KiwiRail Holdings – Palmerston North Regional Freight Hub - S92 Requests and Responses – Contaminated Land

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Introduction

This memo covers the Contaminated Land responses.

Question 2) What is the potential for dust generation from operation of these areas and is an operational dust management plan appropriate to manage these potential effects?

The freight hub will have the potential for dust generation during operational activities, as described generally in the AEE. The obvious (known) sources include;

- The Log Yard;
- Activities such as bulk material loading and unloading where such materials will be handled as part of freight movements within the Hub boundaries; and
- Particulates generated by the movement of engines, rolling stock and trucks servicing freight forwarding activities (these may be, at least in part, associated with exhaust emissions from combustion engines).

At-source controls will be applied to the extent practicable to minimise the impacts of these various sources of dust. The Log Yard, as a particular example, will have its dust-related impacts mitigated by its proposed central location (i.e. furthest from the Rail Hub site boundaries) and there are applicable operational controls that, inter alia, will also result in reductions in dust emissions from the Log Yard such as log washing to remove mud and dirt (either on-site in the Log Yard or immediately prior to loading post-harvest for transport to the Log Yard area). Debarked logs are also especially prone to generate particulate when handled; therefore, minimising the extent of such log movements will be an important part of Log Yard activities management.

For handling of other bulk granular materials individual best operational practices will be developed and implemented; dust emissions controls will be an important aspect of such handling protocols for material with elevated potentials to generate dust.

Besides the specific practices for operational controls on particular dust generating activities, more general site management practices to mitigate dust must be implemented. This will include, but will not be limited to, the beneficial impacts of boundary plantings (i.e. creation of turbulent air flows which lead to improved mixing and dilution and also knock-down of dust) and, as and if necessary, boundary water misting sprays can be installed to further mitigate particulate concentrations in the ambient air.

To bring all of these mitigation aspects into one place, an Operational Dust Management Plan is appropriate. There are various standard formats for such plans and the following sets out the topics that should be covered for such a Plan to be developed for the Freight Hub site. This can be regularly refined, extended and updated as experience is gained that informs the suitability and effectiveness of the base Plan.

An Operational Dust Management Plan typically includes:

- A description of the site location and sensitive receptor locations.
- A summary of site activities.

- Identification of the potential dust generating sources, typical frequency and duration of exposure, and a qualitative assessment of the risk that each individual on-site source could/would generate dust impacts.

- A description of the intensity and character (including offensiveness if relevant) of the various potential types of dust discharges.

- Mitigation and management practices to reduce dust emissions. This would include summaries of the individual site activity plans for dust-generating activities in which mitigation measures have been discussed.

- Inspection and monitoring programmes – to the extent that these relate to day-to-day site walk-over audit activities to monitor all operational impacts of the Freight Hub operations.

- Complaints recording and responses. This is a key part of any Dust Management Plan and the findings and mitigation actions that result should also be transparently passed on to the complainant(s).

- Training of personnel necessary for the DMP to be implemented.

- Record keeping.

- Roles and responsibilities of staff in relation to the DMP. This is a very important area – and deputies for the key roles also need to be named.

- Requirements for and regularity of update of the DMP

A Dust Management Plan is only as good as its implementation and thus the key staff resources to carry out this implementation of the DMP must be appointed with recognition of their capability, interest and commitment in mind.

Question 172) The operation of the Regional Freight Hub creates a HAIL site (F6 and F7). Technical Report I - Contaminated Land Assessment states that these activities can be largely mitigated through appropriate project site design, which can be addressed in more detail at a later stage, once more is known about these design aspects. How does KiwiRail propose to ensure that project layout, design and associated mitigation measures will prevent contamination of the receiving environment?

The keys to prevention of environmental contamination by Freight Hub activities are based on ensuring that any discharges of contaminants into air, soil, groundwater or surface water are effectively controlled. Some aspects of this control will be afforded, in terms of day-to-day activities, by site management protocols and procedures specifically developed to manage individual potentially polluting activities to thereby prevent discharges. It will be necessary to ensure that site design, layout and related mitigation measures are in place as the first line of defence against contamination of the various environmental media.

The following factors will be key components of the project design to manage contamination:

1. location of the bulk hazardous substance storage tanks should be informed by the best approach towards minimising potential contamination as well as fitting operational efficacy. With that in mind, the exact location of the bulk hazardous substances storage will be determined at detailed design and will also be informed by other site operational requirements;
2. the location and extent of impermeable base barriers (such as the use of clay layers) below the storage tank areas to prevent contamination in either groundwater or surface water; and
3. bunding around tank storage areas, as well as other measures such as site gradients, and cut-off drains around the site perimeter.

Discharges to air such as fossil fuel combustion products (PAHs), a variety of hydrocarbons and particulates generated from the movements of locomotives and trucks are most effectively managed or mitigated at source. However, design features in the form of effective landscaping plantings can, as well as effectively screening the site for aesthetic purposes, also provide useful mitigation of discharges to air (particularly the more diffuse, non-point source discharges) by creating turbulent air flows which mix, dilute and disperse airborne contaminants.

While not itself a design feature, the monitoring of discharges to the environment is an essential part of ongoing site environmental management. The findings of monitoring are a critical tool to assess the extent of environmental good stewardship. On the basis of monitoring results and associated trends, the effectiveness of environmental management in minimising discharges from site operational activities can be quantified.

174) What are the likely effects on amenity or public health and safety of contaminated dust from rail operations settling on nearby properties (particularly contaminated dust landing on rooves which are used for rainwater collection)?

Potential effects on amenity or public health and safety from rail operations could include: effects arising from dust from ballast under tracks, uncovered wagons and from the use of diesel engines; exacerbated respiratory conditions such as bronchitis and asthma caused by prolonged exposure to dust (fine particles (e.g. PM10 which is particulate matter smaller than 10 µm) . Gases such as carbon monoxide (CO) and nitrogen dioxide (NO_2) produced from diesel fuel combustion could cause effects such as increased frequency of coughing, wheezing and breathlessness, an increased susceptibility to infections and asthma attacks, headaches, or dizziness (WHO, 2001). These impacts will relate to the type of engines used; the surfaces on the hub, the specific layout of the site in relation to the proximity of receptors; wind conditions and the management regime operating on the site. The effects could impact on air quality for more sensitive receivers and, as suggested by the question on rainwater collection, on those who collect rainwater for domestic use.

Based on the operation of rail yards internationally, effective management measures have been devised to address these effects.

In addition to the design measures outlined in the response to question 172, the following measures contribute to the management of contaminated dust:

1. preparation and stringent adherence to a detailed dust management plan (as discussed in the response to s92 item #2);
2. boundary landscape planting (trees and shrubs) to create turbulent flows in wind-borne emissions to aid in their effective dilution and dispersion; and
3. communication with the community through the Community Liaison Forum to manage and address any complaints regarding dust where they arise.

In our opinion, these measures should be fully effective in minimising the potential impacts to negligible levels.

175) Would the Regional Freight Hub be categorised as a major hazardous facility under this definition? If so, please provide a risk assessment prepared in accordance with the special information requirements listed in section 5.4(h) of the District Plan.

The Regional Freight Hub triggers the definition of a Major Hazardous Facility in the Palmerston North City District Plan. This is because of the volume of diesel fuel that will be stored in bulk at the site for refuelling of the engine fleet that will use the facility. While the exact volume is unknown, it will be greater than 50,000L which is the trigger in the District Plan to be classified as a Major Hazardous Facility

There is a possibility, although much less likely, that more than 100,000L of petrol will also be stored at the Freight Hub, which would also trigger the Major Hazardous Facility definition.

None of the other criteria of activity type and/or volume held on site will be exceeded by the activities and/or substances held at the Freight Hub.

Given that the quantity of diesel exceeds the 50,000L trigger for a Major Hazardous Facility it is necessary to carry out a risk assessment in accordance with the special information requirements listed in section 5.4(h) of the District Plan. In addition, it is noted that assessments required under other legislation and regulations will also need to be undertaken. The District Plan notes (in Section 14 Hazardous Substances) that the use, storage and transportation of hazardous substances in the City must be in accordance with the requirements of the Hazardous Substances and New Organisms Act 1996. That Act as the primary legislation designed to manage hazardous substances across their life cycle (import/manufacture, classification, packaging, transport, storage, use and disposal) will also need to be adhered to in designing and managing any Hazardous Facility. The Health and Safety at Work (Hazardous Substances) Regulations 2017 also apply to the use, handling and storage of hazardous substances in the workplace and the Health and Safety at Work (Major Hazardous Facilities) Regulations 2016 apply to mandate specific duties relating to process safety for existing and potential Major Hazardous Facilities (MHF).

KiwiRail recently installed a 100,000l diesel tank at the Westfield railyard in Auckland (see photograph in Fig 1-1).

The special information requirements listed in section 5.4(h) are as follows, with the assessment of risk posed with respect to each sub-clause provided against the individual assessment criteria:

> *"**(h) Special Information Requirements for Hazardous Facilities requiring a Resource Consent***
>
> *(a) A risk assessment which encompasses the following matters:*

Figure 1-1 100,000l diesel tank at Westfield railyard

The tanks in which diesel fuel for the site operations will be held will be designed and manufactured in compliance with the relevant design standards for such tanks, as set out in the Hazardous Substances and New Organisms Act 1996, the Health and Safety at Work (Hazardous Substances) Regulations 2017 and in the relevant Schedules to these legislative instruments that delineate the specific design standards that are applicable.

The tank contents will be retained within a bunded area that is able to contain the contents of the largest tank by volume (assuming multiple tanks may be present) plus an additional 10%, as per Ministry for the Environment Hazardous substances: Storage and use - Risk Radar fact sheet 3 (and, indeed, international) requirements. Tank designs will be certified by the fabricator/manufacturer as meeting the requisite design parameters. Double-skinned tanks are an acceptable and compliant alternative.

Fire safety requirements for diesel fuel held in bulk will be met, noting that diesel is classed as a combustible liquid and has a fire hazard that is deemed to be low. Adequate ventilation needs to be implemented when using or storing flammable liquids to prevent build-up of flammable vapours. This further includes appropriate labelling of all hazardous substances for identification purposes. The site fire-fighting design will include provisions for fire safety with diesel held in bulk storage but particular extinguishing media are not required for diesel, given its low fire risk.

Diesel represents a significant environmental risk to surface water and groundwater resources. The site drainage in the vicinity of the diesel storage bulk tanks will be designed so as to divert both fire water and any (possibly contaminated) stormwater to a safe location to enable subsequent management and off-site disposal of this potentially contaminated water.

The secondary containment conferred by bunding of the tank(s) will be sufficient to contain spills and leaks and retain the spilled or leaked liquid within the bunded area so that safe disposal can be instigated.

ii. Potential risk and effect on people and neighbouring activities, with emphasis on sensitive activities such as residential zones, educational facilities and community facilities.

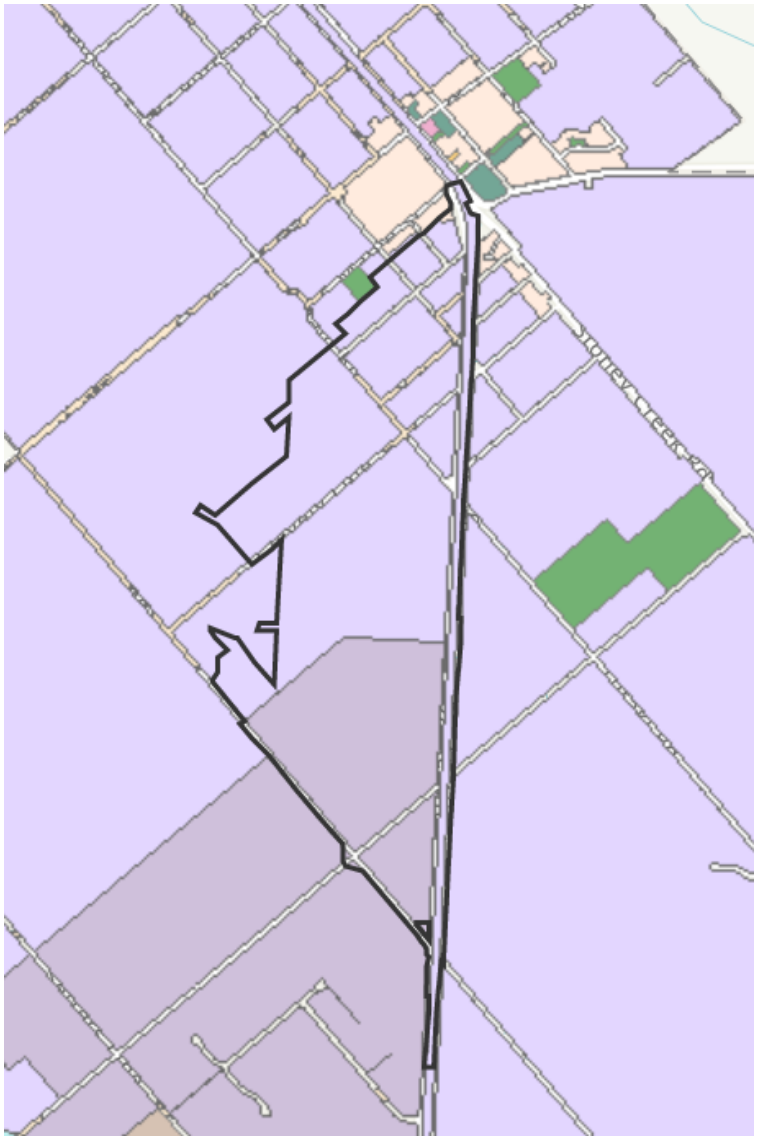

Figure 1-2 Copy of Figure 5.5 from AEE

The area included in the designation includes provision for stormwater ponds and a new Perimeter Road on the western and northern edges of the site, along with noise buffers and landscaping around the site. These arrangements provide separation distances that will assist in reducing the risk to existing sensitive land uses (for example occupiers of dwellings shown in Map 2- Residential Dwellings Within the Local Impacted Area included with the response to questions related to the submitted Social Impact Assessment).

In addition, as shown in Figure 5.5 of the AEE (copied above) the hub is located partly in the NEIZ and partly in the Rural Zone. In the timeframe associated with development of the hub it is expected that land use in the vicinity of the site will change over time.

In the case of existing sensitive activities located around the other boundaries to the north closest to the potential fuel/ diesel storage areas shown in the updated concept plan provided in response to Q 188 and copied below the distances to the closest existing dwelling are 100m plus.

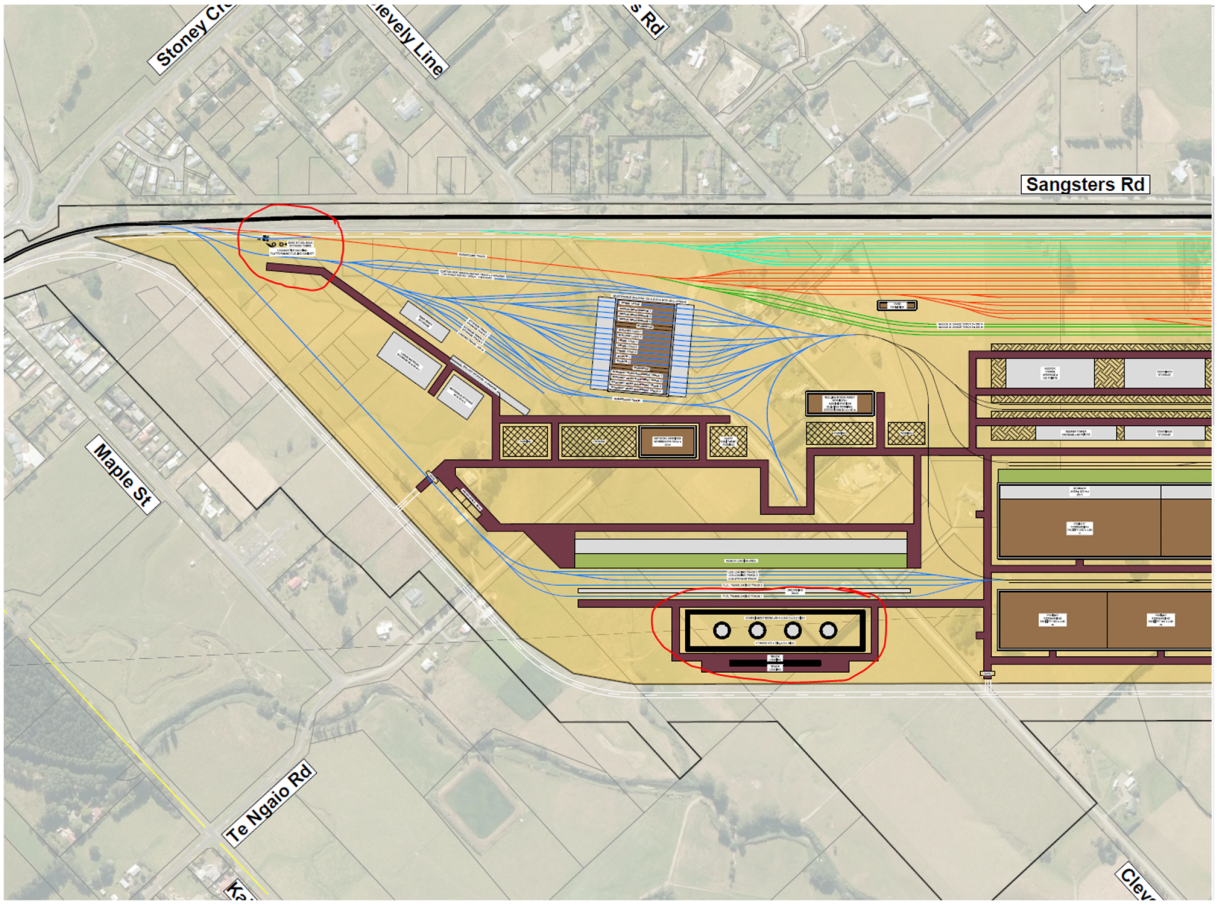

Figure 1-3 Extract from revised Concept Plan supplied in response to Q 188

When stored in accordance with the design factors outlined in the response to question 172, the storage and use of diesel at the Freight Hub site will present a negligible risk to people, sensitive land uses and general activities in the vicinity.

iii. Potential risk and effect on natural ecosystems and the life supporting capacity of land and water, waterbodies and sources of potable water.

As set out above, the tank and site design combined with layout-based risk mitigation measures will reduce risks from on-site diesel storage to negligible levels. Other mitigation measures include culverting some or parts of the streams running through the operational areas of the Hub, which will ensure that the risk to natural ecosystems and the life supporting capacity of water bodies is reduced. Bunding of critical areas and collection of stormwater from the site as outlined in the stormwater management approach will further minimise risks.

iv. Potential risk and effect on sites of significance to Tangata Whenua, or sites of historical or archaeological significance.

There are no known or scheduled sites of historical or archaeological significance within the Hub as outlined in the archaeological assessment. Engagement with iwi is ongoing and will assist in determining whether there are any sites of significance for Tangata Whenua. As above, correct and compliant design, siting and mitigation measures, fire protection and environmental risk mitigation measures will reduce overall risks to negligible levels.

v. The potential for natural hazard to impact on the operation of the hazardous facility.

Natural hazards such as earthquake or significant flooding events, for example, will disrupt the Freight Hub operations potentially to a major extent. However, the parameters inherent in standard approaches to tanks design, site geotechnical preparation, bunding and other protective features noted above all take account of natural hazard events and their potential impacts. The storage of diesel in bulk is catered for in terms of resilience to cope with the impacts of natural hazards.