Decision

Land Use Resource Consent
Resource Management Act 1991

Applicant:	Taha Fertilizer Industries Limited
Reference:	LU 2014/95
Location:	109 and 116-130 Kana Street, Mataura
Proposal:	Storage of hazardous substances
Type of Consent:	Land use consent
Legal Description:	Section 6-8 and 10, Part Section 9 and 11, Section 12 and Closed Road, of Block I Town of Mataura Bridge; Section 4, 5 Block XVI Town of Mataura Bridge; and Lot 1 and Part Lot 2 DP 147.
Zoning:	Industrial
Activity Status:	Restricted Discretionary
Commissioners:	Colin Weatherall (Chair); and David Pullar
Date of Decision:	27 October 2015
Decision:	Application approved with conditions.

The Application

Taha Fertiliser Industries Ltd lodged an application for consent to store Class 6 and 9 Hazardous Substances in excess of the volume permitted by the Gore District Plan at Kana Street, Mataura on the 12 March 2015. This application was an amendment to an earlier application that included processing as well as storage on the site. The application was notified on 13 March 2015. Submissions closed on 14 April. Sixty four submissions were received.

The proposed activity is located at 109 and 116-130 Kana Street, Mataura.

The sites are legally described as:

- Section 6-8 and 10, Part Section 9 and 11, Section 12 and Closed Road, of Block I Town of Mataura Bridge;
- Section 4, 5 Block XVI Town of Mataura Bridge; and
- Lot 1 and Part Lot 2 DP 147.

The certificates of title for these sites are SL7/126, SL8/135, SL23/898, SL41/253 and SL14/4175). These titles are treated as one site for the purposes of this application.

Taha Fertiliser Industries Ltd and Taha Asia Pacific Industries Ltd lease the property from Gregory John Patterson and Douglas James Harvey, who are the property owners.

Written approvals were received from J Harvie, an owner of 121 Kana Street and Gregory Paterson (Niblick Trust), also an owner of 121 Kana Street.

Prior to the hearing Mr Makgill, the applicant's legal counsel informed the Gore District Council by memorandum that in light of the fact there had been insufficient time for the Council to peer review the technical information provided, the applicant was prepared to delay the hearing to enable this to happen. Mr Makgill also requested changes to the hearing procedure to ensure the Council's Senior Planner summarised his report and reviewed his recommendations after the hearing of submitters.

The Hearing

The Hearing to consider this application was held at the Mataura Community Centre on 12 and 13 May 2015. It continued at the Gore District Council Chambers in Gore on 14 May 2015.

Appearances

Commissioner Colin Weatherall

Mr Weatherall commented on the site visit made by the Commissioners on Monday 11 May. He stated the Commissioners had not been restricted in what they were able to view, and another site visit was likely to take place later as part of considering the application.

Advice was sought from Mr Makgill in relation to the treatment of Environment Southland, who are advisors to the Gore District Council and who have also made submissions to the application. Mr Makgill advised that they should be treated as submitters of technical evidence. The Commissioners accepted this approach.

Commissioner David Pullar

Mr Pullar made a statement to the hearing. He asked the fact be noted that, through his farming company shareholding, he was indirectly a shareholder in the Alliance Group, which had made submissions to the application.

The Council's Senior Planner, Howard Alchin

Mr Alchin presented his Section 42A report. He noted that the application was for a retrospective consent, that this was not uncommon and that in this case it was a preferable approach to enforcement action. He considered that a consent could provide an exit strategy from the site for the applicant.

The application had been revised resulting in its present form. Mr Alchin's report is based on the information available at the time of writing, and has been peer reviewed. His report outlined concerns with the initial information provided and concerns of the Council's essential services and building inspection staff.

He noted that the application was for a restricted discretionary activity and that the matters may be considered by the Commissioners are restricted to those set out in the Gore District Plan. He noted the policies and objectives to be considered.

Taha Fertiliser Industries Ltd as Applicant

Mr Robert Makgill

Mr Makgill, the applicant's legal counsel, set out the applicant's case. He noted that consent was required because the Ouvea Premix stored at the old Mataura Paper Mill site is a hazardous substance under the Hazardous Substances and New Organisms Act 1996, and the quantities stored exceed the levels permitted by the Gore District Plan. He considered that much of the concern from the Mataura community was a result of misunderstanding about the nature of Ouvea Premix, which was a more stable and much safer product than the aluminium dross from which it is processed. He stated that Taha Fertiliser Industries Ltd (Taha) was requesting a temporary consent while a new storage site is developed in Invercargill.

Mr Makgill set out the company structure and history in relation to aluminium dross processing. The company had been processing this material since 2005. He noted that this enabled the recovery of aluminium from dross that would otherwise be disposed of in a landfill. Ouvea Premix is the material that remains following the dross processing and its value is in the remaining oxides. It is a Class 6.3A and 9.1C hazardous substance under the HSNO but it is at the lower end of the spectrum for intrinsic hazards compared with other Class 6 substances.

Mr Makgill noted that Ouvea Premix has the potential to be used in fertiliser manufacturing and in steel production. Taha originally intended to use the Mataura site for both the storage of Ouvea Premix and for fertiliser manufacturing. However, modelling indicated that the ambient air quality standards in the area are likely to already be exceeded by discharges from the Alliance Group Ltd meat processing plant. The community also indicated that they did not support the proposal. The processing part of the application was therefore not pursued. Taha wants to use the Mataura site until another storage site at the Awarua Industrial Park near Invercargill is developed.

Mr Makgill acknowledged the applicant has made mistakes in the past, and that consent should have been sought before storing Ouvea Premix at the site. He submitted that matters relating to incidents where processed aluminium material had been disposed of at Edendale have no bearing on this application.

Mr Makgill considered the technical evidence presented shows that there are no adverse effects as a result of storage of the material on the site.

Taha has applied for resource consents to:

(a) To store Class 6 and 9 hazardous substances above the quantities permitted in the Plan, namely:
    i. 9,951 tonnes (**T**) of Ouvea Premix (or 9,950 T above what is permitted by the Plan); and
    ii. 8 T of Sulphate of Ammonia (or 7 T above what is permitted by the Plan).
(b) For the provision of off-road parking below the required number of parking spaces for an industrial activity relevant to the ground floor area (GFA) of a site.

Taha seeks a temporary, two year, resource consent to provide it with sufficient time to develop a new purpose built storage and manufacturing facility at Awarua Industrial Park in Invercargill.

Mr Makgill commented on the consideration of restricted discretionary activities and noted that restricted discretionary activities restrict the decision-makers to the consideration of specified matters. In this case, the Council has restricted its discretion to the:

> Environmental effects of storing or using hazardous substances in quantities in excess of those specified in the Plan; and
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> Any adverse environmental effects resulting from non-compliances with parking requirements (in this case, the limited amount of off-street parking provided relative to the ground floor area of the site).

He noted that case law indicates when refusing to grant consent to a restricted discretionary activity, the only matters that could be taken into account were those over which the consent authority had restricted the exercise of its discretion. He also submitted that the

permitted baseline for industrial activities should be applied to this application. As an example he noted that the plan allowed storage of up 6,000kg of LPG, the processing of waste products and engineering fabrication, provided that relevant standards are met. He submitted that a wide range of permitted activities could take place at the site that would have a much greater effect on the community and the surrounding environment.

Mr Makgill commented on the matters not considered by the Planning Officer's report. These principally relate to the lack of consideration of the additional material provided by Taha in response to matters raised by the Council. Mr Makgill summarised the key issues raised in the Senior Planners report and by submitters.

The key issues are:

(a) What are the environmental effects of storing Ouvea Premix above the quantities permitted in the Plan. In particular, what are the environmental effects of Ouvea Premix dust, the release of ammonia gas to the atmosphere and the release of ammonium to the waterways?;
(b) Are these environmental effects considered significant? and
(c) How can these environmental effects be appropriately mitigated and managed?

He also noted he agreed that the following matters raised in the Planners report are not relevant:

(a) The fact that Taha is applying for a retrospective resource consent application. The application must be considered on the facts and the relevant planning instruments;
(b) The viability of the fertiliser Taha is currently trialling in Southland. The manufacturing and use of fertiliser is a separate activity to that being considered in this resource consent application;
(c) The alternative storage options that may be available to Taha. Taha has made a decision to proceed with this resource consent application at the Mataura site, as it is currently considered the most viable short-term storage solution for Taha;
(d) The status of Taha's public liability insurance; and
(e) Increased traffic movements to and from the site, except where material is being loaded and unloaded. There are no District Plan restrictions on traffic movements, and any increased traffic movements will not go beyond what is anticipated for an industrial activity.

Mr Makgill set out the environmental effects that have been identified by Taha's experts as follows;

(a) The impacts of ammonia gas generation when the product gets wet (under both normal circumstances and in an extreme flood event);
(b) The impacts of contaminants (in particular ammonium and fluoride) entering the Mataura River or Waikana Stream following an extreme flooding event;
(c) The impact of dry material entering the Mataura River or Waikana Stream as dust or following spillage; and
(d) The impact of Ouvea Premix dust being inhaled by nearby residents or Taha staff.

He considered that with appropriate mitigation and management the environmental effects of the application will be minor.

Maurice Shaw Plant Manager Taha Asia Pacific

Mr Shaw is the Plant Manager of the applicant's aluminium dross processing plant at the Tiwai Point aluminium smelter. Mr Shaw provided background information on Taha International, the parent company of Taha Asia Pacific and Taha Fertiliser Industries in New Zealand. Taha International is registered in Luxemburg and has its headquarters in Bahrain. Taha's business in New Zealand is based around recovery of material from waste from aluminium smelting. This involves recovery of aluminium from aluminium dross, with the remaining material being known as Ouvea Premix. Taha Asia Pacific, the dross processing company, employs 24 staff. Taha Fertiliser Industries has three staff. Processing of aluminium dross has taken place at Tiwai Point since 2011. In 2012 trials began to develop the processed product for use as fertiliser. This product is a broad spectrum slow release fertiliser which has European approval and certification. Ouvea Premix is also being trialled for use in the steel industry.

The Ouvea Premix that results from the processing of dross directly from the smelter is known as Caste House Ouvea Premix. Taha also excavates dross from landfill at Tiwai. This material after processing is known as Landfill Ouvea Premix. Ouvea Premix consists of aluminium oxide, aluminium nitride and magnesium aluminate, sodium and calcium salts and other trace metals.

Mr Shaw noted that the company has made mistakes, and that it is working to make amends. The storage of Ouvea Premix will be moved to the Awarua Industrial Park near Invercargill when the storage facility there is developed.

In response to questions from the Commissioners, Mr Shaw stated that the Mataura site is inspected two to three times a week. He stated that loading of trucks would take place outside the storage buildings. He noted that any wet premix removed from the site would be reprocessed at Tiwai Point. The bags in which the premix is stored have a load rating of 1,250kg but are capable of loadings of up to 1,500kg. He stated that there are no requirements that the company needs to put in place in relation to flood protection at its Invercargill storage sites.

Lindsay Buckingham, Project Management Consultant

Mr Buckingham set out the process of developing a permanent storage and processing facility for Ouvea Premix at the Awarua Industrial Park near Invercargill. Heavy industry is a permitted activity within the park which is located within the Industrial 4 (Awarua) zone of the proposed Invercargill City Council District Plan. The development of the site for Taha will require subdivision and land use consents and an air discharge consent from Environment Southland. Mr Buckingham indicated that land use consent is required for storage of hazardous substances. Mr Buckingham has been engaged by the applicant to manage this process. A number of consultants have been engaged to appropriately manage the project's planning, engineering, air discharge and surveying aspects.

Mr Buckingham stated that the storage part of the facility will be constructed first, then the processing facility. This will enable the movement of Ouvea Premix stored at Mataura as a matter of priority. Preliminary evaluations indicate that there are sites within the Awarua Industrial Park that will meet the air discharge requirements and not impact on existing users.

Mr Buckingham stated that following confirmation of securing the site, 12 months would be required to establish the storage facility. This would provide time to obtain the required consent, and to design and build the facility and any supporting infrastructure. Allowing for 100 working days to remove the Ouvea Premix from Mataura, the site is anticipated to be cleared in approximately 17 months from the time of site selection at Awarua. The consent is requested for two years to allow for delays.

Stephen MacKnight, Structural Engineer

Mr MacKnight submitted evidence relating to a preliminary structural assessment of the former Mataura Paper Mill Buildings. Mr MacKnight noted that the buildings on the site are of different ages and structural types, ranging from early timber-framed buildings to very solid reinforced concrete structures.

The structural assessment involved obtaining readily available information on the buildings from a site inspection of both the interior and exterior of the building, reviewing any drawings or other information available, and by using the standardised IEP (Initial Evaluation Process) as developed by the New Zealand Society of Earthquake Engineering to obtain an assessment of the likely percentage of the New Building Standard based on the age, layout, location and type of construction of the building.

Mr MacKnight noted the process used is an indicative assessment and its accuracy is dependent on the judgement and experience of the engineer carrying out the assessment. The most susceptible building in terms of seismic resistance is considered to be the original Paper Mill building at 121 Kana Street. Mr MacKnight does not believe that this structure is earthquake prone, as it would not collapse in a moderate earthquake, and poses only a small risk to either those inside or adjacent to the exterior of the building in a significant seismic event. The other buildings on the site are considered to have greater seismic resistance. Mr MacKnight considered that the buildings are suitable for the intended use.
Mr MacKnight suggested that any issues relating to weather tightness should be addressed in a timely manner.

Antony Dackers, Registered Electrician

Mr Dackers' evidence related to the current status of the building warrant of fitness and code of compliance for the subject buildings. Mr Dackers noted that every 12 months building owners are required to get a building warrant of fitness. This confirms to the local territorial authority that the safety features within the building have been tested and maintained in accordance with the compliance schedule for the previous 12 months and are operating as they were intended to. A 12A certificate must also be supplied from an independent qualified person (IQP).

Mr Dackers noted that the site has been unoccupied for several years and that no inspections or maintenance by an IQP have been carried out. Mr Dackers stated that he carried out the first IQP inspections late last year. Fire exits, fire separations, signs, emergency lighting and the sprinkler system were inspected.

All systems except the sprinkler system were compliant. The sprinkler system requires significant work to make it operational.

Mr Dackers stated that he had been engaged by the building owner Mr Greg Paterson to carry out the required monthly testing. Because the sprinkler system is not yet operational, the owner cannot submit a building warrant of fitness to the Council. Because compliance systems have not been in place and inspected over the previous 12 months, no 12A form can be supplied. A statement has been made to Council that the systems that are compliant have been inspected and are operating as designed, and that they will continue to be inspected.

In response to questions from the Commissioners, Mr Dackers noted that the design of the sprinkler system considered the flammability of the product stored, rather than the risk to the product as a result of the sprinkler system operation.

On the second day of the hearing, Mr Paterson was present. He stated that a fire engineer had been engaged to re-commission the sprinkler system to enable a building warrant of fitness to be obtained. The sprinkler system would be monitored.

Ben Fountain, Senior Rivers Engineer

Mr Fountain conducted an assessment of the potential flood hazards and existing flood protection measures for the site.

Mr Fountain noted that the highest recorded flood in the Mataura River occurred in 1978, in which over topping and failure of flood banks resulted in inundation of the town. Following the 1978 flood, stop banks were constructed to contain a 1978 flood event with a 0.5 metre freeboard allowance. He noted that the flood banks were assessed in June 2013 by Environment Southland and that they are in a condition which will allow them to function as designed for flood events up to the size of the 1978 flood.

Mr Fountain noted that the site has potential to be flooded by both the Mataura River and the Waikana stream.

Based on the available information and condition assessment of the stop banks Mr Fountain considered that the site is protected from the Mataura River up to a 2% annual exceedance probability flood event. In events up to the 2% AEP flood, the primary threat to the storage buildings on the site is from the Waikana Stream. This is a much smaller catchment than the Mataura River and would have a much shorter response time and therefore less warning of flooding. Flood warnings will depend on predictions of intense rainfall issued by the Met Service, typically 24 hours before a flood event.

Flooding from the Waikana Stream could result in water up to one metre deep flooding onto Kana Street. This would require blockage of the Waikana Stream culvert. The actual risk of blockage due to debris is considered low due to the location of a weir across the channel upstream of the culverts that will act as a debris trap. Mr Fountain also noted that the Waikana Stream could be backed up by floodwaters in the Mataura River.

Mr Fountain stated that in flood events greater than the 2% AEP flood the Mataura River is the primary threat to the storage buildings on the site. In such an event, there is a risk of stop bank failure. In a large fast flowing system such as this the risk of failure increases if the earth embankments upstream of the site are overtopped in a large flood.

Modelling of failure of the stop bank on the eastern side of the Mataura River predicts a flood level of up to 2.5 metres on Kana Street. This includes a 0.5 metre freeboard due to the possibility of standing waves down the street. However it is unlikely that the depth of the flooding would get much deeper than 2.5 metres as the stop banks on the western side of the river would also be over topped.

In any given year, there is a 2% chance of Kana Street being flooded to a depth of 1m from the Waikana Stream and a 1% chance of Kana Street being flooded to a depth of 2.5m with 0.5m freeboard from the Mataura River.

Mr Fountain commented on flood protection measures for the site. In the event of flooding from the Waikana Stream he considered that the purpose built barriers would keep much of the flooding out of the storage buildings. However he noted that a number of hours warning would be required to erect these barriers. He also suggested the construction of the earth bund to prevent the Waikana Stream from flowing behind the buildings on the east of Kana Street.

In terms of the Mataura River during a 1% annual exceedance probability flood he estimated the maximum depth of water inside the main buildings would be approximately two metres. The buildings with greater elevation above the road level, the inundation above the floor level would be one metre. He considered that the flow velocities within the buildings would likely be slow if not stationary and that there was also almost no risk of 1 tonne bags of Ouvea Premix being carried out of the buildings. Mr Fountain recommended that once a flood such as this subsides, the contaminated flood waters discharging from the bags should be collected in the loading pits in each of the storage buildings and treated prior to disposal.

Mr Fountain commented on the concerns expressed relating to elevated river bed levels and a reduction in flood water capacity as a result of the cessation of gravel extraction from the Mataura River. He noted that the information he had been provided by Environment Southland indicated that the current defences are still able to meet the designed standard of protection, which is protection from a 1978 magnitude flood.

In response to questions from the Commissioners, Mr Fountain stated that he considered that the protection provisions available are not sufficient for the use of the site as a long term storage proposition. He agreed that seepage of flood waters will be an issue and that this should be monitored and managed by staff as long as it is safe to do so. He considered

that the site would be safe until the point when a Civil Defence emergency was declared. He agreed that the post-flood management of the site presented potential access issues.

Bruce Clarke, Environmental Consultant

Mr Clarke carried out an assessment of the potential environmental and community risks relating to the storage of hazardous substances at the Mataura site.

Mr Clarke noted that 76% of the material stored at the site is Cast House Ouvea Premix and 16% is landfill Ouvea. The remaining 8% is DRP baghouse material collected from the metal recovery baghouse extraction system.

All the Ouvea Premix is stored in one tonne bulker bags, which are a double layer heavy duty bag with a polyethylene mesh woven outer layer with a clear heavy duty plastic inner. A spout is located at the base of the bag and is fitted with rip cord mechanism. The mechanism is sealed while the bag is in storage and is used to open the spout allowing the material to flow out into a hopper or into a vessel. The spout is closed when the bags are filled with Ouvea Premix at the NZAS site. Filling is via a spout located at the top of the bag and when filled the inner plastic liner is closed and sealed tight using a plastic tie. The out layer is then sealed and tied off. There will be no filling or emptying of the bags stored at the Mataura site.

Mr Clarke also noted that the storage site is located in an industrial zoned area of Mataura in which the Mataura Alliance Group meat processing plant is also located. This facility has resource consent to discharge contaminants (particulate matter, sulphur dioxide, oxides of nitrogen) including odour to air. The Mataura Alliance Group meat processing plant site uses anhydrous ammonia as a refrigerant and discharges around 700 kg of ammonia per year as a result of losses from the system (according to the Assessment of Environmental Effects.)

Mr Clarke also noted that the industrially zoned area is in central Mataura and is surrounded by residential areas. Mr Clarke carried out a hazard identification and risk assessment for the storage of Ouvea Premix in the former Mataura Paper Mill buildings. The purpose of this assessment was to address the concerns raised by the Gore District Council and submitters in relation to potential offsite impacts on community health and safety and the environment as a result of a fire, flood or uncontrolled chemical reaction at the site.

A desktop review of potential chemical reactions and reaction processes was undertaken. A field trial to determine how the bags used to store the Ouvea Premix perform when immersed in water to represent flood inundation conditions should they occur at the site was also undertaken. This included a laboratory test to confirm that the theoretical reaction mechanisms of Ouvea Premix with water occur as predicted and to calculate the theoretical release of contaminants (in particular ammonia in the gaseous and aqueous forms) and their resulting offsite consequences.

Ouvea Premix is a dry, granular substance, which is an output of the aluminium recovery and recycling process. Ouvea Premix is made up of aluminium oxide, aluminium nitride and magnesium aluminate in varying concentrations dependent on the source of the dross that is put through the aluminium metal recovery process operated by Taha at the Tiwai Point

Smelter. Other components in the Ouvea Premix include aluminium fines, sodium and calcium salts, and other trace metals.

The Environmental Protection Authority (**EPA**) has classified Ouvea Premix as a

- Class 6.3A Skin irritant;
- Class 6.4A Eye irritant; and
- Class 9.1C Aquatic eco-toxicant.

When mixed with water, Ouvea Premix has the potential to generate ammonia through a series of reactions. However, the ammonia generation potential is regulated by the reaction mechanism of Ouvea Premix with water and the amount of product that gets wet:

- When the Ouvea Premix is fully immersed in water, the ammonia generated will dissolve into water ultimately forming ammonium. In this situation, the amount of ammonia gas generated is negligible.

- 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.

- When Ouvea Premix comes into contact with water (moisture), the aluminium nitride (AlN) may be degraded (hydrolysed) by water in the following series of reactions:

  $AlN + 2H_2O \rightarrow AlOOH$ (Boehmite) $+ NH_3$ (1)
  $AlOOH + H_2O \rightarrow Al(OH)_3$ (Production of Gibsite) (2)
  $NH_3 + H_2O \rightleftharpoons NH_4+ + OH-$ (3)

In the initial hydrolysis reaction (1 above), the AlN is converted to a porous, amorphous compound (AlOOH, or Boehmite), which is then further hydrolysed to crystalline aluminium hydroxide (Al $(OH)_3$, or Gibbsite). The rate of AlN conversion to ammonia (NH_3) is highly dependent on temperature, with typical reaction times ranging from ~10-100 seconds at high temperatures of around 100°C, to over a day at room temperature before reaching equilibrium). At room temperatures the hydrolysis reaction stops before completion, as the aluminium nitride particles become coated by a thin protective shell of aluminium hydroxide and aluminium oxide. The shell acts as a hydrophobic coating, and prevents further reaction of the AlN with water, even when the particles are submerged in water. This shell and coating process operates like peeling off a veneer layer from a log, one at a time until the log has been completely peeled. As with the peeling process, the Ouvea Premix reaction is relatively slow and the releases of ammonia are also slow.

The full conversion of aluminium nitride to ammonia is dependent on temperature, the availability of water, and any mechanical processing or friction that may agitate the material and allow a faster rate of hydrolysis through removing or displacing the protective 'shell'.

The percentage of AIN in Ouvea Premix sets the potential level of ammonia generation when reacting with water. Analysis of samples has indicated that the Cast House Ouvea Premix contains up to 40% of AIN by weight (ranging from 24 to 40 % with an average of around 30%). The landfill Ouvea Premix by contrast contains up to 4% of AlN by weight, with most samples showing an AlN concentration of less than 1%. This difference is assumed to be due to the NZAS landfill dross reacting over time (more than 30 years) with water in the landfill environment resulting in hydrolysis of the AlN to aluminium oxides and nitrogen compounds, and subsequent leaching of the nitrogen into the surrounding environment. As a result, landfill Ouvea Premix has a much lower potential to generate ammonia.

The mass balance assumes 40% of the Cast House Ouvea Premix is AlN by weight, 400 kg/tonne of the premix consists of AlN. This equates to 135 kg of nitrogen, or 165 kg NH_3 per tonne, assuming all AlN is converted to NH_3. Using similar assumptions for landfill dross, around 16.5 kg of NH_3 per tonne of material may be generated, again assuming complete conversion of AlN.

In the proposed storage conditions for Ouvea Premix, any ammonia if formed due to dampness, is at a very slow rate, with the hydrolysis reaction occurring over a period of days to years. It is possible that fugitive gas emissions can be detected as an odour. Any ammonia formed will generally remain *in situ* with the product material due to the high solubility of ammonia in water as aqueous ammonium hydroxide, and will not be released as ammonia gas.

Under normal conditions of storage at Taha, the material will be stored at low temperatures, in mainly dry conditions (some dampness may occur due to condensation and changes in relative humidity) and involve limited friction such that oxidation of AlN by water will be limited. As such the release of ammonia will be negligible and have virtually no adverse effects beyond the boundary of the Taha site.

In addition to the production of ammonia described above, the AIN is slightly exothermal (heat releasing), such that localised heating of the Ouvea Premix occurs. Under the conditions of localised heating and alkaline pH, a secondary reaction starts where tiny, high surface area particles of aluminium metal react with the now alkaline, localised, water conditions to produce small amounts of hydrogen (H_2), gas.

Hydrogen is not a toxic gas. The formation of hydrogen gas that occurs in individual heavy duty bags is expected to be extremely low given the small localised reactions. Tests undertaken on samples of the stored Ouvea Premix indicate that Ouvea Premix will not spontaneously ignite and will only generate hydrogen at a rate of less than 1 litre per kg per hour. As such the material is below the threshold set by the Hazardous Substances (Classification) Regulations 2001 for a Class 4.3C substance being "*solids that emit flammable gas when in contact with water: low hazard*". Hydrogen only becomes a problem if allowed to accumulate in significant volumes in confined spaces, which is extremely unlikely to occur in in the proposed storage conditions. Any gas that is released outside the bags will rapidly disperse through building ventilation.

Two trials were undertaken to determine the generation potential for ammonia in gaseous form of the Ouvea Premix. The trials also determined an estimate of the amount of Ouvea Premix that would get wet if a bulker bag was fully immersed in water.

The first trial indicated that Ouvea Premix when immersed in water does not generate any ammonia gas in measurable quantities as long as the Ouvea Premix remains immersed. The ammonia generated is dissolved into the water. When no longer immersed after some hours Ouvea Premix has the potential to produce ammonia gas in minor quantities. This trial confirmed the ammonia generation potential of Ouvea Premix as described by the theoretical chemical reactions. When saturated ammonia generally remains in an aqueous form and dissolves in water and reacts to from ammonium. As the material dries ammonia is released as small quantities of ammonia gas.

The second trial confirmed that the bags are not fully water tight, but provide a reasonable level of protection and, as such, it is likely that some water will enter the bags in a flood event via the lower zip tear closed spout which will result in wetting of around 15% of the material contained in the bag. However, as described in the first test, when fully immersed, any ammonia generated will generally remain in an aqueous form and dissolve in the water, with some ammonia being released as ammonia gas when the product dries.

The Commissioners noted that the bulker bag was immersed in water for 24 hours. There was limited information provided in relation to the emissions of ammonia gas over an extended period following the removal of the bags from the water that would simulate what would occur over an extended drying out period. The Commissioners also questioned what level of wetting of the Ouvea Premix would have occurred if the bags had been immersed in water for a longer period. Mr Clarke stated that it was likely that the wetting would not be much greater than that shown in the trial as an equilibrium point would be reached.

Mr Clarke commented on the measures that had been put in place by the applicant to mitigate effects on the environment. With respect to dust prevention he noted that the Ouvea Premix is stored in double-layer bulker bags which are sealed and that this effectively eliminates dust emissions during handling and storage on the site. The bags are stored inside, in doors, and the doors are only opened when the material is removed for transport. He noted that the trucks will be loaded outside the buildings. Any amount of material that may be spilt is likely to be relatively minor and the dust generation potential is very minor. The applicant has procedures are in place to deal with spills on site. Should a spill occur the nearby doors will be closed and sandbagged.

Material spilt will be collected using on site spill kits and returned to storage if usable. If not usable it will be returned to the processing plant for further processing.

With respect to flood protection of the site, Mr Clarke set out the flood protection measures available. There is a flood retaining wall along the majority of the north western boundary and bolt-on steel and concrete shutters which can be attached to doors to prevent the ingress of water. Both of these measures are designed with a 600mm freeboard above the highest recorded flood. All unused piping has been sealed and all other essential storm water piping has one-way valves to prevent the ingress of water. Waikana Stream is checked

and cleared regularly to enable free drainage. The open channel on the eastern side of the site is checked and cleaned six monthly.

Silica bags are stored on the site to use as emergency sandbags. Should water enter the building in a flood, all hazardous substances are stored in double layer heavy duty bags with a mesh woven outer side layer and a plastic lining. Lower levels of the buildings at 109 Kana Street will not be used and hazardous substances adjacent to the eastern side doorway of 116-128 Kana Street are stored on pallets.
Mr Clarke used a source-pathway-receptor approach to quantify the risk to the environment and the surrounding community from the use and storage of hazardous substances on the site.

Mr Clarke commented on the hazards presented by the storage of hazardous substances at the site as including: toxic/corrosive properties of the substance (intrinsic hazards); eco-toxicity hazard; dust emissions; incompatibility of hazardous substances stored on site; fire/explosion hazard; natural hazard; and vandalism hazard. He assessed these hazards individually with respect of the products stored on the site. He considered under the normal storage conditions that the potential eco-toxic effects were negligible however under flood conditions there could be some eco-toxic effects. He considered that the materials pose a potential dust hazard to workers in the surrounding area if they are not stored and transferred appropriately. Small quantities of diesel stored on the site present a fire explosion hazard.

He notes the Ouvea Premix is not a flammable or spontaneously combustible material. He considered that the potential for Ouvea Premix to decompose in a building fire was very low. He noted that Ouvea Premix can generate small amounts of hydrogen gas as a result of flooding or localised dampness however, the levels produced are expected to be very low. He noted that hydrogen only becomes a problem if it accumulates in significant volumes in confined spaces. In the event of flooding, monitoring of the storage areas should be undertaken once flood water recedes to check that hydrogen levels do not approach 4000 parts per million which is the lower explosion limit for hydrogen. He noted that Ouvea Premix reacts slowly when it comes in contact with water, liberating ammonia at a slow rate. He referenced Mr Fountain's evidence in relation to flooding on the site and Mr MacKnight's evidence in relation to the structural assessment of the building with regard to earthquake risk.

Mr Clarke then considered the exposure pathways. Given the storage of the material in bulker bags he considered that the potential for dust generation at the site and beyond the site boundary as minimal. He considered that the exposure of dust to the community and the environment is not a credible environmental or human exposure pathway. He noted with respect to ammonia gas emissions, that in normal storage conditions very small quantities of ammonia are generated.

He stated that the ammonia is captured in sealed bags with small quantities released into the building. Some of this is discharged as fugitive emissions into the atmosphere. Monitoring has only recorded ammonia outside the building on one occasion. This was attributed to a potential ammonia leak from Alliance Group Ltd's, Mataura operations.

Mr Clarke considered that the total mass of ammonia gas released following an extreme flooding event could have offsite effects and is therefore a credible exposure pathway. He noted that there is also a potential for ammonia gas to be generated as a result of a localised fire, when the sprinkler system is used. He also noted that drainage from the building as flood waters receded would result in contaminates being released in the flood waters and that this is a credible exposure pathway.

Mr Clarke then considered the potential consequences of a discharge of ammonia as a result of the reaction of Ouvea Premix with water. The generation of ammonia gas is minimal while the premix is immersed in water as the majority of the ammonia is dissolved in the water.

Based on an assessment of the information obtained from Mr Fountain's evidence relating to flooding, and the trials carried out on the immersion of Ouvea Premix in water as well as screening dispersion modelling, Mr Clarke concluded that a maximum one-hour average ammonia concentration of 2.2 mg/m^3 is predicted to occur approximately 100 metres from the site. This is a level of continuous exposure to ammonia that is below the level at which there are no observable health effects to anyone who is exposed to the gas. This is the No Adverse Effects Level for Human Equivalent Concentrations (NOAEL (HEC)) concentration for ammonia of 2.3 mg/m^3. At the predicted concentrations people in the area would not be able to smell the ammonia. This modelling indicates that the consequences of the ammonia gas released as a result of an extreme flood event at the site would have very limited off-site effects.

Mr Clarke then considered the discharge of ammonia, fluoride and nitrate into flood waters. Mr Clarke's analysis concluded that a predicted concentration of ammonia of 1.3 µg/L in flood waters after mixing. The ANZECC freshwater guideline for protection of aquatic ecosystems (99% level of protection) is 320 µg/L of ammonia. The fluoride level discharged after mixing was substantially below the NZ drinking water standards maximum acceptable value. For nitrate, NIWA has determined for freshwaters, a chronic-high conservation value systems (99% protection) concentration of 1 mg/L. The predicted concentration of nitrate in the Mataura River as a result of discharges form the Taha site in a flood event is 0.0042 µg/L.

Mr Clarke noted that not all of the flood waters would be discharged back to the Mataura River and that there will be pools of water remaining in the building once the flood receded. This would remain in contact with the bulk bags of the Ouvea Premix and the contaminants from the premix would continue to be dissolved into the water. Mr Clarke recommended that the water remaining in the building be tested to determine its contamination concentrations and that until the contamination was determined the water needs to be prevented from discharging into the Mataura River or Waikana Stream. Mr Clarke considered that this water would most likely require treatment before being discharged.
Using a qualitative risk matrix assessment, Mr Clarke assessed all hazards as having low to moderate levels of risk and as acceptable. Mr Clarke stated that the risk posed by the storage of Ouvea Premix at the Mataura site on the surrounding environment is acceptable, even when extreme flood events are considered.

Mr Clarke commented on the Council officer's report. Mr Clarke noted that an approved handler under the Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2003 is not required.

Mr Clarke considered that a bond was not required due to the low level of risk of environmental effects.

Mr Clarke then considered matters raised by submitters. He noted that the Southern DHB had expressed concerns relating to potential dust emissions from the storage of powder and granulated substances at the site. He noted that the use of the bags in question was common in NZ and overseas for the transport and storage of powdered and granulated materials such as fertilisers, soda ash, pot ash, lime and sulphur. He also noted that there would be no filling or emptying of bags stored at the site.

He also noted that the Alliance Group Ltd meat processing plant stores quantities of hazardous substances including anhydrous ammonia, which could pose a major industrial hazard accident risk to the surrounding area. He considered that the level of risk posed by the meat processing plant should be weighed against that relating to this applicant. In his opinion the risk related to this application was very low and acceptable.

Mr William Watt, Planning and Resource Management Consultant

Mr Watt provided planning evidence in relation to the application. He provided a summary of the site and the surrounding environment. He noted that the application was for a restricted discretionary activity under Rules 6.9(2), 5.9.2 and 5.9.4 of the Gore District Plan.

Gore District Council has restricted its discretion to:

- In the case of hazardous substance storage, the environmental effects of storing or using hazardous substances in quantities in excess of those specified in the Plan; and
- In the case of parking non-compliances, the adverse environmental effects of the matters with which there is non-compliance (in this case, the limited amount of off-street parking provided relative to the GFA of the site).

Taha seeks a time period of two years for the resource consent to provide it with sufficient time to develop the new, purpose-built storage and manufacturing facility at Awarua Industrial Park in Invercargill.

The site is zoned industrial. As a result there are a wide range of credible, permitted activities that could take place on the site that could have greater potential adverse effects than the activity proposed by Taha. Chapter 6 of the Gore District Plan addresses hazardous substances with Rule 6.9 providing for the storage or use of a range of hazardous substances as a permitted activity, subject to meeting the maximum amounts set out in Table 6.2.

Table 6.2 does not distinguish between the various subclasses under the Class 6 classification. Instead, Table 6.2 combines all class 6 substances under the same category labelled "Poisonous Substances". Mr Clark's evidence has highlighted that there is a range of

different Class 6 substances which are not of the same level of toxicity and that the categorisation of a combined "Class 6" is inconsistent with the HSNO regulations.

The District Plan applies the same restriction on the amounts of any Class 6 substance that can be stored, in spite of the fact that the actual and potential effects of these substances on the environment or human health can vary widely.

Mr Watt then provided an assessment of the environmental effects of the proposal. With respect to dust and spillage he concluded that under normal circumstances there are no adverse environmental effects from the storage of Ouvea Premix. The storage bags are sealed and there is no dust discharge of any kind. He noted that there is potential for spillage during handling and loading onto trucks and that this could give rise to discharge into the wider environment and potential dust inhalation and land/water deposits if this occurs outside the building. Mr Watt set out the mitigation measures proposed and considered that the risks associated with the generation of dust are acceptable.

Mr Watt then considered the generation of ammonia gas. He noted that for an adverse effect to occur on the environment, a number of things needed to happen:

- Water needs to get into the building, through building leaks during wet weather, from flooding from either the Waikana Stream or the Mataura River, through building full or partial collapse in a storm or flood, or through use of the building sprinkler system during a fire;
- Water then needs to breach the mesh-woven double lined bags with plastic lining in which the material is stored in; and
- Water needs to breach the bags to such a degree that a significant effect is caused.

Mr Watt concluded that as a result of recent maintenance to the buildings, the buildings are suitable for the intended purpose and are adequately maintained. He noted Mr Fountain's evidence in relation to flood risk and Mr MacKnight's evidence which concluded that the buildings are structurally fit for purpose and are not considered earthquake prone. He also noted that the sprinkler system is to be re-commissioned.

While leaks and the fire sprinkler system could result in water entering the building, Mr Clarke in his statement of evidence concludes that flooding is the only event that could result in water entering the building to an extent that it could cause significant environmental effects.

On the basis of Mr Clarke's evidence Mr Watt concluded that the release of ammonia from water coming into contact with Ouvea Premix is an event of low probability (i.e. 1-2%) with low potential impact. As such, he considered that the risk is such that it can be appropriately managed and mitigated through the Environmental Management Plan and conditions of the consent. While it remains an 'effect' under the RMA, it is not in Mr Watt's opinion a significant effect.

Mr Watt also concluded that the potential contamination of the Mataura River by the discharge of ammonium and fluoride into the flood waters is also an event of low probability (1-2%) with low potential impact. He considered that such an effect is acceptable

and can be appropriately mitigated through proposed emergency procedures which could form a condition of consent.

Mr Watt also considered matters relating to traffic and parking. He agreed with the conclusions of the officer's report and considered that the effects on the environment associated with the failure to meet the minimum parking requirements will be less than minor.

In summary Mr Watt concluded that the activity's exposure to environmental hazards is unlikely to give rise to significant environmental effects in terms of the RMA.

Mr Watt assessed the application in terms of National Policy Statements and National Environmental Standards. He concluded that the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health need not be considered further as no ground disturbance is planned. He noted the statutory requirements for the storage, use and disposal of hazardous substances under the Hazardous Substances and New Organisms Act 1996 (HSNO), HSNO regulations, and gazette notices.

Mr Watt considered the application had given effect to both the operative regional statement and has had regard to the proposed regional policy statement.

Mr Watt then considered the District Plan objectives and policies. Mr Watt considered the proposed activity is consistent with Objective 3.3 (2) of the Plan. He noted the proposed activity takes place in an existing building on an industrial site and that this is in keeping with the established character and amenity values of the surrounding area. He also noted that there had been a careful assessment of flood risk and the consequences and this meets the expectations of Objective 4A3 (2). He considered the proposal was consistent with the objectives and policies relating to transport matters. Based on the assessment of environmental effects that he had carried out and the supporting evidence from Mr Clarke and Mr Fountain, he considered the proposed activity was consistent with Objective 6.3(f) and Policy 6.4(1) which relate to hazardous substances and the appropriate mitigation of the environmental risks associated with the risks, storage, transportation and disposal of hazardous substances.

Mr Watt considered that the Mataura River conservation order was not relevant as the applicant is not considering any proposal to take or discharge into the Mataura River.

Mr Watt commented on the credibility of the two-year consent term sought by the applicant. He relied on the evidence of Mr Buckingham and also on his experience in his previous role as director of Environmental and Planning Services with the Invercargill City Council. He considered the timeframes for completing the resource consents required to be both reasonable and practicable.

Mr Watt then addressed the Council Senior Planner's Section 42a report. He noted there was confusion over the actual total volume of material to be stored and suggested that it was appropriate to consider the application is for 10,000 one tonne bags. This will be more

readily measurable and enforceable. He also accepted that the subject property is held in five different certificates of title but for the purposes of this application, it is best regarded as one site. He noted that most of the other matters raised were dealt with by the expert evidence presented. He did not consider that a bond was appropriate as any event likely to give rise to an adverse environmental effect is of low probability and then the effect is of low consequence.

Mr Watt responded to concerns raised by submitters.
Mr Watt assessed the application in respect of Part 2 of the RMA. As a part of this assessment he stated that in terms of Section 7 (b) the proposal promotes the use of a by-product of an aluminium smelter which previously went to waste. It enables the efficient use and development of natural resources.

Mr Watt provided a list of suggested conditions.

Gore District Council's Advisors

Murray Hasler – Roading Manager

Mr Hasler commented on the lack of information regarding the loading out of material on the east side of Kana Street. He noted there were no issues in relation to the west side of Kana Street. The number of car parks provided is satisfactory.

On the east side of Kana Street there is limited room to park a truck and trailer. Mr Hasler noted that the only footpath on Kana Street is on the east side. It was therefore important that truck and trailer units parked for loading out on the east side of the street do not restrict access to the footpath. Given the limited space on the east side of Kana Street Mr Hasler considered that the use of truck and trailers exceeding 20 metres in length would not be acceptable. The use of the longer 23 metre maximum length truck and trailer units on the western side of Kana St would be acceptable. All loading needed to take place off the street.

Mr Hasler provided some suggested conditions:

- Condition 1. That truck and trailers are fully contained on the property while loading.

- Condition 2. That the length of truck and trailer units is ascertained before arrival on the site to ensure that they can comply with Condition 1.

- Condition 3. That the consent holder submits a traffic management plan to the Gore District Council roading manager and NZTA for approval prior to loading out from the site. This plan will include provisions for management of any truck and trailer movements that may need to reverse on or off the site.

Russell Paterson – Building Control Manager

Mr Paterson commented on the concerns he had raised in relation to the previous use of the building and whether there was a potential for a reaction between the chemicals that had been used there and those that are now in storage.

Mr Paterson also questioned whether there was potential for the material that is stored to cause corrosion of the building structure. In response to questions from the Commissioners relating to any previous issues with the building, Mr Paterson advised that material had been dislodged from the boiler chimney stack. Mr Greg Paterson, the owner of the building, advised that the boiler chimney had a less than 30% of the required compliance level for earthquake resistance and that the chimney has been repaired since the events the building control officer referred to. The chimney will be demolished in the long term.

Submissions

Public Health South

Patricia Aitken, Health Protection officer, presented a written submission on behalf of Public Health South. They had a neutral stance in relation to the application.

Public South Health's concern related to the potential emissions to air that may create adverse effects on the health of people and communities. Their submission included a record of recent odour related complaints concerning Ouvea Premix storage at the site.

Louise Wickham, senior air quality specialist, presented evidence as Public Health South's witness. In written evidence she expressed concerns that Ouvea Premix is not stored in air tight containers and that it will absorb water when exposed to air, which will then react exothermically to produce ammonia gas. This had been measured up to 13 parts per million in the building at Kana Street. She also noted that the site was prone to flooding, that storage bags are not waterproof, that the storage facility did not appear to be weather proof, that the risk of leaks from rain appears to be high, and that the uncovered loading areas increased the opportunity for rain to make contact with the Ouvea Premix. She noted that all of the above issues could potentially be a source of fugitive ammonia emissions.

Hydrogen gas is also produced in a secondary reaction with the aluminium. Hydrogen is highly combustible if generated in sufficient quantities. She noted that the leaky buildings may reduce the build-up of hydrogen. She has noted that ammonium sulphate is stored on site. She agreed with Mr Clarke's evidence that ammonia will enter an aqueous phase when Ouvea Premix is fully immersed in water. However in partially inundated Ouvea Premix, ammonia gas would also be generated.

She considered that the simulated flood trial was not for a long enough period to definitively establish the level of inundation of the Ouvea Premix. It also did not enable the measurement of the generation rate of gaseous ammonia. She also noted that the bench test carried out indicated that Ouvea Premix generated measurable levels of ammonia prior to the introduction of any water.

Ms Wickham commented on appropriate management procedures for logging odour complaints. She noted that there was no intention for any alarmed gas meters to be installed and that she considered that there is a potential risk of high concentrations of ammonia being produced, which could present a risk to immediately adjacent neighbours and workers. This assumption is based on bench-scale testing which indicated concentrations of ammonia in excess of the short-term workplace exposure limit.

She also noted the uncertainty of the information provided in setting out the volumes and locations of the material. She noted that the assessment of environmental effects has not considered the dwelling at 114 Kana Street which is 11 metres from Store A.

She discussed the potential odour and health-related issues arising from ammonia. She noted that because the site is in a high humidity location there is a risk of fugitive ammonia emissions from a lack of air-tight storage, with potential health risks to onsite workers and immediate neighbours. These emissions may also result in offensive and objectionable odours for neighbours further downwind from the site. She noted that onsite workers may become accustomed to ammonia.

She stated that there is considerable variance in the published odour thresholds.

Ms Wickham agreed with Mr Clarke's conclusion that a fast-formed large toxic gas cloud is unlikely to result from a large flood event. However, she did not consider that the risk to residents of fugitive emissions from large amounts of wet Ouvea Premix in the drying out phase following a flood or fire event, and inundation with water, had been addressed.

She questioned the maximum potential concentration of ammonia in the building, based on the bench testing. She also noted the risk assessment assumed an emission factor of 0.53 kilograms per tonne for generation of ammonia emissions to air. However this was the ammonia generated in the aqueous phase not the gas phase. The risk assessment assumed a maximum of only 15% inundation on the basis of only one test over 24 hours. She considered that this may not be the maximum inundation experienced in reality. It also assumed that only half the ammonia generated is released into air with the rest remaining in the building.

She also expressed concern that the total area of the building was used in dispersion modelling when the emissions would arise from points of egress and not over the entire floor area. Overall she concluded that the risk assessment may significantly underestimate potential downwind impacts from an accidental release in the event of large quantities of Ouvea Premix having significant contact with water. She did not consider there were any conditions of consent that would satisfactorily address the issues that she had raised.

Environment Southland

Gavin Gilder, policy planner, presented written evidence on behalf of Environment Southland.

Mr Gilder added to the evidence of Mr Fountain by stating that when a flood exceeds the design capacity of the stop banks, the stop banks are very susceptible to structural failure

from scouring over considerable lengths of the stop bank, rather than just overtopping. Mr Gilder presented a number of photos of Kana Street and the paper mill which demonstrated the high velocity of the water flowing through the area during a flood. He stated that these indicated the necessity of timely installation of flood protection barriers. He noted that there are barriers to be installed on the west side of Kana Street and without similar barriers the buildings on the east side of the street may also be vulnerable to damage.

Mr Gilder commented on the ammonia fumes produced from Ouvea Premix at a site at Edendale. When questioned by the Commissioners he was not aware that the Environment Court decision in relation to an enforcement order from Environment Southland also considered that aluminium dross was buried at this site.

He noted that while there may be sufficient dilution of any leachate from Ouvea Premix during a flood, this may not be the case if the Ouvea Premix itself is washed into the river. If this was to occur there is likely to be adverse effects on the waterway once the flood has receded. Environment Southland submitted that water conservation on the Mataura River is relevant to the application and that it is also relevant that the kanakana fishery is of significance to iwi.

He submitted that material should be contained in plastic bins with suitable lids.

In relation to the building on the east side of Kana Street, he suggested that all Ouvea Premix stored in this building should be on pallets if not stored in plastic bins. He considered that monitoring rain events from weather forecasts was not a reliable method for providing warning of installation of flood barriers.

Laurel Turnbull

Laurel Turnbull of 9 Scott Street, Mataura, opposed the application. She expressed concern about the information available at the time of the closing of submissions. She noted the earthquake risk from the boiler chimney and that the buildings were an earthquake risk. She noted that the building had no current building warrant of fitness and that she didn't consider that it would be possible to fix the buildings to a standard that was suitable for the storage of this material.

She also noted the applicant's changes in response to issues relating to flooding as the consent application process progressed. She noted the potential for the site to be flooded. She also noted that the bags in which the Ouvea Premix will be stored are not waterproof. She provided a number of photos showing the damage to the paper mill as a result of the 1978 flood, and expressed concern relating to the potential for contaminated water from the site spreading over surrounding properties if a flood occurred. She also noted the risks relating to dust and fumes from the site. She stated that she had no confidence in the company and that a bond is required.

Aileen and Robert Meikle

Aileen and Robert Meikle of 22 Selbourne St, Mataura, opposed the application. The Meikles have lived in Mataura for 52 years and farm land on the western side of the Mataura River upstream of the site, between the railway line and the river.

They questioned how effective cleaning of the Waikana stream would be and how effective the flood protection measures at the site would be. They considered that the build-up of gravel in the river upstream of the site would increase the risk of flooding at the site. There has been no gravel removed from the river in this area for 15 years. They noted that the site is significant to Maori for collecting lamprey (kana kana).

They questioned how the floors of the building could have been inspected, given that the material is already stored there. They considered that there was a guarantee needed that the Ouvea Premix would be removed by a set date and that a bond was required.

Darryl Meikle

Darryl Meikle, 9 McKelvie Heights, Mataura, Opposed the application. Mr Meikle expressed concerns relating to the gravel build-up in the river, upstream from the site, and considered that the level of gravel in the river meant that the flood protection measures were not sufficient to prevent a 1978 level flood from inundating the site.

He expressed concerns relating to fire-fighting on the site and the effect that the operation of the sprinkler system would have on the Ouvea Premix. As an ex-paper mill employee he considered that there was potential for water infiltration through the floors of the building and that because the floors were already covered with the material already stored there they could not be inspected properly. He questioned when the Waikana stream had been cleaned and how the bund suggested by Mr Fountain would impact on drainage from the small drain running along the east side of the buildings on the eastern side of Kana Street.

Mr Meikle stated that the behaviour of the company in dealing with the community had not been consistent with its public statements and the Ouvea Premix had not been removed from the site when the company stated that it would be. Mr Meikle considered that a bond was required to clean up the site, should the consent holder fail to do so. He also suggested that regular inspections of the site were needed with independent parties being involved, including the Gore District Council, Environment Southland and the Mataura community.

Diana Krs

Diana Krs of 114 Kana St, Mataura, opposed the application. She considered that the applicant had been incompetent in the way that they had handled Ouvea Premix, particularly in relation to not obtaining consent for storage on the site. She noted that the building was still not secure and weather-proof and questioned how long the Ouvea Premix had been stored in Mataura. She also questioned the determination as to how hazardous the Ouvea Premix is and the testing of granulated premix as opposed to powdered premix.

Ms Krs questioned the impact of vehicles parked in Kana Street on flood water flows and whether this was likely to result in structural failure of the buildings. She stated that given the attitude of the company to date a substantial bond was required until the premix was completely removed.

Michael Kirby

Michael Kirby, 13 Doctors Road, Mataura, opposed the application. He questioned the components of the Ouvea Premix and the inconsistencies in the safety data sheets. He noted from the concentrations obtained from the testing done, as presented in Mr Clarke's evidence, that the levels of fluoride set out in Table 5 of the Hazard Identification and Risk Assessment indicate a level that is highly toxic. He stated that the removal of the Ouvea Premix is required.

Wyndham Angling Club

Mr Alan Leitch presented a submission on behalf of the Wyndham Angling Club which opposed the application. He expressed concern at the volumes of hazardous materials that are stored at the site and the effect that they would have if they got into the river. He noted the Environment Court decision: Southland Regional Council v Taha Asia Pacific, where Judge Borthwick stated that Ouvea Premix is "dangerous to human health and is an eco-toxicant". Mr Leitch stated that the Ouvea Premix which is illegally stored, is a hazard to local residents' health in the event of a disaster; and a hazard to local firefighters in the event of a flood, burst water pipe or sprinkler system, fire or earthquake. He also stated that it was a potentially disastrous bio threat to the Mataura River and Foveaux Strait.

Robin McGowan

Robin McGowan, 209 Crawford Road, opposed the application. He was concerned at the state of the buildings and the security at the site. He noted that it was close to the Kohanga Reo on Kana St, a sensitive site, and he was concerned about the impact on the children who attended it. He also expressed concern about the effects of dust from the site on the Alliance Group's processing plant across the river. He noted that this was an historic industrial site and that it presented long term planning issues. He questioned the ability to contain fire-fighting water within the building and whether or not an emergency discharge consent is required. He commented on the position the Commissioners found themselves in dealing with a retrospective consent and questioned whether the approach to the situation would be different if the Ouvea Premix was not already located on the site. Mr McGowan requested that the consent be declined or that, if it was granted, that it be for two years with a bond for removal and clean-up of the site.

Leora Edwards

Leora Edwards, 15 Stuart St, Mataura, opposed the application. She has been a resident of Mataura for 52 years. She was concerned about the effects of emissions from the site on the children attending the Kohanga Reo on Kana Street, and for children generally living in Mataura. She noted that the Waikana stream which flows adjacent to their house, backs up and floods their property.

Sonia and Dennis Rutter

Sonia and Denis Rutter, 14 Dover St, Mataura, opposed the application. Mrs Rutter questioned the credibility of the applicant as well as the suitability of the building for the storage of Ouvea Premix. She noted that the fact that the hearing was taking place had motivated a clean-up of the site and repairs to the building. She considered that the storage of the Ouvea Premix on the site was a negative development for Mataura.

Mr Rutter stated that the Ouvea Premix contained Beryllium which he considered to be highly toxic. He questioned whether the hydrogen gas that could be produced when the Ouvea Premix becomes wet and the presence of the electricity generating plant in the building presented at fire risk. He suggested that the company should provide breathing apparatus for fire-fighting and that dry powder should be used for fire suppression rather than sprinklers. He also noted that the maintenance of the building had been driven by the consent process. He did not consider that flood water would be able to be contained within the building and considered that the risk of flooding was increasing as a result of land development in the catchment. He noted that there was no fire plan and asked that if consent was granted, that a bond be applied.

Alastair McLennan

Mr McLennan was not a submitter to the application but questioned whether the Hokonui Runanga had been consulted. Mr Alchin stated they had been sent a copy of the application for comment and that no response had been received. Mr Shaw stated that he had spoken with Rewi Anglem of the Runanga, on behalf of the applicant and no concerns were expressed.

John Peek

John Peek, 6 Kana Street, Mataura, opposed the application. Mr Peek referred to the 1978 flood and the damage it caused to Kana Street and the impact it had on plant at the paper mill. He noted that equipment from the paper mill had been recovered from the river a considerable distance downstream from Mataura. He expressed concern about the impact that the storage of the Ouvea Premix could have on the river, and also on the Alliance Processing Plant and the kohanga reo. He considered it was not possible to flood proof the building.

Alliance Group Ltd

Frances Wise, Environmental Manager, presented written evidence for the Alliance Group Ltd. She stated that the Mataura Plant relies on water taken from the Mataura River for day to day operation. The water take is located opposite the Taha Fertiliser storage site. She noted that it is imperative that the water is able to be treated to a high standard. If water quality is compromised, then the plant may be required to cease operating.

In response to questions from the Commissioners, she stated that there were 19 water intakes and that a plan of their locations would be provided. She also noted the potential health and safety risks to Alliance Group staff from any gas or dust emissions arising from the storage and handling of hazardous substances.

She noted that not all of the information was available when the Council's Senior Planner produced his Section 42a report and requested that the Commissioners consider the necessity or otherwise of an independent review of the applicant's technical assessments.

She stated that Alliance Group Ltd is concerned about whether or not the building was appropriately sealed and suitable for the storage of Class 6 and 9 hazardous substances.

They also expressed concern that there is no certainty in the application documents that the flood measures proposed by the applicant will be implemented and the flood risk will be appropriately managed. Alliance Group Ltd considers that the efficacy of the flood mitigation measures is fundamental to the operational regime promoted by the applicant. Therefore Alliance Group Ltd has significant concerns about the effectiveness of the flood mitigation plan, especially given the water exposure risks of Ouvea Premix.

Ms Wise also noted its concern that bed level changes of the Mataura River as a result of the restriction of gravel extractions may not have been considered by the applicant when preparing the flood hazard and impact assessment.
She questioned whether HSNO certification could be obtained for this site given the current state of the buildings, the nature of the hazardous substance, and the proximity of the adjacent waterways.

She also noted that there is no ongoing monitoring or reporting proposed by the applicant to ensure there are no accidental discharges from the site. There is also no certainty provided by the applicant that remedial action will be undertaken if such a spillage occurs.

Alliance Group Ltd considered that the maximum consent term of 18 months should be considered, given that the applicant was well advanced in developing another site. A rigorous monitoring and reporting regime was requested and the imposition of a financial bond condition to secure appropriate remedial action.

Allan Hansen

Allan Hansen, 27 Main St, Mataura, opposed the application. He questioned the applicant's credibility as they had not complied with previous statements made. He questioned the certifications required for transport operators or drivers, and also the certification of the building. He also questioned whether an air discharge was required. He requested that a bond be applied.

Fish and Game New Zealand Southern Region

A written statement of evidence was received from Mr Maurice Rodway, manager of Fish and Game New Zealand Southern Region. The organisation noted that there was critical engineering design information missing in relation to the sealing of the building in the event of a flood. They also noted that the applicant does not have plans that would protect the site from flooding. Fish and Game considered that any plan, given the site and state of the building, was unlikely to be effective. They considered that the site and the building were not suitable for storing Ouvea Premix.

The Commissioners acknowledged the other submissions received from submitters who did not appear at the hearing:

Argyle, Sharon Elspeth
Barron, Lisia Ann
Bastiaansen, Patricia
Colvin, Geoffrey Trevor
Couzens, Christopher Stanley & Linda Jane
Edwards, Archibald David
Edwards, Rawiri Bluu
Edwards, Rawiri Rulon
Edwards, Vanessa Whangapirita
Endres, Peter
Fish and Game Southland
Glenn, Annette
Glenn, Roslyn Jackie
Hall, Emily Constance
Hanke, Ernest Reginald
Hearn, Kathryn Erica
Hearn, Russell Glenn
Johnston, Howeth James
Kufusi, Anah
MacCartney, Monique Armande
Mantell, John Gordon
Matahiki, Darren Rerekohu
Matahiki, Kerry Anne
Mataura Landcare Group
McCurdy, Terri
McGowan, Ngaire Elizabeth
McGowan, Wayne James
McRae, Katrina
Meikle, Colin Hamilton
Phillips, Carolyn Isobel & Gary
Rarere, Amelia Callelerd
Rarere, Jackson Tohi
Richardson, James Arthur
Sharp, Lynette June
Simpson, Graeme Fergusson
Simpson, Shirley
Soper, Ian John
Soper, Jenny
Southern Estate Properties (Shari Kay-Smith)
Southland District Council
Turnbull, Basil John
Waddell, James William
Walker, Fiona Kaye

Walker, Noel James
Webster, Lorraine Elizabeth

Commissioner Weatherall adjourned the hearing. He stated that it was likely that further information would be requested from the applicant, and the when this was received, it would be circulated to all parties for further submissions. The hearing would be reconvened to consider the new information and submissions.

On 25 May 2015 the Commissioners issued a minute to all parties. The minute noted the applicant had requested that they be allowed to supply further information to the Commissioners. This request was granted. As well as this information the Commissioners requested that additional information also be provided. The information to be supplied is set out below.

General

Details of the management structure and relationships between the various for Taha Companies and personnel, together with contact details and the circumstances when particular people should be contacted, including complaints.

An update on progress in establishing a site at Awarua, together with a Project Management breakdown outlining the timing of the development of the new site and movement of the material stored at Mataura.

The Ouvea Premix and Dross

Correct MSDS and the details of the chemical composition of the Ouvea Premix and dross from the NZ Aluminium Smelter.

A copy of the decision of the Environmental Protection Agency regarding Ouvea Premix.

Traffic Issues

A draft of a Traffic Management Plan that including the loading process, the conditions under which loading will take place and must cease, plans of the locations where loading will take place and any on-road traffic management that may be required.

Information to be provided to the community when loading is taking place, and the means by which that information will be conveyed.

Information on the use of spotters and how pedestrian access along Kana Street will be maintained at all times.

An update on the status of discussions with the New Zealand Transport Agency.

Building Use

A detailed site plan, showing the building layout and the location of all product stored on the site, together with an assessment as to the feasibility of removing some or all of the product from the site.

A breakdown of the amounts of chemical stored in each area of all the buildings by the number of bags stored in each area.

A description of the power generation undertaken on the site with plans showing water flows and the location of machinery and associated machinery and infrastructure.

A report on the stability of the chimney on the site, and assessment of any risk it possess to the building and the material stored on the site.

A report from the structural engineer on the strength of the floor of the buildings, together with an assessment of any assumptions and uncertainties that arise given that material is already stored on the site, and the full inspection of the floors cannot be undertaken of empty buildings.

Further information that indicates the volume/depth of water that could enter the buildings as a result of seepage during a 2% annual exceedance probability flood that does not breach the river stop banks or the flood protection barriers that are included as part of a Flood Response Plan.

Issues Associated with Risks

An assessment on the need, or otherwise, to revisit the gravel build up in the river above the site.

Provision of information on how the sprinkler system would operate.

A qualitative assessment of fire risk, with particular regard to:

- The potential release of ammonia gas in a fire if sprinklers are used;
- The capacity of the local fire brigade ;
- A draft of a Flood Response Plan that would include:
- The existing and proposed flood protection measures;

Details of triggers for action, including details of how warnings from the Meteorological Service would be used;

Who would do what, and any risks that would prevent actions being undertaken;

Details of any measures the applicant would consider putting in place on a permanent basis;

The role and capacity of the local fire brigade to respond to an emergency.

A Draft Stormwater Management Plan

A plan showing the location of the existing operational and redundant storm water infrastructure on the site, including associated pumps and the means by which storm water is disposed.

Details as to the nature and timing of changes proposed to the storm water management systems.

Possible Conditions if the Application is Approved

A list of conditions that may be appropriate if the application is approved, including a bond, the amount and what it would cover.

In the context of conditions, the applicant may wish to raise any relevant issues arising from the sub categories and thresholds for hazardous substances provided in the District Plan.

In the event that the Commissioners were to decline the application, how quickly could the removal of the material from the site be achieved and where would it go to?

Regional Council Consents

Confirmation is required that Environment Southland does not require any consents associated with the proposed activity, particularly with regard to discharges to air.

Gore District Council

The Commissioners requested that the Gore District Council seek independent advice on a bond, relating to costs including how the material will be moved, where it will be moved to and under what circumstances.

The Commissioners requested that Gore District Council obtain a peer review on the methodology and likely accuracy of the testing conducted by the applicant and presented at the first hearing. The peer review is to include advice on the need for any further testing recommended by that review.

Information Provided

On 29 May 2015 the applicant through its consultants, Jacobs, provided information relating to the following:

Flood protection measures to be permanently installed

Mr Tony Dackers of Fire Compliance Limited 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. An assessment of which doors could be permanently blocked without affecting loading will be provided as part of the Flood Protection Plan.

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

A site plan showing the locations of the stored material was provided. Taha indicated that the sulphate of ammonia and the MRP Bag-House Ouvea would be removed from the site.

Safety Data Sheets and Status of Substance for Ouvea Premix

A memo from Jacobs that clarifies the current status of the Cast-House Ouvea Premix Safety Data Sheet (SDS) and Status of Substance (SoS) was provided. 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). A SDS for Aluminium Dross was also provided.

Correct Street Address

The correct street address for the buildings occupied by Taha as confirmed by Mr Greg Patterson 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)

Details of communications with the NZTA were provided.

Taha advised they intend to set up a Community Liaison Group and that a communications plan for this group is being developed.

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, was also provided. This was detailed in further evidence from Mr Buckingham.

Taha indicated that Mr John Witter, the Managing Director for Taha International for Industrial Services (Bahrain) and Chairman of Taha International S.A (Luxemburg) would provide evidence relating to the company structure and relationships.

On the 4 of July 2015, supplementary information was provided from the following;

John Witter

This evidence sets out the ownership structure of Taha Asia Pacific Ltd, and Taha Fertiliser Ltd. The parent company Taha International for Industrial Services W.L.L. is registered in Bahrain. This company is predominantly owned by Taha International B. V., registered in the Netherlands. Taha International B. V. is100% owned by Taha International S.A. registered in Luxembourg. Mr Witter is Chairman of Taha International S. A. and Managing Director of Taha International Services. Mr Witter set out the lines of communication to the Board of Directors. He noted that the positions of New Zealand Director and the Chief Operating Officer have been vacant. Both of these positions are part of the chain of communication to the board. He also noted that the Chief Operating Officer's position has now been filled. Until the New Zealand Director's position is filled, Mr Buckingham is managing the New Zealand based operations.

Lyndsay Buckingham

Mr Buckingham provided further information regarding the progress relating to the development of the Awarua site. He stated that since the hearing was adjourned a suitable 2.2 hectare site from a larger envelope of available land within the Awarua Industrial Park has been selected. The site is located on western side of Colyer Road, approximately 700 metres from the intersection with Bluff Highway (State Highway One) and immediately south of the existing Balance Agri-Nutrient fertiliser plant. Preliminary civil and structural engineering has been completed, and a site plan, facility layout and elevations and cross sections have been produced.

He noted that Jacobs has completed an air discharge dispersion modelling assessment for the site. This confirms the site is a suitable for the stage two fertiliser manufacturing facility and the report will form the basis of the future air discharge consent application which will be required for stage two. The preliminary engineering work has included topographic site survey and initial geotechnical investigations. From this initial work it has been determined that a full geotechnical investigation of the site will be required to facilitate the detailed design of the building structure. This investigation will ensure the site is developed in a way that is suitable for the existing environment.

A review of the requirements necessary to comply with industrial zone classification the Invercargill City District Plan has been completed and work is underway to prepare the resource consent application for the development. It is intended to submit a resource consent application during July 2015. He also noted that meetings have been held with all

three existing industrial business in the immediate vicinity of the proposed site to inform them of Taha's intentions to develop this facility. These are Balance Agri-Nutrients, Open Country Dairy and South Pacific Meats. All three businesses took a close interest in the presentations with no negative feedback being provided.

Stephen McKnight

Mr Stephen McKnight provided further evidence in relation the risks associated with the boiler chimney on the site, and the strength of the floors in the storage buildings. He assessed the chimney strength to be 50 to 70% of the new building standard in terms of seismic resistance. He did not consider it to be an undue risk to the site, provided that there is continued maintenance to manage damage at the top of the chimney. He considered that the building floor is capable of supporting the present storage load, and will not present a significant risk if flooded.

Mr Bruce Clarke

In his evidence, Mr Clarke confirmed the volume of Ouvea Premix and other material stored on the site, as set out above.

Mr Clarke noted that 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. He provided a summarised statement of the reactions of Ouvea Premix when exposed to water and the environmental effects that would result from this. These are set out in his original evidence.

Mr Clarke provided an assessment of the potential fugitive emissions to air of ammonia from the site is relation to the air discharge requirements of Environment Southland. He concluded that under normal storage conditions, there are no emissions to air. He noted that if the material gets wet there is the potential for ammonia gas to be produced and considered whether this required a consent under the Air Quality Plan. He considered that any discharge from storage in this case is permitted in terms of Rule 5.5.4. He noted that this approach has been taken at the Liddel and Annan Street sites in Invercargill.

Mr Clarke provided detailed information relating to the descriptions and classifications used in the District Plan for Class 6 Poisonous Substances and Class 9 Agrichemicals. These are not consistent with those used in HSNO, and in particular the classifications as contained in the Hazardous Substances (Classification) Regulations 2001 (Classification Regulations).

He noted that the intention of HSNO legislation and regulation is to characterise the level of hazard (explosiveness, flammability, toxicity, corrosiveness and eco-toxicity) posed by the substances based on a series on scientific thresholds of human and environmental risk. 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. 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.

He considered 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.

Table 6.2 of the District Plan sets out quantities for each substance class to determine 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.

He considered that 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. He considered 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.

Mr Clarke also presented further evidence relating to environmental effects as a result of fire. He noted that ammonia is very combustible and will readily decompose when it comes into contact with fire. This self-limiting process means that it is highly unlikely that any ammonia gas generated during a fire will have offsite consequences. He noted that there will be a reaction of the Ouvea Premix with water used in fire-fighting. The volume of this water will be significantly less than that which occurs during a flood.

The effects from two fire scenarios were modelled using the SCREEN 3 air dispersion model. The first was a fire in the Main Storage Building containing 5,000 T of Ouvea Premix with 20% of bags being damaged. This was considered a realistic scenario. This resulted in 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/m3, 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/m3, which is the level of short term (e.g. 1-hour) exposure below which there are no observable health effects.

The second scenario was a fire in the main storage building containing 5,000 T of Ouvea Premix with 100% of bags being damaged. This was considered a worst case scenario. This resulted in the highest maximum ground level concentration of 6.7 mg/m3 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/m3.

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/m3 being reached at 280 metres downwind from the site. The maximum predicted concentration is above the odour threshold of 3.8mg/m3 and as such people living close by to the site may be able to smell ammonia.

However, at the maximum concentration predicted, the discharge would not result in eye irritation or potential exacerbation of asthma which tend to occur at 73 mg/m3. Mr Clarke concluded 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.

He noted that 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. 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.

Peer Review

The Commissioners requested a peer review of the method used for the bag test and the bench top test undertaken by Jacobs and supervised by Mr Clarke. This review was carried out by Mr Brian Mills, Senior Environmental Scientist, Beca Ltd.

Mr Mills compared the result of the bench test carried out by Jacobs with theoretical calculations to determine the likely production of gaseous ammonia based on the ammonia concentration in the water that occurred in the bench test. He concluded that the bench test results were reasonably in line with what would be expected.

Mr Mills also considered how well the bench test provides an indication of the ammonia levels produced as a result of flooding. He noted that the levels of ammoniacal nitrogen in the water at the conclusion of the bench test should be orders of magnitude more than what was found. He considered that the bench test indicates that the aluminium nitride in Ouvea Premix is significantly less reactive than a more pure form of aluminium nitride. He considered that this is because the aluminium nitride has been subject to thermal oxidation during the aluminium casting process.

Mr Mills noted that the bag test produced an ammonia vapour concentration that was consistent with the results that Jacobs obtained in the bench test. The ammonia vapour concentration was less than theoretically predicted, based on an assumed level of aluminium nitride in the Ouvea Premix.

Mr Mills also noted that the bench test was conducted over a period of 50 hours and that the effects of flooding of the Ouvea Premix on the site would be likely to be longer than this. He noted that ammonia will continue to be evolved until all of the water has reacted. He considered that the bench test was too short to adequately assess the potential effects of a flood situation and the potential difficulties that may exist during the clean-up phase.

He considered that a contingency plan would be needed to manage the material stored on the site in order to prevent adverse effects arising from the generation of ammonia.

Caucusing between Mr Clarke and Mr Mills

Mr Mills and Mr Clarke caucused and produced a joint statement. This was provided in the form of an email from Mr Clarke.

They agreed that the level of risk posed by the storage of Ouvea Premix is low and that the assumptions used in the bench trial methodology were appropriate.

They agreed that it is reasonable to assume that once Ouvea Premix is wet, it will continue to evolve ammonia until all water is reacted. The ammonia will subsequently diffuse into the surrounding atmosphere over time.

As a result they both agree that Taha should develop a contingency plan to manage the development of ammonia gas within the storage site in the aftermath of a flood event. This would likely entail updates to the Flood Protection Plan to ensure ammonia gas levels are regularly monitored following a flood to ensure that adequate ventilation is in place for compliance with work place exposure standards and to check odour and ammonia concentrations offsite are still acceptable.

Mr Clarke suggested including in the contingency plan a monitoring frequency of once an hour following an extreme flood event both inside and outside the building. If ammonia reaches a level inside the building that no longer complies with work place standards, the building should then be evacuated, and people can only enter the building wearing appropriate personal protective equipment until ammonia levels decrease or material is safely removed from the site. If levels are detected outside the boundary of the premises at the nearest residential properties at the Workplace exposure standard people should be advised to remain in doors. If ammonia levels approach 100ppm (50% of the toxic endpoint) then evacuation of the people immediately downwind should be considered.

As a result of this information, the Commissioners requested that Mr Clarke and Mr Mills further consider the makeup of the contingency plan for the management of ammonia emissions during the drying out phase of Ouvea Premix following flooding of the site with

particular reference to emissions beyond the site. They also requested Mr Clarke and Mr Mills consider if the potential ammonia emissions resulting from the drying out phase of Ouvea Premix following flooding of the site should be further defined by additional testing and modelling.

Mr Clarke responded with an agreed position setting out in greater detail the matters to be considered in a contingency plan. These were:

- Monitoring approach and frequency, including responsibilities, monitoring equipment and monitoring sites.
- Trigger points where response is required based on workplace exposure standards and 50% toxic endpoint.
- Response plan for where indoor trigger points are met, including advising emergency services, ventilation and onsite evacuation.
- Response plan for where outside trigger points are met, including communications with nearby residents to stay indoors or evacuate, and consideration of removing and/or drying material where safe to do so.

As part of preparing the Contingency Plan it was agreed that some further bottle testing should be undertaken with a selection of at least three different batches of Ouvea Premix (about 500g) in a jar with water to form a slurry and ammonia levels in the headspace tested over a longer interval, eg. approximately 48hrs, 96hrs, 144hrs, 192hrs and 240hrs. This is to check if there is an increase in emission rates beyond 50 hours and to factor this in to the Contingency Plan. It was agreed that further dispersion modelling is not required and this testing is another precautionary measure.

Mr Alan Cubitt

Mr Cubitt, a planning and resource management consultant was requested to provide evidence in relation to proposed consent conditions, including the proposed nature and scope of a bond, the consenting requirements for storage of Ouvea Premix under Environment Southland's Regional Air Quality Plan (Regional Plan) and the inconsistencies between the Hazardous Substances and New Organisms (HSNO) Classification Regulations (Classification Regulations) and the Gore District Plan.

Mr Cubitt agreed with the planning evidence of Mr Watt, in that the adverse effects of the activity are less than minor, and therefore acceptable. Mr Cubitt considered that the probability of the site flooding is very low, and the adverse effects resulting from flooding, based on the evidence of Mr Clarke and the peer review carried out by Mr Mills, are less than minor. Mr Cubitt noted that Mr Clarke and Mr Mills intend to present a joint statement relating the management of ammonia emissions during the drying out of the Ouvea Premix after flooding.

Mr Cubitt addressed the need for a bond. He considered that as the adverse effects based on the scientific evidence presented are less than minor and the fact that the consent is to be limited to a two-year duration, a bond is not required. He considered that a bond would

impose liability on Council and that this should be avoided. Mr Cubitt provided a suggested set of conditions that could apply should consent be granted.

Mr Cubitt considered that an air discharge consent is not required, and set out a similar case to Mr Clarke. He also agreed with Mr Clarke's summary of the issues relating to the inconsistencies between the Gore District Plan and the HSNO legislation.

Legal Advice

During the adjournment the Commissioners sought legal advice from Mr Michael Garbett with respect to a condition requiring a bond. Mr Garbett set out the matters relating to a bond and provided a draft condition. He noted that any bond needed to be related to removal of the material from the site and its lawful storage or disposal.

Reconvened Hearing

The hearing reconvened on the 26th of August 2015 in Mataura.

Mr Makgill

Mr Makgill introduced the witnesses that he proposed to call. He noted that Taha will be signing an agreement for sale and purchase of land at Awarua this week. He also noted that Taha has changed its approach to the future use of Ouvea Premix to include use in the steel and cement industries as the negative publicity relating to the product has made developing the use of Ouvea Premix as a component of fertiliser more difficult.

Mr Makgill commented on the changes in the development of the proposed storage at Awarua. This would now be a temporary storage facility with a 2600 tonne capacity. Taha remains committed to the removal of the material stored at Mataura within the two year consent term.

Mr Makgill commented on the results of the peer review. He noted that the experts agree that the risks resulting from the storage on the site are low, and that the peer reviewers suggested a contingency plan that would require monitoring ammonia emissions after a significant flood. He noted Mr Cubitt's evidence relating to a bond and stated he would address any other matters relating to a bond in his closing if required.

Robert Vesper

Mr Vesper, Taha Group's head of operations presented written evidence. He presented an overview of the company's plans to utilise Ouvea Premix for fertiliser, steel, and cement manufacturing.

Mr Vesper spelt out the efforts made by the company to restore its reputation in Southland. He stated that the negative publicity relating to previous mistakes has required Taha to look for other uses for Ouvea Premix. The storage and processing needs for each of the three uses are different, and require a flexible approach to storage on the Awarua site. Further storage can be developed quickly on the site if the demand for the product is insufficient to utilise the product stored at Mataura within the consent term. He noted that export

operations could be considered if necessary. He also noted that Ouvea Premix could be disposed of at the Regional Landfill if all other options for its use failed.

Lyndsay Buckingham

Mr Buckingham supplied further detail relating to the proposed future uses of Ouvea Premix, and provided a schematic diagram setting out the timeframes for the development of each of the proposed uses, and the likely tonnages that each would use. He noted that there is three-month contingency period in the time frame that allows for unforeseen delays. The Commissioners noted that when combined with the annual production of Ouvea Premix from the company's further processing plant at the aluminium smelter, all of the proposed uses would need to be utilised to remove the material from Mataura within the consent term. If any of these uses falls short of expectations further construction of storage facilities or disposal to landfill will be required.

Mr Buckingham noted that the consent conditions for the Regional Landfill require variation to allow Ouvea Premix to be disposed of there. This variation has been requested from Environment Southland but not received to date.

Nathan Burgess

Mr Burgess set out the matters that have been addressed by Taha since the hearing adjourned. The 9.6 tonnes of sulphate of ammonia that was on site has been removed. Steel flood protection panels have been installed across 3 of the 4 roller doors. Permanent installation of panels over man doors would result in non- compliance with fire regulations.
The re-roofing project on the building on the east side of Kana Street has been completed. Ongoing repairs will continue as required. Mr Burgess understands that the sprinkler system is ready to be recommissioned. Mr Burgess commented on the establishment of the Community Liaison Committee, which has met three times.

Mr Burgess also commented on the implementation of the Flood Response Plan. The plan has been circulated to all employees listed in the plan. There have been two training practices fitting the remaining flood protection panels. Where necessary, seals on the shutters, bolts and washers have been replaced. Sandbags have been filled and placed by each door. A kit containing all the tools required for fixing the flood protection panels has been assembled. A new panel that can be fitted internally is being constructed. This panel cannot be fitted externally.
Mr Burgess stated that he had not had time to contact the local fire brigade. He commented on the weekly gas monitoring inside and outside the buildings, and noted that the results are recorded in a record sheet. No ammonia test has exceeded 5ppm. He also noted that he has been involved in investigating odour complaints for the public made to Environment Southland and the Gore District Council. He stated that the Environmental Management Plan has been updated to incorporate the odour detection methodology recommended by the Ministry of the Environment's Good Practice Guide to Assessing and Managing Odour in New Zealand.

Benjamin Fountain

Mr Fountain noted that a steel panel has been installed over the southern roller door. He considered that this barrier will minimise the risk of 1 tonne bags of material being removed from the building by flood waters in a significant flood.

Mr Fountain stated that he has reviewed the submission from Alliance relating to the risk of floodwater contaminated by Ouvea Premix entering Alliance's water intakes. He considered that there is almost no possibility of this happening as Alliance's water intakes are from a water race that takes water from upstream of the Mataura falls. Any discharge of flood waters to the river from the Kana Street site that may contain contamination from Ouvea Premix will occur downstream from the falls. He also noted that the river water will not be suitable for water takes both during and most likely for a number of days after the flood.
In response to questions from the Commissioners relating to the trigger points for the implementation of the flood management plan, Mr Fountain stated that the trigger points could be reviewed. Currently publicly available information is used.

The Commissioners questioned Mr Fountain as to why he had relied on Environment Southland's assessment of the effects that gravel build up in the Mataura River on flooding, rather than making his own assessment. He stated that any assessment that he could have made would be a complex exercise and that the results would contain a high degree of uncertainty.

Alan Cubitt

Mr Cubitt commented on the further submissions received. He considered that the risk of the Ouvea Premix falling into the river as a result of an earthquake or fire is low. He noted that the suitability of any management plans required as condition of consent would need to be approved by Council. He noted that the bund required to protect the buildings on the eastern side of Kana Street requires a specific condition. The provision of a contingency plan for flooding also requires a specific condition.

Bruce Clarke

Mr Clarke was not able to be present at the hearing. His written evidence was pre-circulated. In it he confirmed the findings of the peer review and caucusing carried out with Mr Mills. Mr Clarke commented on the odour concerns that had been investigated and noted that none of these have been confirmed as relating to ammonia emissions from the site. On one occasion ammonia levels had been recorded at 4 ppm.

In response to Public Health South's evidence, Mr Clarke noted that the ammonia emission rates for partially wet Ouvea Premix were 40% less than that produced by fully wetted premix. The rates for fully wetted premix were used in the risk assessment, but Mr Clarke considered that the trial using partially wetted Ouvea Premix is a more realistic model of a flood event where only some of the premix would become wet.

Mr Clarke agreed with the Public Health South submissions with respect to improvements to the EMP complaint form in order to include the relevant information for recording odour complaints and for logging and notifying a complaint to Environment Southland. Mr Clarke

noted that any ammonia level above 5 ppm recorded outside the storage building should result in actions being taken to determine the source of the ammonia. Mr Clarke also commented on the matters relating to the ground level concentration modelling for ammonia raised by Public Health South. He noted that the model used was conservative compared to more advanced models. He noted that the maximum predicted ground level concentration would occur for all properties within 100 metres of the site and, as such, the effects on the residents at 112 and 114 Kana Street and 116-130 Kana Street have been included in his assessment. He also noted the difficulties in modelling the emissions as point sources from windows and other openings from the building. He noted that the modelling has assumed that all of the ammonia emissions would be released to air when in fact much of the ammonia would be absorbed by the flood water. Much of the gaseous ammonia would be retained within the building.

Commissioner Weatherall advised the hearing that the Commissioners would conduct a teleconference with Mr Clarke after the adjournment of the hearing.

Robert Makgill

In response to questions from the Commissioners relating to the lack of a New Zealand director and the potential for Taha group of companies to rapidly exit New Zealand, Mr Makgill stated that Mr Maurice Shaw is to be appointed as a director. Mr Makgill noted that Taha has contracts with Rio Tinto that would be breached if Taha ceased operations in New Zealand, and that breaching these contracts would have international ramifications for Taha.

Mr Makgill confirmed that Taha does not seek a five-year term of consent although this was suggested by Mr Cubitt. Through Mr Buckingham, Mr Makgill confirmed that the potential disposal costs of Ouvea Premix to the Regional Landfill are $20 per tonne for transport and $80 to $90 per tonne for landfill disposal. Mr Alchin confirmed that this was in line with information obtained by the Council.

Submitters

Michael Kirby

Mr Kirby noted that there is no fluoride in the SDS for aluminium dross that was provided by the applicant. He questioned how the fluoride came to be present in the Ouvea Premix as it is a product of further processed aluminium dross. He considered that the ammonia produced if the Ouvea Premix became wet would not be random, but would be in pockets around the site.

Daryl Meikle

Mr Meikle questioned the ability of the local fire service to manage adverse events on the site. He called for an independent assessment of ammonia emission readings. He suggested the use of a mailbox newsletter drop as a way for the liaison committee to communicate with the wider community. He noted that the bund on the Waikana stream has not been constructed, and that clearing of debris from the weir is needed. He

considered that a bond is required. Eileen Meikle and Colin Meikle spoke in support of these matters.

Wyndham Angling Club

Mr Alan Leitch presented the club's submission. The club considered that there has been no consideration of the effects that a spill of Ouvea Premix directly into the river as a result of an earthquake or a fire would have at a time of low river flow.

Mataura Landcare Group

Robina Lee Johnston presented the group's submission. The group considered that the timeframe for the consent cannot be changed without starting a new consent process. She noted that the aluminium industry is likely to have a limited time frame of operation in New Zealand. She stated that after consideration of all issues the group felt that granting consent is the best way of ensuring that the site is correctly managed until the Ouvea Premix is removed.

Other Submissions

The Commissioners acknowledged the receipt and consideration of further submissions from the following:

Shirley and Graeme Simpson
Public Health South
Environment Southland
Diane Krs
Alliance Group Ltd
Chris and Linda Couzens
Fish and Game Southland
Carolyn and Gary Phillips
Southland District Council

Council's Senior Planner's Review

Mr Alchin considered that the application should be granted consent with conditions. He noted that Iwi have been fully consulted and chose not to make a submission. He noted that the scientific evidence has been closely examined. There will not be a mass ammonia discharge from the site in the event of flooding. He considered that the application of a bond requires careful consideration. The Council needs to have the ability to review the conditions of consent.

Applicant's Right of Reply

Mr Makgill requested that he be permitted to present the applicant's right of reply in writing and requested that the Commissioners inform him of any matters they would like to be addressed in the applicant's right of reply. The Commissioners agreed to these requests.

Commissioner Weatherall adjourned the hearing. He noted that the Commissioners would hold a teleconference with Mr Clarke later in the week, and would then determine if there was any additional information that they require.

Teleconference with Mr Bruce Clarke

This was held on Friday 28 August. Mr Clarke was asked to explain why the trigger point of 100 ppm of ammonia outside the storage buildings was recommended as the indicator for evacuation of surrounding residences. Mr Clarke stated that 100 ppm is 50% of the toxic endpoint of 200ppm, and allows for up to 1 hour of exposure. This is intended to provide sufficient time to allow for evacuation. Mr Clarke also noted that the short term work place exposure level of 35ppm be recommended as the trigger for an advice to residents to remain inside their homes. Mr Clarke noted that these measures were likely to be put in place after a Civil Defence Emergency has been declared and many residents would already have been evacuated.

Mr Clarke was asked why the peer review had recommended that the suggested further testing to determine ammonia emissions during the drying out phase be carried out after a decision on the application is made, and the results incorporated into the Flood Management Contingency Plan. He stated that this was suggested because of the time required to carry out this testing. He stated that the tests and analysis of the results would take approximately 30 days. He also noted that the research work that indicated a rise in ammonia emissions over time was a different scenario to this application, but further testing would reduce the level of uncertainty with respect to ammonia emissions during drying out of Ouvea Premix after flooding.

Mr Clarke was asked why more modelling based on the results of the further testing was not recommended. He stated that because modelling required many assumptions, monitoring in the event of flooding was a more appropriate precautionary approach.

Consideration of Further Testing

The Commissioners considered requiring that the additional testing be carried out prior to the closing of the hearing. However, this course of action would not have allowed for a decision in a timely manner due to the timeframes needed for this testing. After considering the value of the information that testing may provide, the Commissioners decided that this testing would not be requested prior to their deliberations.

Applicant's Written Right of Reply

Mr Makgill submitted the applicant's written right of reply. This was received by the Commissioners on 5 October 2015. He summarised the proceeding to date. He submitted that the application for consent should be granted on the basis that the effects of the proposal are appropriate in relation to the matters over which the Council has restricted its discretion. He considered that the key outstanding issues in this application therefore relate to whether the proposed consent conditions, including the management and mitigation measures proposed, are appropriate pursuant to section 108 of the RMA.

He then addressed matters relating to the imposition of a bond. He agreed with the advice that the Commissioners have received from the Council's legal advisor that a bond can be lawfully established. However he did not consider that it appropriate in this case because the Council would become responsible for giving effect to removal and storage or disposal in the event that it needed to rely on the bond and because the quantum of bond necessary to secure removal and storage or disposal would not be reasonable or proportionate when compared to the risk and scale of potential adverse effects. He considered the applicant in a much better position to manage the storage and/or disposal of the Ouvea Premix from the site than Council.

He considered that the imposition of a bond is not reasonable as the adverse effects of the proposal have been assessed by Mr Cubitt as *de minimus.* He noted that the quantum of a bond would be difficult to determine and could be up to$2.3 million. He also noted that Council could take enforcement action if the applicant failed to comply with the consent conditions. However he considered that the Environment Court may consider that enforcement action would be unnecessary if the Council was able to draw down a bond.

Mr Makgill appended a list of proposed consent conditions prepared by Mr Cubitt to his reply.

Also received with Mr Makgill's right of reply was updated information from Mr Buckingham with respect to the following:

(a) progress towards securing the Awarua site;
(b) appointment of Maurice Shaw as New Zealand Director;
(c) Mataura Fire Brigade consultation;
(d) use of Ouvea Premix in the New Zealand cement industry;
(e) manufacture of fertiliser using Ouvea Premix; and
(f) disposal of Ouvea Premix to landfill.

The Commissioners closed the hearing on 13 October 2015.

Statutory Matters

The Gore District Plan

We consider that the application is consistent with the following objectives and policies of the District Plan.

- Objective 3.3(2) Policy 3.4 (2) Land use
- Objective 4A.3(2), Policy 4A.4 Natural Hazards
- Objective 5.3(2), Policy 5.4 Transport

The application is consistent with Objective 6.3(1), Policy 6.4 which relates to hazardous substances because the term of the consent restricts the period of risk of the exposure of the Ouvea Premix to flooding and the use of management plans and conditions to manage adverse effects resulting from flooding.

The application exceeds the permitted quantity of hazardous substances that may be stored on a site in the industrial zone as set out in the Gore District Plan (Rule 6.9(2)), and also does not provide the number of car parks required based on the gross floor area of the site (Rule 5.9.2 and Rule 5.9.4).

As a result the application has been considered as a restricted discretionary activity. Consideration is restricted to the matters set out in Rules 6.9(2) and 5.9.2 of the Gore District Plan. These are:

(a) in the case of hazardous substance storage, the environmental effects of storing or using hazardous substances in quantities in excess of those specified in the Plan; and
(b) in the case of parking non-compliances, the adverse environmental effects of the matters with which there is non-compliance (in this case, the limited amount of off-street parking provided relative to the GFA of the site).

Matters relating to Part II of the Resource Management Act 1991

In making this decision particular consideration has been given to the following:

Section 5 Purpose

b) safeguarding the life-supporting capacity of air, water, soil and ecosystems; and
c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Section 8 Treaty of Waitangi

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

We have noted that no submissions were received from iwi.

HSNO Regulations

We have considered the evidence presented setting the requirements of the District Plan against those of the HSNO regulations. We have noted that the District Plan is inconsistent with the regulations in the treatment of Class 6 hazardous substances and does not take a hazard based approach in the way that it requires the effects of these substances to be considered. For this reason we have given more weight to the risk assessment approach of the HSNO regulations.

Other Matters

No environmental standards or national policy statements are considered relevant to this application. The proposal gives effect to both the operative regional policy statement and the proposed regional policy statement.

Matters in contention and findings in relation to those matters

1. Ammonia emissions during storage

Some ammonia is produced during storage of Ouvea Premix as a result of a reaction with humidity and any water that may be present as a result of leakage through the building fabric. We note that ammonia levels will be regularly monitored both inside and outside the building. Mr Clarke's evidence recommends that if levels of ammonia outside the buildings are measured in excess of 5 ppm, the source of these emissions should be investigated. Provided that this occurs and actions are taken to mitigate these emissions, we consider that the adverse effects from ammonia during routine storage will be less than minor.

We note that the NZ workplace exposure standard is 25 ppm for a time-weighted average of 8 or 12 hours and that the US EPA no-adverse effects for human equivalent concentrations provides for a continuous exposure of 3.4 ppm.

We also note that there are a wide range of thresholds used by regulatory authorities around the world in assessing the risks posed by ammonia gas for both short and long-term exposure.

2. The risks and potential impact of flooding

There are two potential risks of major flooding of the site. The first is flooding from the Mataura River. The site is protected from flooding by the Mataura River to a level of 2% annual exceedance probability (AEP). The site is protected by flood banks maintained and managed by Environment Southland and also by a floodwall along the site's river frontage. Flooding of the Mataura River occurs as a result of widespread rainfall over the Mataura catchment.
The second risk of flooding is from the Waikana Stream. This stream poses a risk of a rapid rise in flood water as a result of intense localised rainfall.

This, combined with a blockage of the culvert under Kana Street, could result in flooding to the storage building on the east side of the street. In light of Mr Fountain's evidence, we consider that this risk can be mitigated by ensuring that the weir on the Waikana Stream upstream from the culvert is kept clear, by construction of a flood diversion structure to the north of the building and placement of the flood protection shutters and sandbagging to the building on the west side of Kana Street.

We've also considered the potential for minor flooding from the drainage channel at the rear of the storage building on the eastern side of Kana Street. The effects of this flooding can be mitigated by ensuring that the drainage channel along the rear of the building is maintained and by storage of the Ouvea Premix within the building on pallets.

The entrances to the building on the west side of Kana Street can be protected from flooding using steel shutters and sandbagging. These are required to be put in place whenever there is a likelihood of flooding of the site from either the Mataura River or the Waikana Stream. Mr Fountain's evidence indicated that the principal effect of putting these protections in place would be to minimise flows of floodwater through the building and to prevent bulk bags of Ouvea Premix from being washed from the building into the Mataura River. In addition, this would slow the loss of contaminated water from the building. The use of sandbagging and shutters also potentially provides for the capture and treatment of the final drainage water retained within the building.

We consider that the use of bulk bags for the storage of Ouvea Premix provides some degree of protection from wetting if flooding does occur. We note that the bulk bag flood simulation trial carried out by Mr Clarke indicates that the bags provide a level of protection from wetting during flooding. We note that they also provide a method of containment that reduces the degree of wetting compared with large-scale bulk storage if bags were not used.

We have considered the adverse effects that some of the stored material will become wet during flooding as indicated by the flood simulation trials carried out by Mr Clarke. The principal effects resulting from this are losses of ammonia, hydrogen and fluoride to the environment. During a flood event, some of the material stored in the building will be sitting in water. The ammonia and fluoride losses during this period would be removed from the site in the drainage water. The discharge rate of this water will be restricted by the flood protection methods described above and, as noted, the final drainage water has the potential to be captured and treated. From Mr Clarke's evidence we note that the contaminants leaving the site in the drainage water will be diluted by the river water to a level that is well within the acceptable levels for both ammonia and fluoride.

After the flood event the Ouvea Premix will continue to react with the water absorbed by the material and release ammonia into the atmosphere. This will continue until all of the available water has reacted with the material.

Mr Clarke supervised bench testing as a method to establish the likely losses of ammonia, fluoride and hydrogen that would result from flooding of the site. The methodology and the outcome of the tests was peer reviewed by Mr Mills. The peer review concluded that the level of risk posed by the storage of Ouvea Premix is low and that the assumptions used in the bench trial methodology were appropriate. However the peer review did question the level of ammonia emissions over the period while the Ouvea Premix was drying out after a flood event and recommended that additional testing was carried out to define this. It also recommended the monitoring required for

ammonia emissions from the site following flooding. The modelling carried out by Mr Clarke indicated a maximum one hour average concentration of 2.2 mg/m3 of ammonia 100 metres from the site. This is below the no-adverse effects for human equivalent concentrations which is 2.3mg/m3. The model indicates a rapid decrease in concentration of ammonia over distance.

The peer view recommended the implementation of a contingency plan to manage any potential risks from ammonia emissions during the drying out period of Ouvea Premix following a flood event. The recommended contingency plan provides for a trigger point of 35 parts per million, a level at which residents are recommended to stay indoors and a level of 100 parts per million which would require evacuation of residents. Mr Clarke noted that the contingency plan would be likely to be activated during a Civil Defence emergency and that many residents would have already been evacuated. The information provided by the additional testing recommended by the peer review was intended to feed back into the contingency plan and provide additional certainty with respect to the likely emissions during the drying out period.

Mr Clarke's evidence indicates that any hydrogen produced is likely to rapidly disperse through ventilation. Mr Clarke recommended that the storage area be monitored for hydrogen levels during the drying out period to ensure that levels do not approach 4000 parts per million, which is the lower explosive limit for hydrogen.

Our overall assessment with respect to flooding is that, when all of these matters are considered in combination, the potential adverse effects of flooding are minor. The risk of flooding affecting the Ouvea Premix stored on the site is substantially reduced by the restriction of the term of consent to two years combined with the 2% AEP for the Mataura River. The use of flood protection shutters and sandbagging, the storage of Ouvea Premix in bulk bags, the assessments by Mr Clarke and Mr Mills, which indicate that the levels of ammonia likely to be released into the environment are acceptable should a flood occur, and the requirement for a contingency plan to manage the effects of any ammonia emission during the drying out period are sufficient to enable us to assess the overall adverse effects resulting from flooding as minor.

3. The effects of gravel build-up in the Mataura River

Submitters raised concern about the build-up of gravel in the bed of the Mataura River adjacent to the site and that this build-up has resulted in a reduction of the capacity of the flood way. We accept the evidence of Environment Southland and Mr Fountain that this build-up of gravel does not have a significant effect on the level of flood protection provided to the site by the stop banks. We note that Environment Southland is the controlling authority for the Mataura River and manages the flood protection provided on it.

4. Trigger points for the implementation of the Flood Protection Plan

The applicant has proposed that a flood protection management plan be implemented. This plan requires that the flood protection methods are activated based on information relating to levels of the Mataura River in the upper catchment and

predicted rainfall. We consider that a system of warnings is required ensuring the applicant and the Gore District Council are advised when the trigger points for the activation of the flood management plan are reached. This will also allow the Gore District Council to monitor the implementation of the plan.

5. The suitability of the building for storage of Ouvea Premix

Submitters have expressed concerns that the buildings are structurally unsound for the storage of Ouvea Premix and in particular, the potential risk of Ouvea Premix entering the Mataura River as a result of failure of the building during an earthquake.

We note that a substantial part of the site has previously been used for storage. We accept the evidence of Mr MacKnight that these buildings are not earthquake prone and are suitable for the storage of Ouvea Premix for the term proposed. Mr MacKnight confirmed in the evidence that the chimney on an adjacent part of the site does not pose a significant earthquake risk. We have been advised that the sprinkler system for fire suppression has been reinstated and we expect that the building will now achieve its building warrant of fitness. Evidence was provided by Mr Dackers that all other aspects of the building are up to building warrant of fitness standard.

We also note that this activity is a re-use of an existing industrial building and that there has been significant expenditure by the owner that has improved the water tightness of the building and its visual appearance. We consider that this has also improved the amenity effects for the community.

6. Adverse effects resulting from a fire

Evidence has been presented by the applicant that Ouvea Premix is not in itself a fire risk. The adverse effects of fire result from the use of water for fire suppression and the potential for this to create emissions of ammonia gas. We accept the evidence of Mr Clarke that any ammonia produced during a fire will decompose when it comes into contact with the fire. We also accept his evidence that the adverse effects on the environment of ammonia as a result of water used for fire suppression are less than minor.

We note that the applicant has consulted with the Mataura Fire Brigade.

7. Traffic management

Loading out from the building from the east side of Kana Street will require that truck and trailer units are loaded while parked on the street and this will result in loading out taking place across the only footpath along Kana Street. We accept the issues identified by the Gore District Council's Roading Manager, Mr Hasler, with respect to the maintenance of pedestrian access along the east side of Kana Street during the loading out of Ouvea Premix from the building. We consider that this can be managed by the implementation of the traffic management plan as presented by the applicant in evidence at the hearing. Evidence was presented that trucks loading from the buildings on the west side of Kana Street will do so away from the street.

8. The potentially adverse effects of Ouvea Premix Dust

We consider that the adverse effects of dust from the storage of Ouvea Premix are less than minor. The Ouvea Premix is contained in bulk bags and is already on site. No more Ouvea Premix is to be brought onto the site. Any dust emissions resulting from any movement of bags within the buildings will be retained within the buildings. The applicant has developed a management plan that deals with the effects resulting from any spill of the material. The Ouvea Premix will be transported off the site in bulk bags. These bags are tied and this retains the material in the bags. No evidence has been presented that a consent for discharge to air is required.

9. Alliance Group Ltd water takes from the Mataura River

Alliance Group Ltd submitted that Ouvea Premix entering the river posed a risk to the water takes for its processing plant on the west side of the river. The Alliance Group Ltd supplied a plan indicating that they have 19 pumps taking water from the Mataura River. We accept the evidence from Mr Fountain that indicated that all of these draw water from a water race that receives water from upstream of the Mataura Falls and well away from any influence of material that could enter the river from the storage site.

10. Assessment of hazardous substances in terms of the Gore District Plan

Mr Clarke and Mr Cubitt highlighted the discrepancies between the HSNO regulations and the way that the Gore District Plan deals with hazardous substances. In this case we have put more weight on the way that the HSNO regulations consider the risks relating to the storage and use of Ouvea Premix.

11. Credibility of the Applicant

A number of submitters raised issues relating to the credibility of the applicant. The applicant through their legal counsel and through Mr Vesper, Taha's group head of operations, apologised on a number of occasions during the hearing for these shortcomings and committed to improving the company's credibility in relation to their Southland operations. In making this decision, these matters have been taken into consideration.

12. Bond

A number of submitters stated that a bond is required to ensure that the Ouvea Premix is removed from the site at the end of the term of consent. Our advice from both Mr Makgill and Mr Garbett is that we are able to apply a bond in relation to the performance of a condition of consent. Our concerns relate to the potential failure of the applicant to remove the Ouvea Premix at the end of the term of consent. If this occurs, the risk of potential adverse effects becomes substantially greater because there is no longer any certainty that the material will be removed from the site. We consider that the most significant factor mitigating the risks around the storage of this material on the site is the duration of the consent. Given the acknowledged previous performance of the applicant, it is important that a bond is applied to any condition requiring the removal of Ouvea Premix at the end of the term of consent, to ensure that

the Council has the ability to have the material removed from the site and disposed of safely. This ensures that the duration of the community's exposure to any potential adverse effects is limited.

Decision

Pursuant to sections 34(1), 104 and 104C the Gore District Council **grants** land use consent to store Ouvea Premix within the buildings located at 109 and 116-130 Kana Street, Mataura (legally described as Section 6-8 and 10, Part Section 9 and 11, Section 12 and Closed Road, of Block I Town of Mataura Bridge; Section 4, 5 Block XVI Town of Mataura Bridge; and Lot 1 and Part Lot 2 DP 147), subject to the following conditions imposed under section 108 of the Act:

Conditions

Description/specification

1) The consent is for a duration of two years from the date that the consent commences.

2) The proposed activity is to be undertaken in general accordance with the application (dated 11 March 2015) and supplementary information submitted to the Gore District Council, referenced as LU 2014-95, except where modified by these conditions.

3) The consent is to store Ouvea Premix that is located at the subject site as at 12 May 2015.

4) The consent is to store up to 10,000 tonnes of Ouvea Premix in one tonne plastic lined storage bags with a polyethylene mesh woven outside layer and heavy duty plastic lining, as described in the application.

5) There shall not be any new Ouvea Premix brought onto the site and stored throughout the term of this resource consent, although Ouvea Premix may be removed from the site in accordance with this resource consent.

6) There shall be no emptying or filling of the one tonne storage bags on site other than in response to an incident or emergency.

Restrictions/standards

7) The storage and handling of the Ouvea Premix at the site shall be in accordance with the Ouvea Premix – Safety Data Sheet attached at Annexure C of Bruce Clarke's supplementary evidence dated 3 July 2015.

8) Where the Safety Data Sheet referred to in Condition 7 above is updated, it shall be provided to Council within 30 days of it being produced.

9) Within two months of the commencement of this consent, a flood diversion structure shall be constructed north of 116-128 Kana Street to redirect flood water from the Waikana Stream down Kana Street to prevent flood water from the Waikana Stream

entering the buildings. The structure shall be designed by a suitability qualified engineer, with construction plans to be submitted to Council for approval. The structure shall be constructed in accordance with the approved plans.

10) The effects of ammonia and hydrogen gas in the aftermath of a flood event shall be managed in accordance with this consent. The trigger points where a management response is required shall be based on the workplace exposure standard (WES–STEL) for ammonia of 35 ppm and 50% of the toxic endpoint being 100 ppm. If levels are detected outside the boundary of the premises at the nearest residential properties at the WES–STEL of 35 ppm, people in the neighbourhood shall be advised to remain indoors. If ammonia levels approach 100 ppm (50% of the toxic endpoint) then the evacuation of people immediately downwind must be carried out if it is safe to do so.
The trigger point where a management response is required for hydrogen is 4000 ppm measured inside the building.

11) As a part of the management of the effects of ammonia gas in the aftermath of a flood event, further 'bottle testing' shall be undertaken to confirm whether the theory identified in Jinwing Li et al (2005) is applicable to this situation. The purpose of this testing is to check if there is an increase in emission rates of ammonia gas beyond 50 hours. The testing shall involve a selection of at least three different batches of Ouvea Premix (approximately 500g) in a jar with water to form a slurry and ammonia levels in the headspace tested over a longer interval (e.g. approximately 48, 96, 144, 192 and 240 hours). The testing shall be commenced within 60 days of the consent commencing by an appropriately qualified person, who shall report to the consent holder and Council on the results of the test. Any required amendments to the Contingency Plan shall be included in the plan no later than two weeks after the tests are concluded. Provision to incorporate the advice relating to these tests shall be provided in the Contingency Plan.

12) The trigger points and management of the effects of ammonia gas and the trigger point for hydrogen gas in the aftermath of a flood event required under Condition 10 above and the testing required under Condition 11 above shall be included in a Contingency Plan which shall be incorporated into the `Action Post Flood' section of the Flood Response Plan.

13) The Contingency Plan shall include, as a minimum, the following:

    a) monitoring approach and frequency, including responsibilities, monitoring equipment and monitoring sites for the monitoring of ammonia and hydrogen following flooding of the site;
    b) the trigger points as set out in Condition 10 where a response is required;
    c) response procedures for when outside trigger points for ammonia as set out in Condition 10 are met, including communication with nearby residents to stay indoors or to evacuate if safe to do so, and consideration of removing and/or drying material where safe to do so;
    d) response procedures for when the inside trigger point for hydrogen is met.

Assurance/certification

14) An Environmental Management Plan (EMP), prepared by a suitably qualified person, shall be submitted to Council for certification by the Chief Executive Officer within 30 days of this consent being granted. This plan shall be in general accordance with Appendix E of the Hazard Identification and Risk Assessment (HIRA) Report dated 30 April 2015 titled 'Environmental Management Plan'. The site shall be managed and the associated activity shall be carried out in accordance with the EMP. The EMP is to be maintained and updated throughout the duration of this consent. If any amendments or updates are made to better achieve the purpose of the EMP, this shall be provided to Council with the updated version of the EMP within 14 days of any changes being made.

15) A Flood Protection Plan (FPP) prepared by a suitably qualified person, shall be submitted to Council for certification by the Chief Executive Officer within 30 days of this consent being granted.

16) This Flood Protection Plan (FPP) shall be in general accordance with 'Annexure A – Draft Flood Protection Plan' of Mr Fountain's supplementary evidence dated 24 July 2015. The site shall be managed and the associated activity shall be carried out in accordance with the FPP. The FPP shall be maintained and updated throughout the duration of this consent, including carrying out and recording 6-monthly checks of the flood mitigation methods. If any amendments or updates are made to better achieve the purpose of the FPP, this shall be provided to Council with the updated version of the FPP within 30 days of any changes being made.

17) The Flood Protection Plan shall include the trigger points for activating the Flood Response Plan and the methods by which this information is determined and relayed to the consent holder and the Gore District Council. The methods for determining and relaying this information shall be approved by the Chief Executive Officer of the Gore District Council as a part of certifying the Flood Protection Plan.

18) Within five working days of the Flood Protection Plan being certified by the Gore District Council the consent holder shall demonstrate to Council the installation and operation of all flood protection equipment at the site.

19) A Traffic Management Plan (TMP) prepared by a suitability qualified person in consultation with NZTA, shall be submitted to Council for certification by the Roading Manager within 30 days of this consent being granted. The TMP shall be in general accordance with the Traffic Management Plan produced by Traffic Management Services Ltd and filed with the Commissioners on 3 July 2015. All loading activities shall be undertaken in accordance with the TMP unless expressly approved in writing by the Council's Roading Manager and after consultation with NZTA. All consultation with the community shall occur in accordance with the TMP.

20) An Incident Response Register shall be maintained on the subject site detailing any incidents (including floods, spillages or complaints made to any staff members, contractors and providers) and the actions that were taken to rectify the incident. The Incident Response Register is to be made available to Council staff immediately on request.

21) The buildings which are the subject of this consent and their associated systems shall have a current Building Warrant of Fitness for the duration of this consent.

Monitoring

22) Weekly ammonia gas monitoring shall be conducted at the site and monthly monitoring reports produced. These reports shall be made available to the Council within five working days following the end of each month. If levels of ammonia outside of the buildings on the site are detected above 5 ppm, the source of this ammonia will be investigated. If the source is within the site action to mitigate the effects of the ammonia emissions will put in place immediately. The results of this investigation and any actions taken will be reported to the Council as part of the monthly ammonia gas monitoring report.

23) The Council may after 60 days of approving this consent, serve notice of its intention to monitor the site for the purpose of dealing with any unforeseen or adverse effect on the environment associated with the exercise of this consent.

Community Liaison Group

24) The Community Liaison Group shall remain in the form established during the hearing for the duration of the consent. The group shall have representation appointed from the consent holder, the Mataura community (appointed by the Mataura Community Board) and the Gore District Council (a senior staff member).

End of Consent Term and Bond

25) All Ouvea Premix stored on site in excess of the quantities permitted by the District Plan are to be removed from the site and either stored or disposed of at a lawful location prior to the expiry of this consent.

26) The applicant is to provide the Council a bond of $2.3 million within 40 days of this consent being granted to secure compliance with Condition 25 above. The bond is to be provided either in cash, or if not in cash, in writing guaranteed by a guarantor. The form of the bond document and the suitability of the guarantor are to be approved by the Chief Executive Officer of the Gore District Council as being adequate to secure compliance with this condition.

Reasons

1) The industrial zoning of the site provides an expectation for the use of this site for this type of activity.

2) The restriction of the duration of the consent to two years ensures that the exposure of Ouvea Premix to the risk of flooding is limited. This is a significant factor in enabling the consent to be granted.

3) Ouvea Premix sits at the lower end of the scale of risk for Class 6 hazardous substances under the HSNO regulations. It is a skin and eye irritant rather than a toxin.
4) The buildings are structurally capable of storing the Ouvea Premix.

5) We are satisfied that the provisions and the monitoring required to be included in the Flood Protection Plan will ensure that the effects of any flood event are minor.

6) Provision for the pedestrian use of the footpath along Kana Street during the loading of trucks is to be included in a traffic management plan.

7) We are satisfied that there are no adverse effects arising from the provision of less car parking on the site than required by the District Plan.

8) We are satisfied that the effects of any Ouvea Premix dust emissions from the site are less than minor.

9) We consider that the potential adverse effects resulting from a fire affecting the Ouvea Premix are minor.

10) The provision of a bond provides the Council and the community with some security that the Council is able to remove Ouvea Premix from the site and dispose of it safely should the consent holder fail to do so at the end of the term of consent. This bond requirement also protects the Council in the event of non-compliance with the removal condition. Otherwise in that event there is the possibility of Council having to incur the cost of removal and storage or disposal of Ouvea Premix and then having to recover the costs of doing so as a debt. The fact that the current applicant Taha, is essentially controlled from overseas reinforces the need for caution to protect the Council and the ratepayers from the potential high financial risk of enforcement to deal with this product.

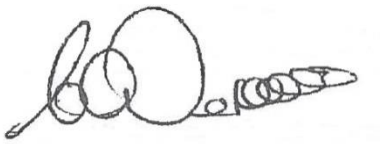
11) The Applicant requested that this consent be made personal to Taha. The storage of Ouvea Premix is specifically limited to this particular site. It is considered more appropriate that the usual position for a land use consent is adopted in this case, that is, the consent relates to the use of the land. It is essential that whoever is the owner / occupier of the site needs to comply with all conditions imposed if Ouvea Premix is to continue to be stored on this site.

12) As the application is retrospective, the management of the storage and removal of the Ouvea Premix from the site by way of a resource consent will result in a more effective and better managed outcome than could be achieved using enforcement.

Advice Notes

a) Please be aware that the site is identified as having a HAIL history and any future earthworks or erection of structures may require assessment under the "NES for Managing Contaminants in Soil to Protect Human Health 2011". Known potential hazards are storage tanks, liquid fuels and chemical wastes.

b) The applicant should consult with the Gore District Council and Environment Southland as to the most appropriate methods for receiving the information relating to the trigger points in the Flood Protection Plan. Consideration should be given to utilising the Southland Civil Defence warning system.



Colin Weatherall
Hearings Commissioner

David Pullar
Hearings Commissioner

22 October 2015