NSW GOVERNMENT
Department of Planning

MAJOR PROJECT ASSESSMENT: Resource Recovery and Recycling Facility, Rutherford

Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

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EXECUTIVE SUMMARY

Transpacific Industries Pty Ltd (the Proponent) is proposing to construct and operate a Resource Recovery and Recycling Facility at Kyle Street, Rutherford, in the Maitland local government area. The project, as exhibited, involved a number of different treatment and recycling processes that would treat up to 85,000 tonnes of industrial, commercial and domestic liquid wastes.

The Proponent has since amended the project through a Preferred Project Report, which has significantly reduced the scale and complexity of the project. The Proponent now intends to only seek approval for the establishment of a hydrogenation plant that would process and recycle up to 40,000 tonnes of re-refined waste oil to produce refinery grade base lubricant oil. The Proponent states that the facility, if approved, would be the first in Australia and provides a significant contribution to the environmentally sustainable management of waste oil in NSW.

The capital cost of the proposed facility is estimated at $10 million. Approximately 50-75 people would be employed during construction and 60 people during its operation. If approved, it is estimated that construction would take approximately 6-9 months.

During the exhibition period, the Department received a total of 81 submissions on the project, with 4 submissions received from public authorities, 73 from the general public, 2 from special interest groups and 2 petitions. Key issues raised in the submissions received by the Department included:

- air quality impacts due to odour and air toxics, including the associated impacts on the strategic planning of the area;
- suitability of the site;
- impacts of additional heavy vehicles movements on the road network;
- risks and hazards to surrounding workers and residents; and
- insufficient information in EA relating to the odour assessment.

The Department has assessed the merits of the project and is satisfied that the impacts of the proposed development have been substantially reduced through the Proponent's amendments to the project, and that the impacts can be suitability mitigated and/or managed to ensure a satisfactorily level of environmental performance. On these grounds, the Department considers the site to be suitable for the proposed development and that the project provides environmental, social and economic benefits to the region. Consequently, the Department recommends that the project be approved, subject to conditions of approval.

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1. BACKGROUND

1.1 Location

Transpacific Industries Group Ltd (the Proponent) proposes to construct and operate a Resource Recovery and Recycling Facility at 11 Kyle Street, Rutherford, located in the Maitland Local Government Area. The site is referred to as Lot 223 DP1037300 (refer to Figure 1).

The proposed site is located within the Rutherford Industrial Precinct, located south of the New England Highway and is approximately 7km north-west of Maitland city. Access to the site is provided via the western boundary of the property to Kyle Street.

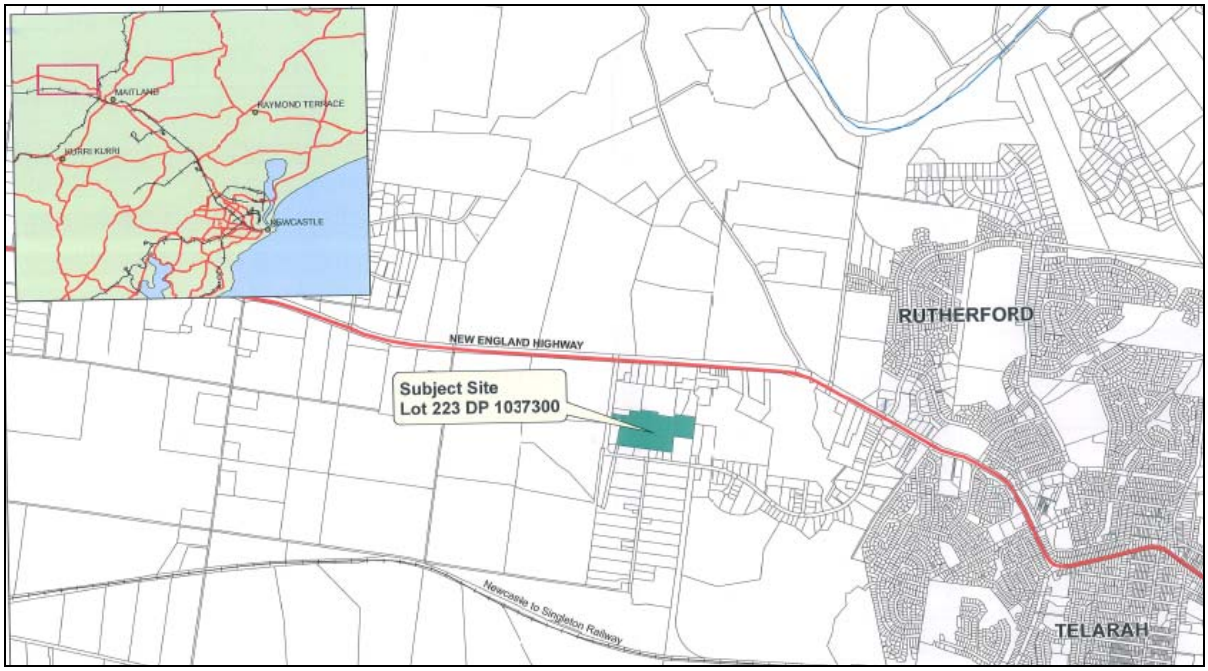

Figure 1: Site Location

1.2 Existing Site

The proposed site covers approximately 10 hectares, is of flat terrain and has been cleared with only four small stands of vegetation remaining along the site boundaries.

The previous activities conducted at the site formed part of a larger operation associated with the munitions manufacturing (1941-1945) and textile manufacturing (1944-2000) operations at Rutherford. Limited operations have been conducted by the Proponent at the site, with development consent granted by Maitland City Council in March 2004 to enable the use of the site as a truck depot (Valley Disposal Services). This consent included:

- demolition of one building;
- construction of an office building and weighbridge;
- use of a portion of one of the existing buildings as a truck depot with associated workshop facilities and site infrastructure (landscaping, car parking and internal roads)

The facilities approved by Council are located within the western portion of the site, with the eastern portion of the site, as shown in Figure 2, remaining vacant. Construction and demolition work associated with Council's consent had been completed at the time of lodgement of this proposal with the Department, and will support the project.

Figure 2: Site Location and Surrounding Uses

1.3 Surrounding Land Use

The site is located within the Rutherford industrial precinct, with surrounding development uses ranging from services/retailing, warehousing, light industrial and manufacturing (e.g. oil recycling facility, textiles, and ceramic tile factory). The Rutherford Aerodrome is located to the north-west of the site, and the Westside/Heritage Green golf course located to the south-east.

Development immediately surrounding the site consists of light/medium industrial uses, including:

- *North:* Edwards Concrete Tanks, Farmers Warehouse (agricultural retail), vacant factory/warehouse buildings (similar to those on the proposed site), the Maitland Auction Centre, the Australian Wool Centre, HIE Signs and Engraving and electrical engineering services;
- *East:* waste services and undeveloped vacant land (zoned industrial);
- *South:* transport depot/services, retail (kitchen retail), vacant land/buildings (zoned industrial) and industrial/warehousing; and
- *West:* vacant vegetated land (zoned Rural) and the Maitland saleyards.

The industrial area is also currently undergoing redevelopment, with:

- a bulky goods/retail complex currently under construction to the north-east of the site;
- vacant land to the east subdivided to enable smaller industrial units;
- a business/technology park proposed north of the New England Highway; and
- future redevelopment of the golf course to include 450 dwellings and other commercial/recreational uses in accordance with recent amendments to the *Maitland Local Environmental Plan 1993* (subject to development application being lodged).

The residential suburbs of Rutherford and Telarah lie approximately 1km from the site to the east and north-east. These suburbs are located along local ridge lines, providing elevated views of the Rutherford industrial precinct. Rural-residential receptors are located approximately 1km to the north and south of the site. Anambah House, listed on the NSW Heritage State Register, is also located to the north east approximately 2km from the proposed site.

2. PROPOSED DEVELOPMENT

2.1 Project Description

The Proponent proposed to construct and operate a Resource Recovery and Recycling Facility that would accept, store, treat and recycle up to 85,000 tonnes of industrial liquid waste per year to enable re-use and/or disposal offsite. The proposed facility would consist of the following components:

- an oily water treatment plant and waste oil transfer station;
- a lube oil hydrogenation plant;
- a CFS (Chemical Fixation, Stabilisation and Solidification) Plant to treat non-sewerable wastes and sludges;
- a dangerous goods store; and
- associated on-site facilities, such as an on-site laboratory and a waste water treatment plant; and
- subsidiary operations, such as an industrial cleaning services depot, an environmental recovery services depot, a truck wash bay and transport vehicle depot.

The Proponent proposed to accept waste originating from Sydney, Newcastle, Wollongong, the Central Coast and the Central Highland regions, which would be transported by heavy vehicle to the site via the New England Highway. These wastes would consist of a wide range of industrial, commercial and domestic wastes, including oily water wastes, wash wastes, wastes from manufacturing, agricultural and mining operations, and other non-sewerable industrial wastes. In addition to the various treatment processes proposed on site, the Proponent would also provide a collection service for certain liquid industrial wastes that would be stored temporarily on-site for eventual transport to other facilities for treatment.

The proposal would be largely constructed and operated within the footprint of the previous development, with the existing buildings to be retrofitted to house some of the proposed components. The proposed facility would operate 24 hours a day, 7 days a week, however, not all components would be operating on a 24 hours/7 day basis.

Construction of the proposal would take between 6 to 9 months to complete.

2.2 Preferred Project Report

In response to the submissions, the Proponent has amended the project and submitted a Preferred Project Report (PPR). As detailed in the PPR (refer to Appendix E of this report), the Proponent substantially reduced the scale and complexity of the project, and is now only seeking approval for:

- a lube oil hydrogenation plant to process re-refined waste oils to generate refinery grade base lubricants oils;
- a truck wash bay and transport vehicle depot with ancillary waste water recycling plant;
- an on-site laboratory; and
- an industrial cleaning depot and environmental recovery services depot.

As a result of these modifications to the project, only re-refined waste oil would be accepted, stored and treated at the site. This would reduce the volumes of waste to be treated on-site from 85,000 tonnes of a range of wastes to 40,000 tonnes of re-refined waste oil.

A description of the proposed components is provided in Table 1, and an illustration of the hydrogenation process in Figure 3. Figure 4 provides the layout of the proposed facility.

The total project cost is estimated at $10 million, and would generate 60 full-time positions during operations and 50-75 positions during the construction period.

The assessment presented within this Director-General's report is based on the project, as amended by the PPR.

Table 1: Description of Project Elements

Aspect	Description
Lube Oil Hydrogenation	The plant would be located externally within the western portion of the site, would operate 24 hours/7 days a week and would have maximum annual treatment capacity of 40,000 tonnes of lube oil and would generate 36,000 tonnes per annum of final product. The hydrogenation process involves the addition of hydrogen to unsaturated hydrocarbon molecules to result in very stable saturated hydrocarbons while removing impurities such as nitrogen and sulphur. This process is conducted at elevated temperatures and pressure. Products of the process include light end gases (used as fuel), light end liquids (used as solvents), water and refinery grade base lubricant oil. Approximately 90% of re-refined oil in-feed is recovered as refinery grade base lubricant oil (refer to Figure 3).
Industrial Cleaning Services Depot	Would involve the storage of vehicles and equipment associated with multi-purpose industrial and environmental cleaning services to the manufacturing, heavy engineering and mining industries (conducted off-site). Some maintenance and equipment cleaning (small pieces) would occur within bunded areas. The depot would be located within the existing 'western' building and would operate Monday to Friday between 6am and 6pm.
Environmental Recovery Services Depot	Would act predominately as a transfer station, storage and maintenance facility for parts cleaning machines (washers), spill kits and absorbents. The depot would be located within the existing 'middle' building, and would operate Monday to Friday between 6am and 6pm.
Truck Wash, Transport Vehicle Depot and Fuel Depot	The facility would provide truck wash, vehicle parking and transport depot and fuelling facility for the Proponent's heavy vehicle fleet (approximately 40 vehicles). The fuel depot would have a maximum capacity for 50,000 litres. The Depot would operate 24 hours/7 days a week.
On-site laboratory	Would provide service for the testing and confirmation requirements of the proposed operations.

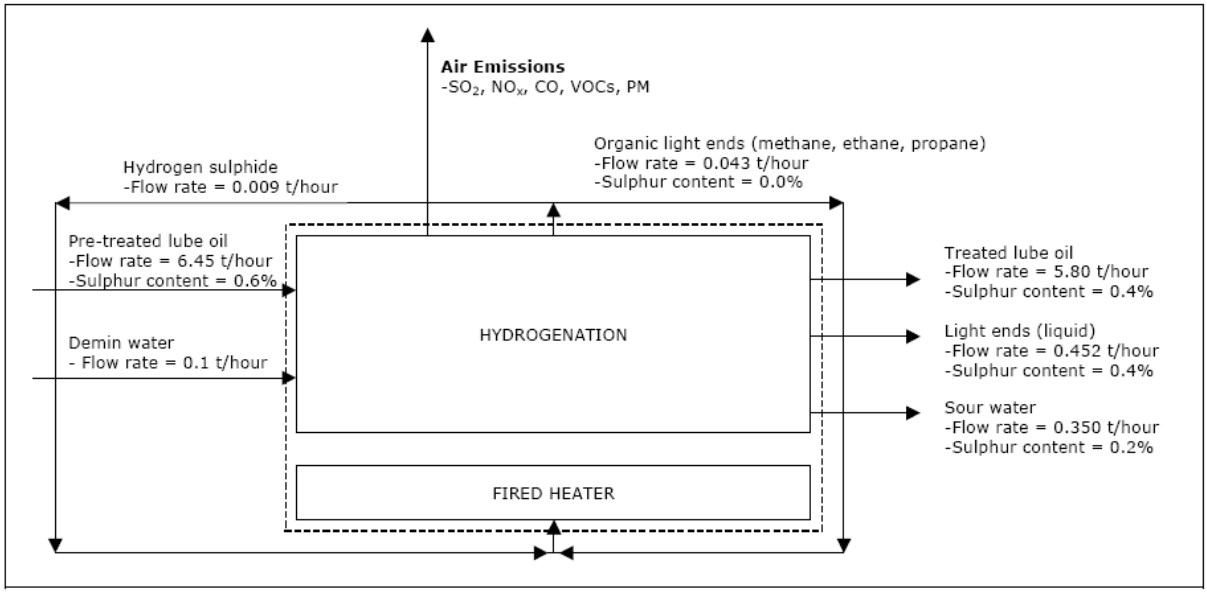

Figure 3 – A schematic diagram of the fired heater and hydrogenation process (Galvin et al, 2006)[1].

[1] Galvin, G et al (2006) Air Quality Assessment – Rutherford Hydrogenation Plant, Consultancy Report for Transpacific Industries Pty Ltd Job Number 2221. Pacific Air and Environment Pty Ltd, Brisbane.

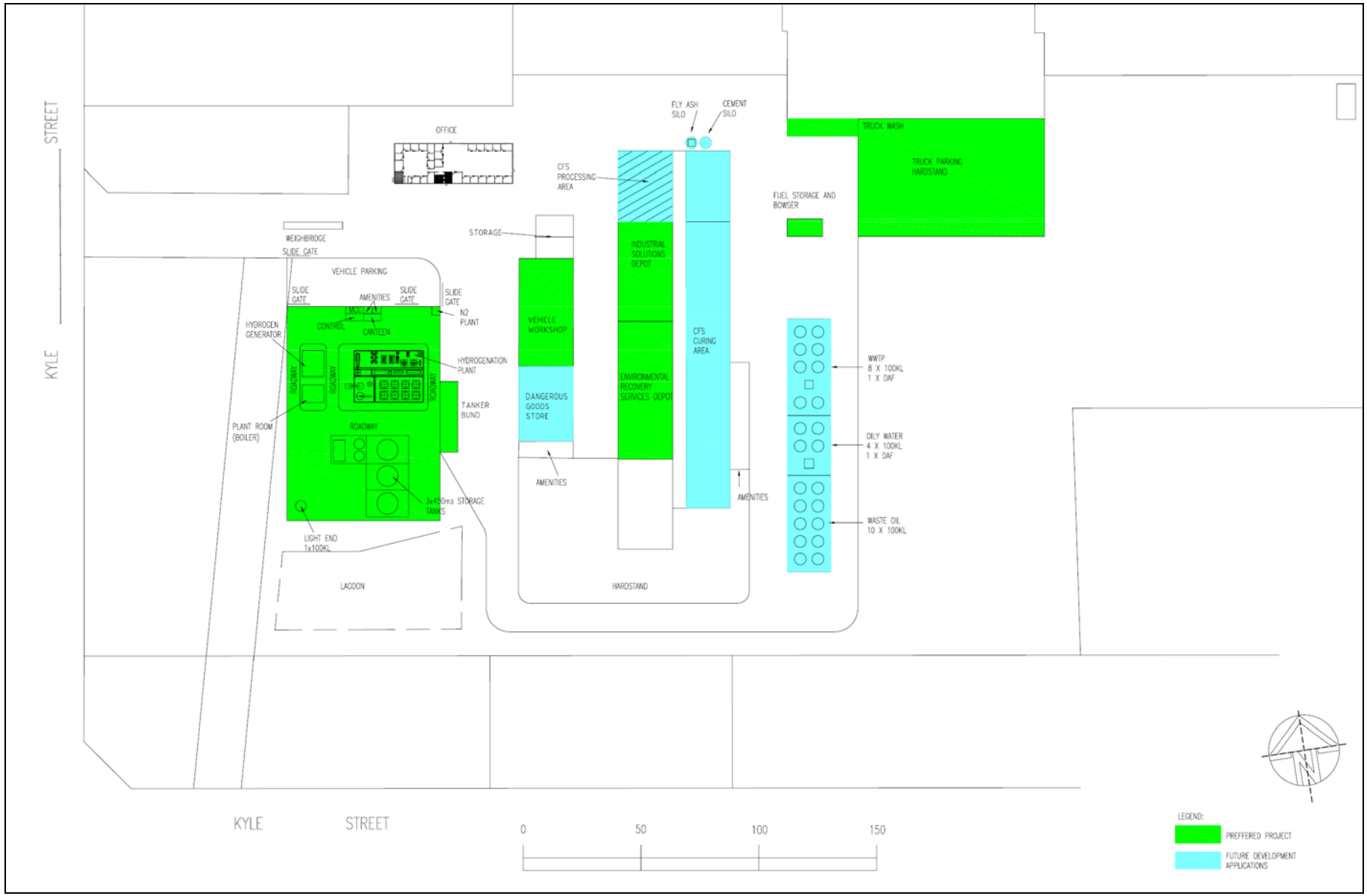

Figure 4: Preferred Project Site Layout

2.3 Project Need

The Proponent, one of Australia's main resource recovery and recycling businesses, was awarded a Federal Government grant under it's Product Stewardship Oil Program to develop and commission a hydrogenation plant. This program focuses on advancing the recovery, reuse and recycling of waste lubricant oils in Australia.

According to the Department of Environment and Heritage, approximately 250 million litres of used oil is generated in Australia, of which approximately 194 million litres are recovered and recycled. However, the majority of this oil is recycled to low-grade product for energy purposes (fuel oil), providing an unsustainable outcome for this finite resource. The hydrogenation plant, proposed as part of this project, would provide for the treatment of these oil waste products to generate a recycled product that satisfies base lube specifications (Group II, high grade), and enables unrestricted reuse. The facility will be the first plant to provide this form of treatment in Australia and provides for an improved environmentally sustainable outcome for waste oil.

The facility will also provide improved waste management options for the Hunter region, involve a $10 million investment into the local economy, and maintain 60 full-time operational jobs in the region. The Proponent states that flow-on benefits to the local economy would also occur due to increased demand for supporting industries and business in the region, such as transport companies.

3. STATUTORY CONTEXT

3.1 Major Project

The project is declared to be a Major Project under *State Environmental Planning Policy (Major Projects) 2005* because it is development for the purpose of any other liquid waste depot that treats, stores or disposes of industrial liquid waste and handles more than 1,000 tonnes per year of other aqueous and non-aqueous liquid industrial waste (clause 27(6)(a)). Consequently, the Minister for Planning is the approval authority for the project under Part 3A of the *Environmental Planning and Assessment Act 1979*.

3.2 Permissibility

The proposed site is zoned 4(a) Industrial General under the *Maitland Local Environmental Rural Plan 1993.* The proposed development is permissible with development consent under this zoning.

3.3 Minister's Approval Power

The Department has exhibited the Environmental Assessment (EA) in accordance with section 75H (3) of the *Environmental Planning and Assessment Act 1979*, as described in Section 4 below. Additionally, the project is entirely permissible and meets the requirements of the Major Project SEPP. Therefore, the Department has met its legal obligations and the Minister has the power to determine this project.

3.4 Environmental Planning Policies

The assessment of the proposed development is subject to the following environmental planning instruments and strategies:

- *State Environmental Planning Policy No 33 – Hazardous and Offensive Development*
- *State Environmental Planning Policy No 55 – Remediation of Land*
- *Hunter Regional Environmental Plan 1998*
- *Maitland Local Environmental Plan 1993*

The Department has considered the proposed project against the objectives and aims of these instruments, and is satisfied that the proposed project, subject to the implementation of the recommended conditions of approval, is generally consistent with the provisions of these instruments (refer to Appendix G).

4. CONSULTATION AND ISSUES RAISED

The Department received a total of 81 submissions on the project, with 58 received during the exhibition of the Environmental Assessment:

- 4 from public authorities;
- 2 from special interest groups;
- 73 from the general public, including local businesses; and
- 2 petitions (one with 347 signatures and the other with 84 signatures).

A summary of the issues raised in submission is provided below.

Public Authorities

Submissions made by public authorities were received from Maitland City Council, the Department of Environment and Conservation, the Roads and Traffic Authority and the Hunter Regional Development Committee.

Maitland City Council (the Council) objected to the project on a number of grounds, including:

- site suitability due to the impacts on the strategic planning of surrounding areas, and the economic impacts on surrounding industrial developments;
- air quality impacts on residential and industrial areas, for both odour (including cumulative odour impacts) and air toxics (worker health);
- road safety impacts at the Kyle Street/New England Highway intersection due to potential traffic conflicts and intersection design. Also questioned the adequacy of heavy vehicle routes, and requested upgrades or contributions to road maintenance; and
- waste disposal arrangements;
- noise impacts as cumulative noise impacts and road noise impacts were not properly considered.

The *Hunter Regional Development Committee* objected to the project, raising concerns with respect to the heavy vehicle route for the project and the potential network performance impacts. The Committee also recommended upgrades to the Kyle Street and the highway intersection to cater for B-Double movements associated with the project, as well as internal network design requirements. The Committee had particular concerns with the following:

- ability for the Proponent to enforce the heavy vehicle truck route via Racecourse Road/New England Highway, given more direct routes exist;
- capacity for the local network to cater B-Doubles, with the Kyle Street/Highway intersection, and Racecourse Road/Kyle Street currently restricted in accommodating B-Double movements. The Committee would consider upgrades to the network to address these concerns;

The *Roads and Traffic Authority* (RTA) objected to the project as proposed and requested that its concerns be addressed by the Proponent before a determination is made, including:

- an assessment of all vehicle movements at the Kyle Street/New England Highway intersection, given the ability to enforce the heavy vehicle route would be difficult given more direct routes exist; and
- consideration of upgrades to the Kyle Street/New England Highway intersection.

The *Department of Environment and Conservation* (DEC) did not object to the project, but identified concerns with the odour assessment, and requested that these concerns be addressed by the Proponent in the Response to Submissions/Preferred Project Report. The DEC has advised that its concerns have been satisfactorily addressed within the Preferred Project Report, and has made recommendations with respect to air quality management/plant design, noise and groundwater contamination management. These have been incorporated into the recommended Instrument of Approval.

Public Submissions and Special Interest Groups

Of the 57 submissions from the community and interest groups, all objected to the project. The main grounds for objection from both individuals and interest groups were:

- *odour* – all submissions expressed strong concern with respect to odour emissions from the project, the contributions to existing significant odour issues in the area, and the adequacy of the Proponent's assessment of the potential odour impacts. The concerns also extended to the associated impacts on amenity (including worker amenity), OH&S, health and the impacts on existing and future development as well as the strategic planning in the area (the *Maitland Urban Settlement Strategy* and the *Draft Lower Hunter Regional Strategy*).
- *site suitability/economic Impacts* – all submissions raised concerns with respect to the suitability of the proposed site for the project, stating that the project (mainly odour impacts) would conflict with the direction of the industrial area (i.e. bulky goods/retail) and redevelopments of surrounding areas (such as the Westside Golf Course/Heritage Green). Concerns with the impacts on economic viability of neighbouring businesses were also raised in the submissions (largely as externally based and/or poor worker amenity).
- *risk and hazards* – almost all the submissions expressed concern with the criteria used within the Preliminary Hazard Analysis and that workers within the industrial area had not been properly considered.
- *soil contamination* – most submissions expressed concern with residual soil contamination, containing hazardous materials/explosive materials due to past site activities. A concern with the management of asbestos within existing buildings at the site and neighbouring sites was also raised in the submissions.
- *traffic* – some submissions raised concerns with the potential impacts on traffic safety and performance, given the existing pressures on the New England Highway, and the potential conflict between heavy and passenger vehicles.
- *water quality* – some submissions raised concerns with the management of contaminated runoff.
- *air quality* – some submissions raised concerns with the release of toxics and dust emissions.
- *community consultation* – some submissions criticised pre-lodgement consultation process undertaken by the Proponent, and requested extensions to the exhibition period.

5. ASSESSMENT OF ENVIRONMENTAL IMPACTS

Key issues raised in the submissions to the proposal and/or identified during the Department's assessment included:

- air quality, specifically odour;
- traffic;
- site contamination;
- risk and hazards; and
- flora and fauna.

5.1 Air Quality

Issue

The Rutherford Industrial Precinct has existing odour issues that have caused offensive odour impacts on neighbouring businesses and nearby residential areas. Given the activities conducted at the proposed site have the potential to emit odours, and that the surrounding community is pre-sensitised to odour, the potential air quality impacts of the proposed development were the primary concern of the Department, the DEC, Council and public submissions.

Consideration

The Rutherford Industrial Estate contains a range of industrial and business uses, including; services/retailing, warehousing, light industrial and manufacturing (e.g. oil recycling, saleyards, bitumen hot-mix, textiles manufacturing, and ceramic tile manufacturing). The Estate is known to have existing odour problems, with several operators in the area known to have caused or be causing adverse odour impacts on neighbouring industrial and residential areas. The continuation or exacerbation of this impact by the project was the key concern identified by objectors and Council. Objectors were also concerned that air quality emissions from the project would also impact on the strategic direction and economic viability of the other industrial developments, the viability of nearby 'residential investigation' areas, health and lifestyle impacts on workers and residents, and the redevelopment of the Heritage Green Golf course as an integrated residential, commercial and recreational complex.

The project, as publicly exhibited, involved a number of different treatment processes for a variety of industrial, commercial and domestic industrial liquid wastes that had the potential to generate odorous, toxic and particulate air emissions. This included:

- a CFS plant, that would process non-sewerable liquid wastes and sludges, and would likely emit particulates (PM_{10}), odour and toxic compounds (Ammonia, Hydrogen Chloride, and Cyanide);
- an oily water treatment and waste oil recovery plant that would likely emit odours;
- a wastewater treatment plant, that would process the wastewater generated by the proposed treatment plants, and would likely emit odours; and
- a hydrogenation plant, that would likely emit nitrogen oxides, sulphur dioxide, carbon monoxide, particulates, hydrogen sulphide (H_2S) and Volatile Organic Compounds (VOCs).

The Proponent's air quality assessment of the total development had concluded that the project would comply with all relevant DEC criteria, and that the distance from residential areas would ensure no adverse impacts on these receptors. However, the assessment was limited in quantifying the potential odour impacts and air quality impacts on neighbouring industrial and residential receptors.

Given the surrounding residents and workers are likely to be pre-sensitised to odour, the Department and the DEC requested that the Proponent provide a more robust analysis of the potential air quality impacts to provide a greater level of certainty that the project would not generate any adverse impacts on the surrounding community on a project specific and cumulative scale.

In response to this request, the Proponent prepared a Preferred Project Report (PPR) that substantially reduced the scale and complexity of the proposed operations with the Proponent only seeking approval for the

hydrogenation plant. In particular, the deletion of the CFS plant removed a significant potential source for toxic and odour emissions due to the nature of wastes processed within this plant. The Proponent states that only 40,000 tonnes per annum of re-refined waste oil would be accepted at site – a considerable reduction from the original proposal for 85,000 tonnes per annum of a number of different wastes.

As part of the PPR, the Proponent provided a revised air quality assessment of the hydrogen plant. The assessment was conducted in accordance with the DEC's guidelines *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (2005) and the DEC's draft *Assessment and Management of Odour From Stationary Sources in NSW* (2001), using TAPM-derived data and CALPUFF dispersion modelling. The DEC has reviewed this revised assessment and has advised the Department that the assessment is technically acceptable.

Odour

The key sources of odour from the amended project would originate from the light-ends storage tanks (Volatile Organic Compounds) and from the hydrogenation plant/fired-heater (H_2S). Diffuse emissions from the storage tanks would be mitigated by a vapour recovery unit and an activated carbon filter, with total VOC emissions reduced by 90%. Emissions from the fired-heater, the point source of H_2S, would be mitigated through the destruction efficiencies of the plant (99.95%).

Under DEC guidelines, two different types of criteria can be applied to assess potential odour impacts, being

- ground level concentrations of odorous compounds, which sets criteria for individual pollutants based on offensiveness or health thresholds (whichever is the lesser); or
- odour performance criteria, known as Odour Units, which is determined using population densities and is based on a theoretical minimum concentration that produces an olfactory response.

For the purposes of the assessment, the Proponent:

- applied Ground Level Concentration (GLC) criteria for speciated Volatile Organic Compounds as set within the DEC's draft policy *Assessment and Management of Odour from Stationary Sources in NSW* (EPA 2001) and a H_2S criteria of 2.4µg/m^3 as determined in accordance with the DEC's guidelines;
- used the property boundary as the representative 'sensitive receptor' to determine the potential level of impact and to demonstrate no adverse impact on surrounding sensitive receptors (including businesses).

The results of the Proponent's assessment are presented in Table 2 (VOCs) and Table 3 (H_2S), which demonstrate that the proposed development would be well below DEC odour criteria at the property boundary. The Proponent subsequently concluded that there is a low risk of adverse odour impacts occurring as a result of the proposed development and that the project would not significantly contribute to cumulative odour levels within the Estate due to these low levels. The Proponent also argued that the conservative assumptions used in the assessment, namely, the use of the higher emission rate for the Vapour Recovery Unit
, further supports the conclusion that odour is a low-risk for the proposed facility.

Nevertheless, the Proponent has proposed to undertake validation reporting for the project to confirm the assumptions and outcomes of the odour assessment. This includes a full odour audit that incorporates olfactometry-based emissions data.

Table 2: Ground Level Concentration (GLC) Assessment of Odorous Compounds

Compound	NSW GLC Criteria (µg/m^3)	Predicted Maximum Boundary Concentration 90% Scrubber Efficiency (µg/m^3)
Toluene	650	74
Xylene	350	74
Cyclohexane	35000	74
Ethylbenzene	14500	74
n-hexane	6000	74
n-Pentane	60000	74
Benzene	100	18

Note: The above assessment is also based on a Vapour Recovery Unit emission rate of 40mg/L. POEO legislation requires less than 20mg/L, and therefore assessment is considered conservative.

Table 3: Assessment of Hydrogen Sulphide (H_2S)

Air Quality Indicator	DEC Impact Assessment Criteria		Predicted Maximum Boundary Concentration
	Averaging Period	($\mu g/m^3$)	($\mu g/m^3$)
H_2S	1 hour	2.4	1.9

Other Pollutants

The results of the modelling of the potential air pollutants, including toxic air pollutants are presented in Table 4. These levels represent the incremental contribution by the project, and do not take into account background levels. Based on the results of the predicted maximum boundary concentrations, dispersion modelling and the representative background levels, the Proponent concluded that the proposed facility would not have an adverse air quality impact on the locality with all criteria well below the relevant DEC air quality criteria.

This excludes the predicted 24-hour average PM_{10} concentrations for the project, which may exceed the DEC criteria of $50\mu g/m^3$ due to the elevated maximum 24hr PM_{10} background levels ($56\mu g/m^3$). Where background levels are high, the DEC recommends that there should be no additional exceedances of the $50\mu g/m^3$ criterion, however it allows up to 5 days a year where cumulative values may exceed the criterion. A review of the maximum 24hr PM_{10} background levels with PM_{10} contributions by the project indicates that the $50\mu g/m^3$ criteria could be exceeded up to 6 times. However, the Proponent argues that the project isn't likely to generate these predicted impacts, given the PM_{10} concentrations derive from conservative estimates dominated by vehicle emissions on-site (45%). The Proponent states that in reality, these emissions are likely to be lower, and will enable the facility to comply with the DEC PM_{10} criteria.

Overall, the Proponent also argues that the conservative assumptions incorporated into the assessment should ensure that no adverse off-site impacts would occur as a result of the proposed development. Nevertheless, the Proponent has proposed to undertake validation reporting for the project following commissioning to confirm the assumptions and outcomes of the air quality assessment.

Table 4: Air Quality Assessment of the Hydrogenation Plant (incremental contribution)

Air Quality Indicator		DEC Impact Assessment Criteria		Predicted Maximum Boundary Concentration
		Averaging Period	($\mu g/m^3$)	($\mu g/m^3$)
Nitrogen Dioxide		1 hour	246	111
		Annual	62	5
Sulphur Dioxide		10 mins	712	330
		1 hour	570	231
		24 hours	228	40
		Annual	60	5.0
Particulate matter	Total Suspended Particulates	24 hours	90	11
		Annual	$4g/m^2$/month	0
	PM10	24 hours	50	11
		Annual	30	12
Carbon Monoxide		15 minutes	100,000	58

	1 hour	30,000	44
	8 minutes	10,000	17
Benzene	1 hour	29	<29
Formaldehyde	1 hour	20	5.4
Cyclohexane	1 hour	19,000	<193
n-hexane	1 hour	3,200	<193
n-pentane	1 hour	33,000	<193
Total VOC	1 hour	n/a	193
	3 mins	n/a	447
H_2S	1 hour	2.4	1.9

Conclusion

The Department acknowledges the community's significant concerns with potential air quality impacts generated by the project, particularly odour, given the existing issues within the industrial precinct. However, the Department considers the significant reduction in the scale of the project, particularly the reduction in odour-generating processes and the volumes of waste to be treated, has significantly reduced the risk that the project would generate adverse impacts on the surrounding community.

Nevertheless, neither the Department nor the DEC have discounted the community's concerns with air quality, and recognise that the project should not lead to the further degradation of the local airshed to the detriment of surrounding workers and residents.

Consequently, the Proponent was required by the Department and the DEC to supplement the air quality assessment presented within the EA, and this supplementary assessment demonstrated that the air quality emissions from the hydrogenation plan would be well below the nominated DEC criteria for both odour and other air quality pollutants.

The Department and the DEC concur with the assumptions and findings of this report, and are satisfied that the low ground level concentrations of odour-causing pollutants at the property boundary would ensure that the project would not generate any adverse impact on a project specific or cumulative scale. In this regard, the Department considers that the project's compliance with accepted environmental performance criteria at the property boundary also demonstrates that the project would not conflict with surrounding land-uses, surrounding worker health, or the continued growth of surrounding residential and industrial areas.

The Department notes that the air quality assessment relies on certain assumptions to achieve these air emissions. For this reason, the Department and the DEC have recommended a number of conditions of approval, which require the Proponent to:

- satisfy air quality criteria, design requirements and performance efficiencies specified in DEC legislation and/or as proposed by the Proponent;
- undertake air quality monitoring and to implement a management plan;
- conduct post-commissioning validation monitoring within 3 months of commissioning to demonstrate that the outcomes of the assessment are satisfied, and to implement additional measures, if required; and
- conduct an independent odour audit of site within 12 months to ensure the operations are appropriately managed to minimise air emissions and that it is achieving the outcomes of the assessment.

The Department is confident that these reporting mechanisms would ensure the continued satisfactory management of air emissions at this facility.

In conclusion, the Department is satisfied that the amendments to the project have largely addressed the concerns of the Department and the DEC as well as the issues raised in submissions. The amendments have significantly reduced the scale and impact of the project, providing a greater level of certainty that no adverse impacts would occur and that air emissions can be appropriately managed through the recommended instrument of approval. The project is consistent with DEC requirements and the zoning of the land, and should be approved, subject to conditions.

5.2 Traffic and Transport

Issue

The project will generate 204 additional heavy vehicles per day with all movements travelling to and from the site via the New England Highway and the Kyle Street intersection. Approximately 22/17 of these movements would occur in the morning peak/evening peak respectively. The Proponent has indicated that B-Doubles would be used, however only 6 B-Double movements would occur per day with Kyle Street classified as a B-Double route.

The RTA, the Hunter Regional Development Committee (HRDC) and Council were concerned about the potential impacts of the proposal on the Kyle Street intersection unless it is upgraded to cater for B-Double movements. Council and HRDC also stated that Kyle Street should be upgraded between the site entrance and the New England Highway to cater for B-Doubles. Submissions from the general public also identified the impacts on road safety and performance as a reason for objection.

Consideration

The Proponent conducted an assessment of the Kyle Street/New England Highway intersection based on the heavy vehicles volumes generated by the original project (326 movements per day), with two options analysed to assess the sensitivity of the intersection performance. The results of this analysis, as presented in Table 5, indicates that the Level of Service at the intersection for both scenarios would not be significantly effected by the proposed development. A lower level of service (LOS) for right turn movements in and out of Kyle Street would be occur (LOS C AM Peak/LOS B PM Peak), however the Proponent concluded that the level of performance would remain acceptable. The Proponent subsequently concluded that project would not result in any adverse impacts on this intersection, which is further supported by the conservative nature of the assessment.

However, the Proponent concurred with the RTA and HRDC that the Kyle Street intersection does not currently adequately cater for B-Doubles, with B-Doubles entering into adjacent laneways to negotiate the turn in and out of Kyle Street. The Proponent identified that widening works to Kyle Street and alterations to existing medians on the highway would enable B-Doubles to safety negotiate all turns at this intersection, and has proposed to provide a contribution to the RTA for these road works.

The Proponent has proposed to provide a contribution of $60,000 to the RTA towards the upgrade of the intersection.

Table 5: Intersection Analysis for Kyle Street and New England Highway

Scenario	Period	Flow (vehicle/hr)	% Heavy vehicles	Degree of Saturation (v/c)	Average Delay (sec)	Level of Service
Existing (2005)	AM Peak			0.406	1.1	LOS A
	PM Peak			0.43	1.9	LOS A
Scenario 1 (50% East/50% West) (2016)	AM Peak	1926	14.8	0.495	2.4	LOS A
	PM Peak	2006	10.3	05.24	2.4	LOS A
Scenario 2 (60% East/40% West)	AM Peak	1926	14.8	0.495	2.4	LOS A
	PM Peak	2006	10.3	05.24	2.4	LOS A

Note: The above assessment was based on an estimate of 326 movements, which included movements associated with the soil conditioning/compositing component that was removed during the EA adequacy review. It should also be noted that Valley Disposal Services, a subsidiary of the Proponent, already operates from the site, which accounts for 85 HV trips per day.

Conclusion

The Department acknowledges that the intersection does not adequately cater for B-Double movements, and that the intersection should be upgraded to address this issue. However, the Department cannot concur with the RTA and HRDC that the Proponent should be required to fund all costs associated with the requested upgrade given:

- the inadequacy of the intersection is a pre-existing problem, and that Kyle Street is a designated B-Double route;
- the Proponent would not be the sole industrial-user of this intersection nor would it result in any unacceptable impacts on the level of performance of the intersection;

- the Proponent would only generate 6 B-Double movements per day at this intersection; and
- the area is currently undergoing redevelopment, with approved subdivisions and future proposals likely to contribute additional heavy vehicle movements along this route and/or significantly alter the design of this intersection.

Consequently, the Department considers that there is a limited nexus between the project and the requirement for the Kyle Street intersection upgrade and upgrades along Kyle Street. Ultimately, should the intersection not satisfy the safety and performance requirements as a designated B-Double route, then the Department considers that it should be the RTA's and/or Council's responsibility to revise this classification and/or upgrade the network accordingly. The Department believes that the Proponent's proposed contribution to the RTA is reasonable given the situation, and has been reflected in the recommended conditions of approval.

However, the Department does acknowledge the safety concerns generated by these movements prior to the upgrade of this intersection. Consequently, the Department recommends that the Proponent be required to:

- prohibit its B-Doubles from using the Kyle Street intersection until it has been upgraded to cater for B-Doubles, with these vehicles to use the Racecourse Road and New England Highway intersection in the interim; and
- implement a Transport Code of Conduct to mange B-Doubles until any upgrade to the intersection is complete. These management controls would include disciplinary action, contractual restrictions, and regular auditing arrangements to enforce the nominated route.

In conclusion, the Department concurs that the Kyle Street intersection should be upgraded, but this should not preclude the commencement of the project and nor should the Proponent be required to fully-fund these works. The Department is satisfied that a contribution by the Proponent towards this upgrade to the RTA would mitigate the impacts generated by the project, and that the implementation of appropriate traffic management controls would mitigate any short-term impact until this upgrade is realised.

5.3 Site Contamination

Issue

Previous activities at the site as part of the textiles and munitions manufacturing operations have resulted in soil and groundwater contamination at the site.

Submissions from the general public objected to the proposed development due to the risk of soil contamination resulting from past activities (namely buried ordnance and dangerous goods) as well as asbestos risks (including the disturbance of fibres within soil). A submission from a special interest group also raised concerns with respect to the contamination on site and the adequacy of the Proponent's proposed mitigation measures.

Consideration

Groundwater at the site is found at a depth approximately 12 metres, with flows assumed to be flowing at a low gradient southwards towards Stoney Creek located approximately 1km from the site. The Proponent states that groundwater in the region is of poor quality, with the closest bore located 2km from the site. Perched groundwater had also been detected in past studies within the ash/fill layer at the site (located up to 1m below ground level), however investigations for this project did not detect any water and the Proponent has assumed that this system is reliant on wet weather for recharge.

Soil and groundwater investigation works undertaken by the Proponent for the proposed site indicate that:

- groundwater at the site is contaminated by TPH (Total Petroleum Hydrocarbons) and Volatile Organic Compounds (VOCs) above criteria specified in *ANZECC Guidelines for Fresh and Marine Water Quality* (2000). The Proponent has identified that these contaminants are the result of the past textiles operations (dry cleaning) and that the contaminants may be derived from the proposed site or adjacent sites associated with this past use;
- ash fill is present across the site (to a depth of 0.4 metres) with silty-sand fill area covering 50m^2 and 2m depth detected within the eastern portion of the site (previously referred to as the 'ash disposal area'). This fill contains hydrocarbons (such as TPHs, PAHs), BTEX and heavy metals; and

- soil contaminants were detected but were below criteria specified in the *NEPM – Guideline on Investigation Levels for Soil (commercial/industrial)*, except for elevated levels of TPH within the 'ash disposal area'. It was concluded that that 'hotspots' of TPH would be located within the silty-sand fill area;

The Proponent also undertook a Hazardous Materials Assessment for the site, identifying potentially hazardous materials from previous land uses, such as asbestos, PCBs, buried ordnance and drums. The Proponent states that identified materials were removed prior to the Proponent acquiring the site and that the site has been decontaminated of asbestos to remove immediate health risks (including friable, broken sheeting, lagging, and sealing of asbestos roofing).

Based on the above analysis, the Proponent has concluded that the site is suitable for industrial use if the ash disposal area is not disturbed, and that the groundwater contamination only poses a low risk to health and the environment given:

- the minimal hydraulic gradient and the low levels of contaminants would minimise adverse off-site impacts; and
- that the groundwater would not be intercepted by the proposed construction or operations; and
- that only low levels of contaminants were detected.

However, to address the contamination detected at the site, the Proponent has proposed to conduct monitoring to confirm the characteristics of the contaminants and groundwater system to determine the most appropriate approach to manage this issue. Soil contamination and asbestos would be managed during construction, with the 'ash disposal area' to remain undisturbed.

Conclusion

The remediation of groundwater is regulated by the DEC under the *Contaminated Land Management Act 1997;* however the Department must be satisfied that the land is suitable for the proposed use, which includes the consideration of groundwater contamination at the site. The DEC has raised concern with the presence of VOCs in the groundwater, particularly tetrachloroethene and trichloroethene; however, the Department of Natural Resources did not raise any concerns and supported the measures proposed by the Proponent, including further monitoring of metals, phosphorous and nitrogen within groundwater.

The Department concurs with the DEC that the low groundwater sampling levels have not provided a robust analysis to conclusively determine the potential on-site origin, extent and risk of the contamination, and agrees that further investigative works would need to be conducted to ensure appropriate action is taken to address this issue. However, the Department does not consider that this should preclude the project from obtaining approval, subject to appropriate measures being implemented, given:

- the groundwater would not be intercepted during construction or operational activities, and therefore would not pose an immediate risk to the activities on site;
- the methods of remediation for groundwater are not restrained by the proposed buildings, subject to the recommended conditions of consent; and
- groundwater in the region is not suitable for drinking or stock water and has a low gradient, with the furthest bore located approximately 2km (and is not used for drinking/stock purposes).

Consequently, the Department and the DEC have recommended that the Proponent be required to implement a 6 month investigation program (commencing from the date of consent) to confirm that no 'significant harm' would result from the detected groundwater and to identify and implement remedial actions to address this contamination (if required). This investigation would extend into the broader catchment area to ensure all beneficial users of the groundwater (including Stoney Creek) are considered. The Department has also recommended that the Proponent be required to:

- submit an independent soil validation report for all construction areas to validate that land is suitable for the intended use, and would not potentially restrict access to undetected point sources following the completion of construction works; and
- prepare a submit a Soil Contamination Protocol during construction works to detail how contamination would be managed on-site, including the management of friable asbestos fibres within soil; and
- implement a Groundwater Operational Environmental Management Plan, prepared in consultation with DNR, to continually monitor a range of parameters during operations.

With respect to issues raised in submissions relating to asbestos, general adequacy of the soil investigations, and lack of management controls within the EA, the Department is satisfied that the abovementioned recommendations, including the Soil Contamination Protocol and validation report will address these concerns. The Department has also recommended a number of asbestos management controls within the recommended conditions of approval, but highlights that the management of risks to human health as a result of presence, handling, treatment and removal of asbestos at the site issue is regulated through the *Occupational Health and Safety Regulation 2001*, which the Proponent is required to satisfy at all times.

In conclusion, the Department is satisfied that the recommended conditions of approval provide for the management of soil and groundwater contamination, and will ensure that the site is suitable for the intended use.

5.4 Other Issues

Hazard and Risks

The project, as amended, is classified as 'potentially hazardous' development, as defined under *State Environmental Planning Policy No.33 – Hazardous and Offensive Development* due to the volumes of hydrogen (20kg) and natural gas (200kg) stored onsite. These gases are not toxic, but could pose a fire hazard to on- and off-site personnel.

The Preliminary Hazard Analysis (PHA) submitted for the project demonstrated that during the worst-case scenario for a fire event at the site (being a natural gas jet fire at maximum gas flow), the distance of the process areas to the site boundary (25 metres) would ensure that there would be no risk to life and little risk of any injury beyond the site boundary. For example, at a distance of 25 metres, the intensity of the fire is predicted to be 300W/m2, with 1600w/m2 being the lower threshold that pain would be felt from heat radiation. The PHA subsequently concluded that the project would not pose a significant risk to persons off-site.

The Department has carefully reviewed the PHA and concurs with the conclusions of the analysis. Nevertheless, even though the predicted risk is within acceptable criteria, the Department believes that the Proponent should be required to consider safety-related design and process control measures during the detailed design phase of the project to further minimise the risk of explosion and fire events at the site. This requirement has been reflected within the recommended conditions of approval, in addition to post-commissioning reporting and auditing of these controls. The Department is therefore satisfied that project is not classified as Hazardous development, with the risks of the project suitably managed to ensure no impact beyond the site boundaries.

It should be highlighted that the original proposal included a Dangerous Goods Storage Facility, which has since been removed. This has substantially reduced the risks and hazards associated with the site. Therefore, the amendments to the project have resolved the key concerns of the general public, particularly with respect to the risks to human health resulting from the release of toxic Class 6.1 and 5.1 materials.

Flora and Fauna

The Proponent has identified that four remnants of the Hunter Lowland Redgum Forest and Lower Hunter Spotted Gum-Ironbark forest communities are present on the site, covering a total 0.8 hectares. Figure 5 illustrates the location of these communities. The Proponent has proposed to remove two of the remnants (Remnant 1 & 2), partially remove another (Remnant 3) and retain the fourth remanent as part of the project.

As both communities are listed as an Endangered Ecological Community under the *Threatened Species Conservation Act 1995*, an eight-part test was conducted for the proposal. This study found that the communities on site were degraded and did not have high conservation values with limited connectivity with native vegetation outside the site. Consequently, the Proponent concluded that the removal of these remnants as part of the proposed development would not have significant impacts on the endangered communities, subject to the implementation of the proposed mitigation measures. This includes the retention and partial retention of at least two remnants, with 'off-sets' to be provided through the use of native species within the proposed landscaping and rehabilitation works.

Figure 5: Location of Remnant Vegetation at the Proposed Site

The Department concurs with the conclusions presented by the Proponent, and is satisfied that the proposed clearance of a maximum 0.48 hectares would not have an adverse impact on the endangered communities. The Department also supports the use of species from these communities within the proposed landscaping works, which includes the regeneration of the remaining remnants to enhance the ecological values of the site. However, to ensure the proper protection of these remnants, the Department has recommended conditions of approval that require the Proponent to delineate the areas of retention, and to provide the details of any regeneration works that would be undertaken at the site as part of the Operational Environmental Management Plan.

6. CONCLUSION

The Department has assessed the Environmental Assessment and Preferred Project Report, and considered the submissions on the proposal. The key issues raised in submissions related to odour and air quality, traffic, site suitability, risk and hazards, and contamination. The Department has considered these issues and a number of stringent conditions recommended to ensure impacts from the proposal are adequately managed.

The Department acknowledges the strong concern within the community with respect to odour and further contributions to existing cumulative odour levels within the Rutherford Industrial Precinct by the project. However, the Department is satisfied that the Proponent's amendment to the project has significantly reduced the scale and potential impacts of the proposal, and has provided sufficient certainty that the project is capable of operating within accepted environmental performance criteria. The Department and the DEC are confident that the low concentrations of odour-causing pollutants predicted at the property boundary, and the recommended conditions of approval, would ensure that the project would not cause any adverse impact off-site on a project specific and cumulative scale.

On these grounds, the Department considers the site to be suitable for the proposed development and that the project is in the public interest. Consequently, the Department recommends that the project be approved, subject to conditions of approval.

7. RECOMMENDATION

It is recommended that the Minister:

- consider the findings and recommendations of this report;
- approve the project application, subject to conditions, under Section 75J of the *Environmental Planning and Assessment Act 1979*; and
- sign the attached project approval (Appendix A).

David Kitto
A/Director
Major Development Assessment

Chris Wilson
A/Executive Director
Sustainable Development Assessments

APPENDIX A – RECOMMENDED CONDITIONS OF APPROVAL

APPENDIX B – STATEMENT OF COMMITMENTS

APPENDIX C – RESPONSE TO SUBMISSIONS

APPENDIX D – PREFERRED PROJECT REPORT

APPENDIX E – ENVIRONMENTAL ASSESSMENT

APPENDIX F – ENVIRONMENTAL PLANNING INSTRUMENTS

The assessment of the proposed development is subject to the following environmental planning instruments and strategies:

- *State Environmental Planning Policy No 33 – Hazardous and Offensive Development*
- *State Environmental Planning Policy No 55 – Remediation of Land*
- *Hunter Regional Environmental Plan 1998*
- *Maitland Local Environmental Plan 1993*

Consideration of the proposed development in the context of the objectives and provisions of these environmental planning instruments is provided below.

State Environmental Planning Policy No. 33

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) aims to ensure that if a proposed development involves a potentially hazardous and offensive industry then the consent authority must have sufficient information to impose conditions of consent which reduce or minimise any adverse impacts. SEPP 33 states that a development can be considered to be potentially hazardous and offensive if its operation, without mitigation measures, would pose significant risk to human health, life, property or the environment.

The proposed development is "potentially hazardous industry" as defined under *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* (SEPP 33). In accordance with the requirements of SEPP 33, the Applicant has prepared a Preliminary Hazard Analysis (PHA) as part of the Environmental Assessment. The Department has reviewed the PHA and the additional information provided by the Proponent, and has concluded that the proposed development does not constitute a 'hazardous' development. Details of this assessment are provided in section 5 of this report.

The proposed development is also a "potentially offensive development" as it requires an Environment Protection Licence (EPL) from the Department of Environment and Conservation (DEC). The DEC has indicated that it could issue an EPL for the project, should the Minister grant approval to the project. Consequently, the proposed development does not constitute an 'offensive' development.

State Environmental Planning Policy No 55 – Remediation of Land

State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55) aims to promote the remediation of contaminated lands for the purpose of reducing the risk of harm to human health or any other aspect of the environment. The policy is to be considered by an approval authority prior to determining a proposed development.

The Department has considered the project against the requirements of SEPP 55 in section 5 of this report, and is satisfied that the requirements of SEPP 55 have been satisfied, subject to conditions of consent..

Hunter Regional Environmental Plan 1998

The *Hunter Regional Environmental Plan 1998* aims to promote and provide direction for development in the Hunter region to ensure the economic, social and environmental outcomes are achieved. The objectives of the Hunter REP largely relate to the strategic planning of the region, however Part 7 (Environmental Protection) sets out the heads of consideration that an approval authority must consider when determining an application. These objectives require an authority not to grant approval unless it is satisfied that the impacts on air, noise, water and soil local environments are within acceptable levels and would not have an adverse impact. The Department has considered the project against these objectives within section 5 of this report, and is satisfied that the project satisfies the requirements of the Hunter REP 1998 subject to the recommended conditions of consent.

Maitland Local Environmental Plan 1993

The proposed site is zoned 4(a) Industrial General under the *Maitland Local Environmental Plan 1993.* The objectives of the zone is to ensure that industrial development is only allowed if it does not adversely affect

adjacent residential areas and to ensure that industrial development creates areas which are pleasant to work in and safe and efficient in terms of transportation, land utilisation and service distribution.

Additionally, the LEP lists a number of nominated uses that are prohibited development with innominate uses permissible with development consent. Waste recycling and treatment facilities are an innominate use. Consequently, the project is permissible with development consent.

The Department has considered the proposed development against the objectives of the above zoning, and is satisfied that the proposed development, subject to the implementation of the recommended conditions of consent, is generally consistent with the LEP.