remove them as unloading takes place.

Temporary measures, to be installed in a flood event when activation trigger points have been reached (as described in Section 3), include:

- **Bolt on steel and concrete shutters** attached to doors to prevent ingress of water, also built to withstand 600 mm above the highest recorded flood;
- **Silica sandbags** 1 x pallet of pre made 20kg sandbags are in place at every entrance/exit as well as polythene pre-cut to fit orifice to be used internally in conjunction with the steel shutters being fitted externally. At vehicle entrance doors, there are I tonne sandbags, as well as 20kg sandbags and polythene to block orifice internally in conjunction with the shutters/panels being fitted externally.
- **Barrier or mesh gate** *[proposed]* to secure the southern roller door entrance of the Main Storage Building.

The location of all permanent and temporary measures is identified in the Site Layout Plan in Appendix B.

Additional measures to prevent flood damage, should a flood occur, include:

- All hazardous substances are also stored in heavy duty plastic lined bags;
- The lower levels of the buildings on 65-121 Kana Street next to the Mataura River will not be used at all;

- Hazardous substances adjacent to the eastern side doorway of 116-128 Kana Street will be stored on pallets to prevent any contact with surface flooding off the adjacent bank;
- Waikana Stream will be regularly checked and cleared of debris 6-monthly or when required to avoid blockage in a flood event; and
- The open drainage channel to the east of 116-128 Kana Street building will be checked and cleaned 6-monthly or when required to prevent surface flooding.

NB: The Taha Environmental Manager is also investigating the possibility of hiring sucker trucks following a flood event to remove and treat seepage.

2.2. Maintenance plan

The existing flood protection measures will be checked and maintained according to the 6-monthly maintenance plan, which is attached in Appendix C. Flood measures will also be maintained as required and following any flood event.

3. Activation

3.1. Responsibilities

The Environmental Officer is required to implement the Flood Protection Plan when one or more of the trigger points identified in Section 3.2 have been met.

3.2. Trigger Points

The following triggers are to be used to activate the Flood Protection Plan:

(1) If Metservice warnings predict any of the following rainfalls over the next 48 hours:

- 50 mm or more over a 24 hour period
- 25 mm or more over a 12 hour period
- 15 mm or more in a 2 hour period

(2) If the Environment Southland Flood Warning Environmental Data Information (EDI) telephone system reports Mataura River Water Levels at Pyramid are 2.5m or more above normal, or if the rain gauges in the upper Mataura Catchment have received:

- 50 mm or more over the last 24 hour period
- 25 mm or more over the last 12 hour period
- 10 mm or more in a 1 hour period

NB: The "trigger points" may be revised following ongoing consultation with Environment Southland.

4. Flood Response Plan

4.1. Action Pre Flood

The following actions shall be taken once the Flood Protection Plan has been implemented:

(1) Environmental Officer advises the following agencies that the Flood Protection Plan has been instigated: Environment Southland, NZTA, Local Fire Service, Civil Defence and Taha Plant Manager (contact details of relevant personnel provided in Section 7 of this plan)

(2) Environmental Officer and Plant Manager arrange for at least 4 appropriately trained Taha staff members to transfer to the Kana Street site to install temporary flood protection measures, if considered safe to do so.

(3) Once on site, staff members secure temporary barriers and sand bags as per Site Layout Plan. In particular, all orifices will be blocked using the steel shutters and sand bags starting from the south end of the building working north. All chain mesh gates must be secured.

(4) Once all orifices are blocked, all staff will evacuate the premises, except for 1-2 senior level staff, who will double check all orifices, and that all other staff have left the site safely, before evacuating themselves.

(5) The Environmental Officer continuously monitors Civil Defence, Metservice and Environment Southland flood warnings throughout the process, and liaises with relevant agencies.

With some measures permanently installed, as indicated in the Site Layout Plan, the flood response exercise is expected to take up to 5 hours, including travel from Invercargill.

NB: The response time will be further revised following training runs.

4.2. Action during flood

The following actions shall be taken throughout the duration of the flood:

(1) All staff members must stay safe

(2) Temporary barriers maintained during flood where safe to do so

(3) Seepage contained during flood through the use of the temporary barriers where safe to do so

(4) The Environmental Officer continuously monitors Civil Defence, Metservice and Environment Southland flood warnings throughout the process, and liaises with relevant agencies.

4.3. Action post flood

The following actions shall be undertaken once the flood waters have subsided:

(1) All staff members must stay safe

(2) All efforts made to contain any seepage or water remaining in the building, including through the use of sand bagging and polythene.

(3) The Environmental Officer continuously monitors Civil Defence, Metservice and Environment Southland flood warnings throughout the process, and liaises with relevant agencies.

(4) The Environmental Officer issues an incident report, including information on the size and duration of the flood, any damage to the property or material, and any follow up tasks required.

Where possible, floodwater should be collected, pumped using the portable pumps and sent for safe disposal. Alternatively, Environment Southland should be consulted regarding any managed discharges to surface water.

NB: If instructed by Civil Defence to evacuate the site at any time prior to, during or after a flood event, the site must be evacuated safety and without delay.

5. Training

Relevant staff (minimum 10 employees at any one time) will be trained to use the Flood Protection Plan, including a run through of the installation of all Flood Protection measures.

Initial team training run will be held on 9 July 2015, with training runs held every three months, or when there are changes in staff.

Current staff to be trained:

- Karl Shaw,
- Lex Miller,
- Nathan Burgess,
- Maurice Shaw,
- Rueben Sheppard,
- Morris Spencer,
- Alex Trushin,
- Kieran McDonald,
- Michael Oldenhof,
- Corey Brett.

6. Roles and Responsibilities

The Environmental Officer is responsible for implementing the Flood Protection Plan. This role will include responsibility for the maintenance of the Flood Protection Plan, the training of staff and the 6-monthly audits. While the Environmental Officer is responsible for ensuring that these activities occur, they may delegate any or all or the tasks to more suitable people. The tasks and their frequency are provided in Table1.

- **Table 1 Environmental Officer Tasks**

Task	Frequency
Revise Flood Response Plan	Annual
Carry out training of Taha Asia Pacific staff members	New staff, annual update
Monitor flood trigger points	Daily
Instigate Flood Protection Plan	As required
Issue incident report	As required
Conduct 6-monthly audit	Bi-annually

Taha Environmental Officer is:

Karl Shaw

Production Supervisor

Work: 03 218 1004

027 509 3480

7. Contact Details

Table 2 lists agencies contacts in relation to the Flood Protection Plan

- **Table 2. Relevant Contact Details**

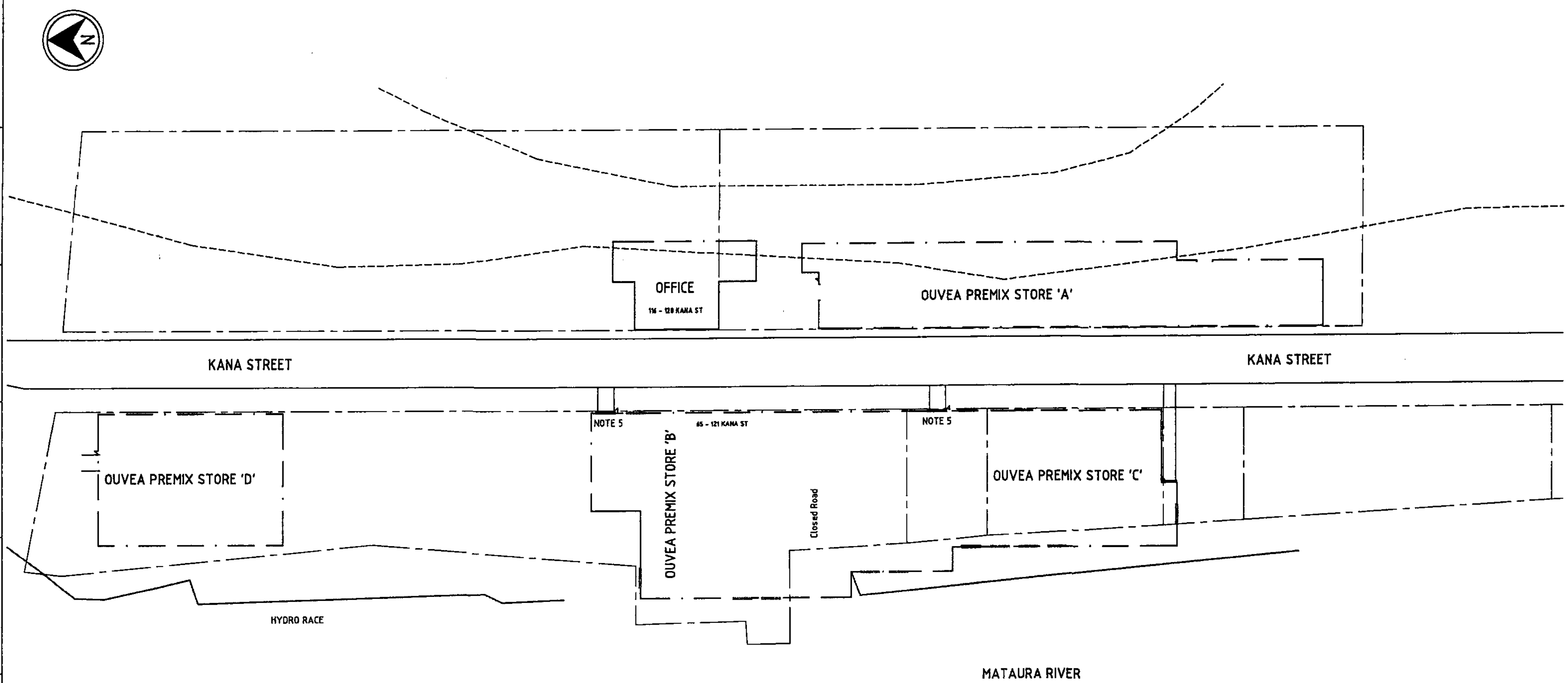
Agency	Contact Person	Contact Details
Environment Southland	Dallas Bradley	03 211 5225
Mataura Fire Brigade	Neil Rogan	03 203 7130
Civil Defence	Craig Sinclair	03 211 5403

Mataura River Catchment flood warning information website:
http://www.es.govt.nz/environment/water/flood-warning/

Environment Southland's 24 Hours Emergency Service phone numbers: (03) 211 5225 or Southland Area Call Free (0800) 76 88 45

Appendix A Resource Consent

Appendix B Site Layout Plan



FLOOD PROTECTION PLAN
SCALE 1:500 (A1)

NOTES:

1. 1x PALLET OF 20kg SANDBAGS AND POLYTHENE CUT TO FIT IS AT EVERY MANDOOR/ENTRANCE TO USE INTERNALLY (SHUTTERS/PANELS EXTERNAL). AT ROLLER DOORS/VEHICLE ENTRANCES THERE ARE 1 TONNE SANDBAGS AS WELL AS 20KG SANDBAGS AND POLYTHENE.

2. ALL FLOOD PROTECTION SYSTEMS GO 600mm HIGHER THAN THE HIGHEST RECORDED FLOOD.
   - FLOOD WATER RETAINING WALL
   - ALL ORIFICES THAT ARE WITHIN THE 600mm HEIGHT OF THE HIGHEST RECORDED FLOOD.

3. ALL FLOOD PROTECTION SYSTEMS WILL BE STORED ADJACENT TO THEIR OPENING.

4. THE FLOOD PROTECTION SYSTEM WILL BE CHECKED ON A 3 MONTHLY BASIS.

5. CONCRETE PANELS/SHUTTES CURRENTLY BEING FITTED. REPAIRS HAPPENING AS BEING FITTED WITH INTENTION OF FITTING PERMANENTLY.

KEY:

BOLT ON STEEL SHUTTER
ROLLER DOOR
SITE BOUNDARY
BUILDING PERIMETER

NOTE : BOUNDARY DIMENSIONS APPROXIMATE ONLY

APPROVAL ISSUE

REV	DATE	DRAWN	REV'D	APP'D	REVISION
A	02-07-15	BBC			APPROVAL ISSUE

DRAWING NUMBER	REFERENCE DRAWING TITLE

JACOBS
Level 3
86 Customhouse Quay
WELLINGTON 6011
NEW ZEALAND
Tel: +64 4 473 4265
Fax: +64 4 473 3369
Web: www.jacobs.com

CLIENT: TAHA ASIA PACIFIC LIMITED
PROJECT: LAND USE CONSENTS FOR THE STORAGE OF HAZARDOUS SUBSTANCES

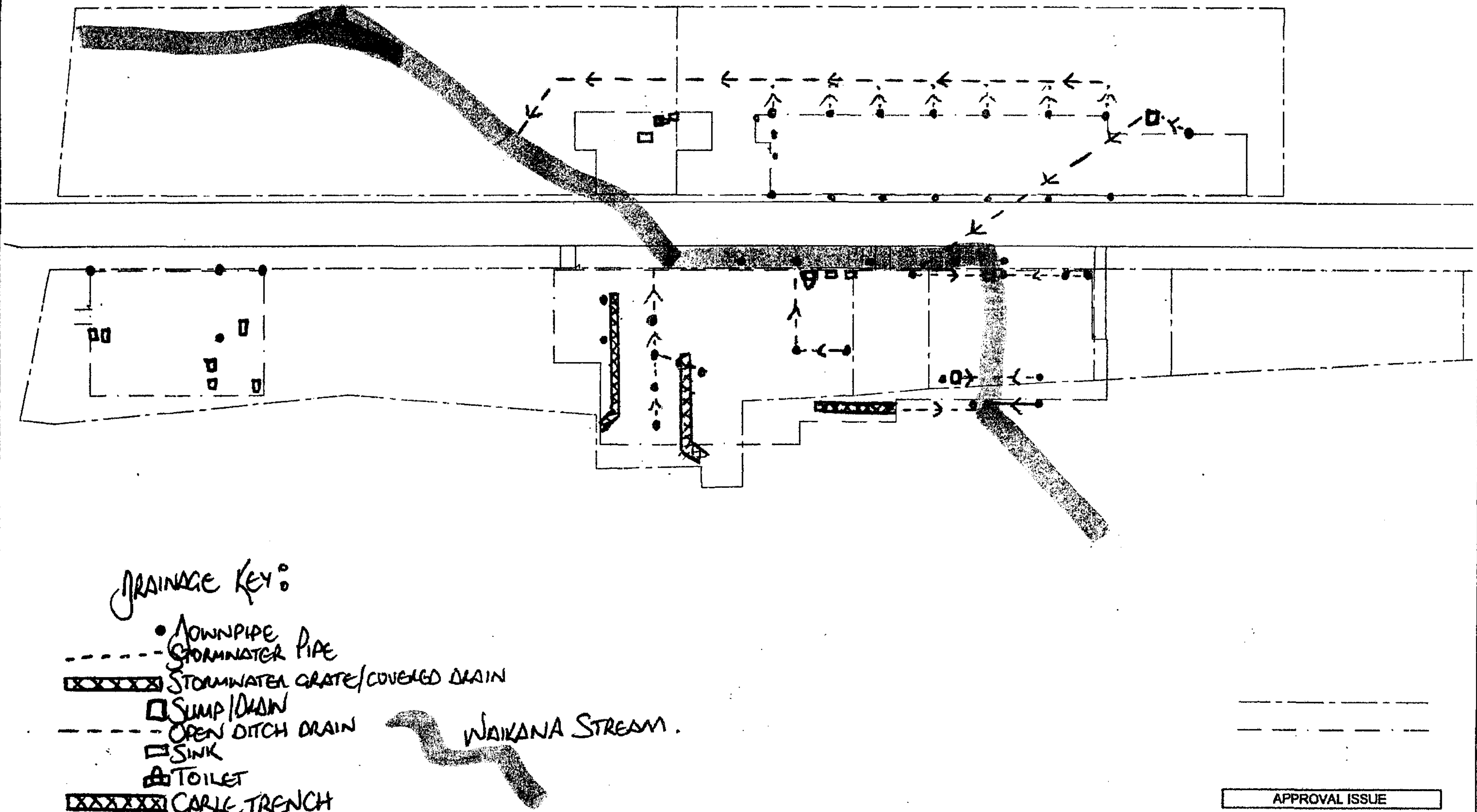
DRAWN	DRAWING CHECK	REVIEWED	APPROVED
BBC			
DESIGNED: TD	DESIGN REVIEW	DATE	DATE

TITLE: MATAURA FLOOD PROTECTION PLAN

SCALE: 1:500 | DRAWING No: AE04729-NEP-DG-0003 | REV: A

A1

DATE: 2/07/2015 1:44:53 PM LOGIN NAME: COUSINS, BRYCE



APPROVAL ISSUE

REV	DATE	DRAWN	REVD	APPD	REVISION
C	09-03-15	DCC	TD	NC	SITE LAYOUT PLAN SHOWING HAZARDOUS STORAGE ONLY
B	23-09-14	DCC	TD	NC	APPROVAL ISSUE
A	18-08-14	DCC	TD		CLIENT REVIEW ISSUE

JACOBS

CLIENT: TAHA ASIA PACIFIC LIMITED

PROJECT: LAND USE CONSENTS FOR THE STORAGE OF HAZARDOUS SUBSTANCES

DRAWN: DCC | DRAWING CHECK: TD | REVIEWED: NC | APPROVED: NC

DESIGNED: TD | DESIGN REVIEW: NC | DATE: 23-09-2014 | DATE: 23-09-2014

TITLE: MATAURA KANA STREET SITE PLAN

SCALE: 1:500 | DRAWING No: AE04729-NEP-DG-0002 | REV: C

A1

Appendix C Flood Protection Plan 6-monthly audit check sheet

The following systems are checked 6-monthly:

(1) All threads are functional and greased

(2) The sealing rubbers are in good condition

(3) All sealing shutters are present

(4) Polyethylene and sandbags are present and in good condition

(5) Permanent shutters are checked for condition and sealing

(6) Practice run of the plan done to ensure familiarity

Date Checked	Person Performing Check	Signature