



NSW GOVERNMENT
Department of Planning

***MAJOR PROJECT ASSESSMENT:
Hydrodec Oil Treatment Facility, Young***

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

March 2006

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EXECUTIVE SUMMARY

Hydrodec Australia Pty Ltd proposes to construct and operate a commercial scale oil treatment facility in Young. Hydrodec currently operates a 3,000L per day demonstration plant on the site and now proposes to expand operations to 20,000L per day. The plant would take used and spent transformer oils from electricity supply and distribution industries which may be contaminated with polychlorinated biphenyls (PCBs), chemically treat the contaminated oil to achieve total destruction of the contaminants and then sell the clean transformer oil back to the market.

The site is located at 90 Old Temora Road, Young in New South Wales and is referred to as Lot 102 DP 1060040. The site is located within an industrial area approximately 2km to the west of Young town centre. The proposed project is subject to Part 3A of the Environmental Planning and Assessment Act 1979 and requires the approval of the Minister for Planning.

The capital cost of the proposed expanded facility is estimated at \$2 million. Approximately 40 people would be employed during construction and 40 people during its operation. If approved, construction would take approximately six weeks. The next four months would involve the commencement of oil treatment and tuning the plant to optimum commercial operation. The plant is expected to be fully operation within seven months of the commencement of construction.

The project presents significant positive benefits through the removal of polychlorinated biphenyls (PCBs) from transfer oils. PCBs are recognised internationally, nationally and at the State level as posing significant risks to the environment and human health if released or disposed of in an inappropriate manner. Through removal of these compounds from transformer oils, the project is contributing to a reduction in the inventories of persistent organic pollutants and the risks associate with these compounds.

The Proponent has demonstrated that the project could be undertaken within acceptable air emissions performance criteria, as stipulated under the *Protection of the Environment Operations (Clean Air) Regulation 2002* and the PCB Management Plan. Acceptable performance can only be achieved, however, with the full operation of gas train cleaning units, particularly the off-gas scrubbing system. The Department considers it fundamental to the acceptable air emissions performance of the project that the treatment process only be permitted to operate when both the scrubber and the catalytic oxidiser are functional within design limits. To ensure that this outcome is addressed as part of the underlying plant design, the Hazard and Operability Study (HAZOP) for the project should consider safe shutdown procedures in the event of pollution control failure. Implementation of this approach will ensure that the project operates within acceptable environmental and human health limits, as well as achieving best environmental practice.

The HAZOP Study will also be fundamental in ensuring that the dominant risk contributors associated with the project are managed to comply with land use safety planning criteria. In particular, management and maintenance of hydrogen storage cylinders will ensure that potential risks are reduced to as low as reasonably possible.

The Department is satisfied that the project could be operated within acceptable noise limits. This outcome will, however, be dependent on the prohibition of mobile plant and equipment during the evening and night time periods. Stringent noise limits, in accordance with the NSW Industrial Noise Policy are proposed, as is a comprehensive noise audit within 90 days of the commencement of operation. The Department has also recommended independent acoustic certification be obtained with respect to the design of pressure relief systems, to ensure protection of acoustic amenity and prevention of residential sleep disturbance.

Through the conditions of approval recommended by the Department, the impacts of the project can be mitigated, managed and monitored to ensure protection of the environment and human health. In doing so, the Department is satisfied that the significant positive implications of the project can be achieved without detriment to the community or environment of Young.

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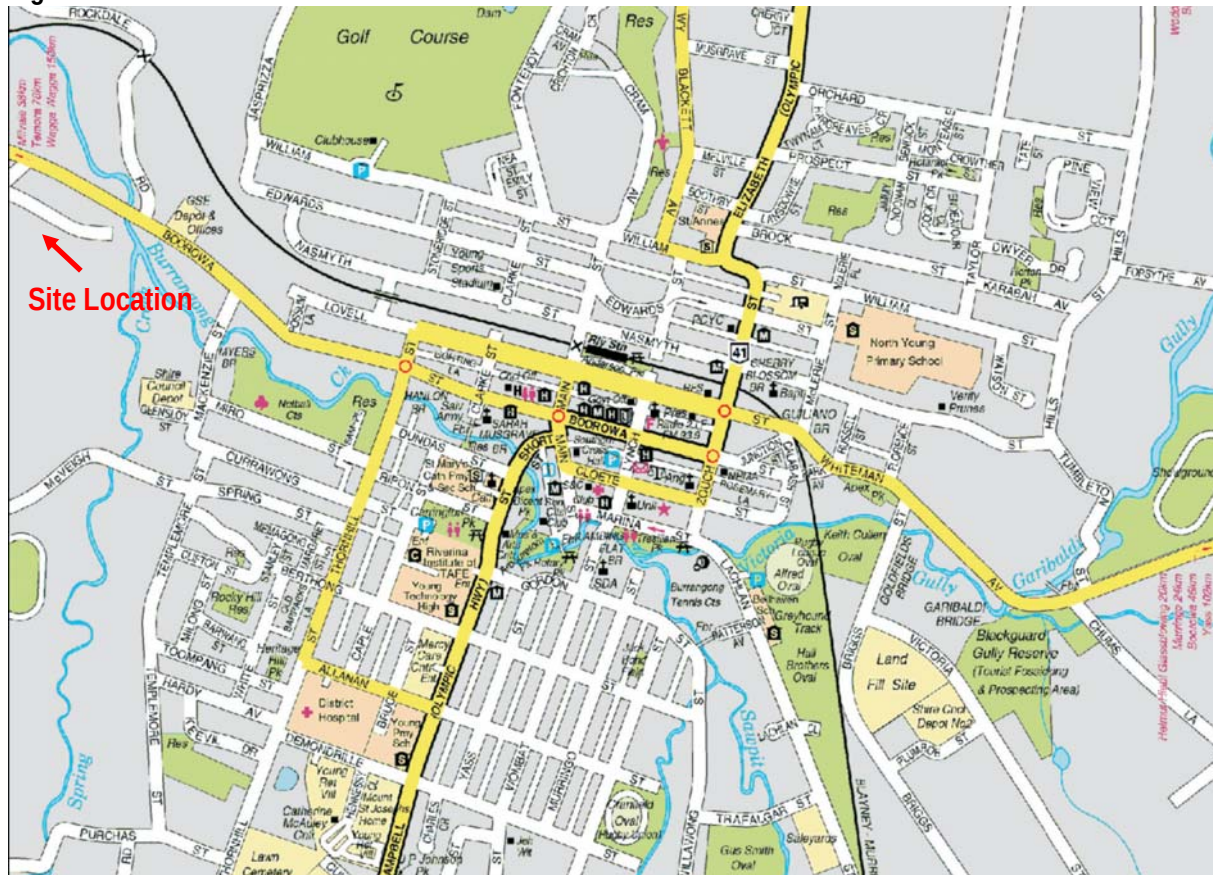
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1. BACKGROUND

1.1 Location

Hydrodec Australia Pty Ltd proposes to construct and operate a commercial-scale oil treatment facility in Young. The location of the site is at 90 Old Temora Road, Young in New South Wales and is located within an industrial area approximately 2km to the west of Young town centre. The site is referred to as Lot 102 DP 1060040 and Lot 3 DP 1010791 (refer to Figure 1).

Figure 1: Site Location



1.2 Existing Site

The site is approximately 6,500m² in area and is currently operating as a PCB destruction facility, a NATA certified transformer oil analysis laboratory, a transformer oil field service business and an oil treatment demonstration plant. The existing demonstration plant has the capacity to treat 3,000 litres of transformer oil per day and it is proposed to continue this operation alongside the new 20,000 litre per day plant. The oil regeneration plant and demonstration plant are currently licensed under the *Protection of the Environment Operations Act 1997*.

Oil Treatment Services, the previous owners of the site, was licensed under the *Environmentally Hazardous Chemicals Act 1985* to keep, convey and process scheduled PCB waste and material and under the *Dangerous Goods Act 1975* for the keeping of dangerous goods. These licences have been transferred to Hydrodec.

1.3 Previous Planning Approvals

Hydrodec is currently undertaking an upgrade of existing facilities on the site. The works involve improvement to offices, provision of staff parking, relocation and improvement to bunded storage areas, construction of stormwater management system, upgrade of tank farm including pipework and pumps and general site works

such as landscaping. These works do not involve an increase in production or change of function and consent was granted by Young Shire Council in October 2005.

1.4 Surrounding Land Use

Immediately surrounding the site is the main industrial area of Young. The industrial precinct is relatively underdeveloped and vacant lots surround the site to the north, south and west. The township of Young is located to the east of the site. The closest residential dwelling is located approximately 500 metres to the south of the site.

2. PROPOSED DEVELOPMENT

2.1 Project Description

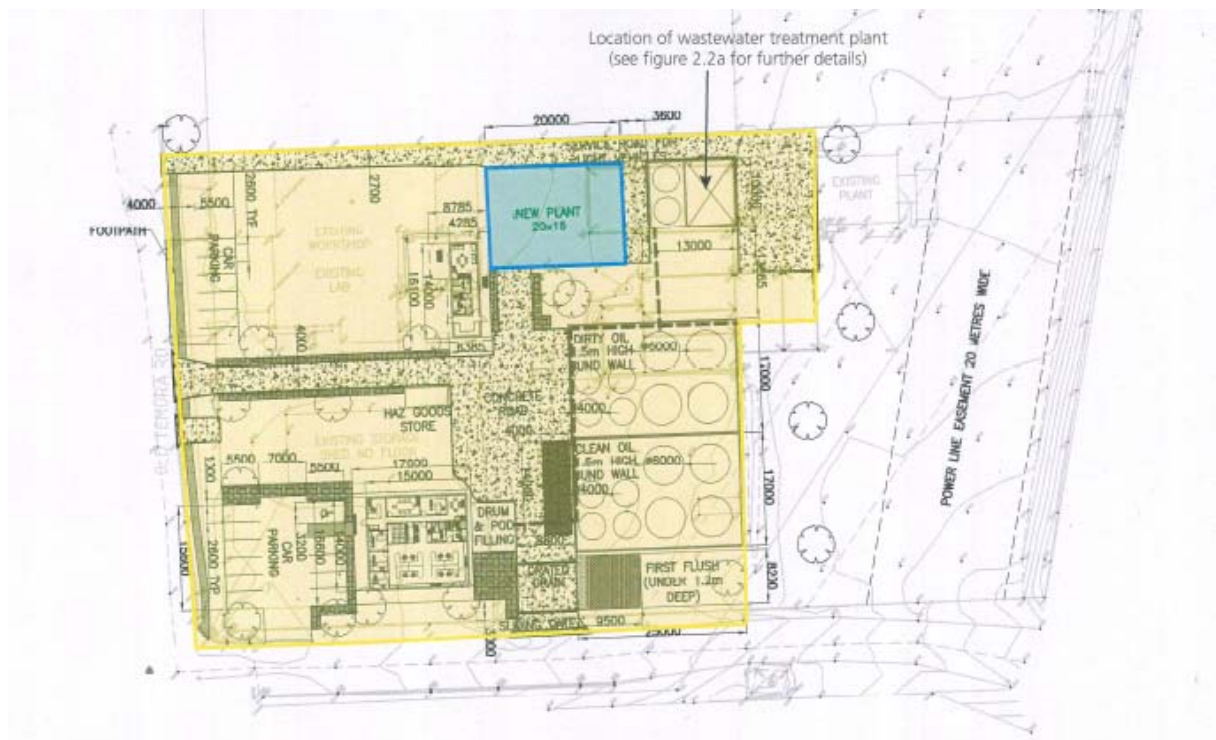
Hydrodec currently operates a 3,000 litre per day demonstration plant on the site and now proposes to expand its operations to treat an additional 20,000 litres per day. The plant would take used and spent transformer oils from electricity supply and distribution industries which may be contaminated with polychlorinated biphenyls (PCBs), chemically treat the contaminated oil to achieve total destruction of the contaminants and then sell the clean transformer oil back to the market. The facility would have the capability of destroying many other persistent organic pollutants (POPs) such as dioxins, DDT, DDD and other organohalogens, however, the facility would only accept and treat PCB free and PCB contaminated transformer oil as part of this proposal.

The main objective of the project is to offer a total life cycle management approach for the use of transformer oil. Used or spent transformer oil would be re-refined through the removal of oil oxidation products and chemical contaminants without reacting the base oil. The process would achieve full re-refined oil recovery that can be infinitely recycled and treated so that the clean oil can be sold back to the market. A wastewater treatment plant would also be constructed adjacent to the oil treatment plant. Final product water from the wastewater treatment plant would be suitable for reuse in the oil treatment facility. The use of wastewater in the process will result in an environmental benefit for the project as it will result in a reduction of town water usage.

The plant and associated infrastructure would be housed in a building 20 metres long by 15 metres wide and 8 metres high. The building would be constructed of steel frames and steel cladding and Council has requested that the walls be non-reflective and similar in appearance to other sheds currently on the site. The proposed site layout is shown in Figure 2 below.

The total project cost is estimated at \$2 million. The project would employ approximately 40 people during its construction and 40 people during operation.

Figure 2: Project Site Layout



2.2 Project Need

The current approach to transformer oil management is unsustainable as it involves disposing of spent oils depending on their PCB contamination status. It involves depletion of natural oil resources and the generation of

greenhouse gas emissions from the production of new oil and generation of hazardous emissions and by-products from the PCB destruction process. Commercially this results in high costs to the industry. The Hydrodec process is sustainable as it allows transformer oils to be infinitely recycled and treated as a long term asset rather than a consumable material.

More significantly however, the Department highlights the polychlorinated biphenyls (PCBs) are persistent organic pollutants with the potential for significant adverse environmental and human health impacts. These compounds are recognised internationally as requiring cessation of production, appropriate management and eventual destruction. Similarly, the management of PCBs is guided at the Commonwealth level through the PCB Management Plan, and through a specific Chemical Control Order in New South Wales. The Department therefore recognises the need for appropriate management and eventual destruction of PCBs – an approach proposed through the subject project application. The project, if approved, would present an opportunity for a positive impact through the appropriate removal of PCB materials.

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 a liquid waste depot that treats and stores more than 1,000 tonnes per year of aqueous or non-aqueous industrial waste (clause 27(6)(b)). The project will therefore be assessed and determined by the Minister for Planning under Part 3A of the *Environmental Planning and Assessment Act 1979*.

Prior to the commencement of Part 3A of the *Environmental Planning and Assessment Act 1979* on 1 August 2005, the project would have been assessed under Part 4. In this context, the Proponent sought the Director-General's requirements for the preparation of an Environmental Impact Statement on 8 July 2005, and these were duly issued on 29 July 2005. These requirements were subsequently adopted by the Director-General on 6 September 2005 as requirements under Part 3A, pursuant to clause 8J of the *Environmental Planning and Assessment Regulation 2000*.

3.2 Permissibility

The *Young Local Environmental Rural Plan 1993* applies to the site and zones the land 4(a) General Industrial. Extractive industries and residential flat buildings are the only two nominated prohibited uses in that zone, and as such, the project would constitute wholly permissible development on the land.

3.3 Minister's Approval Power

The application and Environmental Assessment were placed on public exhibition from Thursday 12 January to Monday 13 February 2006 and submissions invited in accordance with Section 75H of the Act. The Department has met all of its legal obligations so that the Minister can make a determination about the project.

4. CONSULTATION AND ISSUES RAISED

The Department received three submissions on the project during the exhibition of the Environmental Assessment, all of which were made by public authorities. An additional late submission was received from a member of the public and has also been taken into account as part of the Department's assessment of the project. Of the total number of submissions received, only the late submission objected to the project, with public authorities raising no objection to the project, subject to the imposition of appropriate conditions of approval.

Submissions made by public authorities were received from Young Shire Council, the Roads and Traffic Authority and the Department of Environment and Conservation.

A key issue underlying comments made in Council's submission was the previous development consent granted by Council in October 2005, with respect to certain site preparation works on the land. Generally Council's concerns in this regard related to works that had either not been undertaken or not completed, potential overlap or conflict between the terms of Council's consent and the current project application, and the need to ensure coordination between site preparation and development on the site. To progress this matter, the Proponent and Council held discussions shortly after the close of the exhibition period. Discussions at that meeting, and subsequent correspondence from the Proponent addressing each of Council's concerns, have resolved Council's outstanding issues. Where there is a clear overlap between Council's consent and the current project, or where the works are interrelated (in the case of stormwater or road infrastructure), the Department has recommended inclusion of conditions of approval that provide a framework for coordination of the works and protection of Council's interests in these matters.

The Roads and Traffic Authority raised no objection to the project, but provided a series of road infrastructure and design requirements that it recommends be included in any approval of the project. The Department has considered these recommendations and generally concurs with the approach proposed by the Roads and Traffic Authority. The Department's recommended conditions of approval for the project reflect this position.

The Department of Environment and Conservation made a perfunctory submission on the project, noting that existing operations were subject to an Environment Protection Licence under the *Protection of the Environment Operations Act 1997* and that it was satisfied that the licence could be amended to accommodate the project. It did not, however, indicate how it considered the licence could be amended in future, and whether such an amendment would involve significant changes to air, noise, water or waste conditions. The Department of Environment and Conservation did note that because the project would treat Schedule X chemicals, it would undertake an assessment of the project at a future point in time, in accordance with the *National Protocol Approval/ Licensing of Technologies for the Treatment/ Disposal of Schedule X Wastes* and the *National Protocol Approval/ Licensing of Commercial-Scale Facilities for the Treatment/ Disposal of Schedule X Wastes*. It requested that this future assessment process be reflected in any approval that the Minister may grant with respect to the project.

Although the Department of Environment and Conservation made no substantive comment with respect to a regulatory or policy approach to air, noise, water and waste impacts of the project, the Department has nonetheless finalised a comprehensive environmental impact assessment, taking into account those issues. In particular, the Department has had regard to the existing Environment Protection Licence for the site, and where relevant, has maintained a consistent approach in drafting recommended conditions of approval. It should be noted, however, that the Department has applied the Industrial Noise Policy, and State and Commonwealth policies with respect to PCBs and Schedule X wastes where these matters are not currently explicitly conditioned through the Environment Protection Licence. If the Minister determines to approve the subject application, the Department of Environment and Conservation (Environment Protection Authority) will be bound to issue a licence consistent with the terms of the Minister's approval.

The single submission received from an interested member of the community, although received following the close of the formal close of the exhibition period, has been considered as part of the Department's assessment of the project. Key issues raised in the submission relate to air quality including odour, emergency evacuation procedures, the impact of an emergency on the residents of Young, the inappropriate location of the facility given

that Young is situated in a valley, and concern regarding the storage of toxic substances. The Department generally agrees with submitter that these matters cover the suite of key environmental aspects associated with the proposal: air quality; hazards and risk; and management of Schedule X wastes. These issues have been considered in more detail in section 5 of this report.

5. ASSESSMENT OF ENVIRONMENTAL IMPACTS

Key issues raised in the submissions in response to the public exhibition of the project and/or identified during the Department's assessment included:

- impacts on air quality
- hazards and risk impacts; and
- noise impacts.

All other issues are considered to be minor and have been addressed as part of the Proponent's Statement of Commitments.

5.1 Impacts on Air Quality

Issues

The Environmental Assessment presents an air quality assessment, including dispersion modelling, prepared to meet the requirements of the PCB Management Plan and guidelines published by the Department of Environment and Conservation. The assessment applies data obtained from current operation to derive scenarios representative of normal and worst-case operations. The principal difference between the assumptions applied to the two scenarios is that while the normal operation scenario assumes full operation of the liquid scrubber and catalytic converter, the worst-case scenario considers complete failure or inoperation of the scrubbing unit. As a catalytic (rather than combustion) process, the Proponent has assessed the impacts of the project with respect to hydrogen sulfide, polychlorinated biphenyls, dioxins/ furans, volatile organic compounds and odour.

With respect to assessment criteria, the Environmental Assessment compares the results of dispersion modelling with ambient air quality criteria established by the Department of Environment and Conservation for hydrogen sulfide and odour. It also considers ambient concentrations of polychlorinated biphenyls based on the Proponent's understanding of the PCB Management Plan. The Proponent has developed and applied ambient dioxin/ furan criteria based on measurements in various urban areas, ranging from those in Australia (0.02-0.06 pgm⁻³) to those recorded in Japan (3 pgm⁻³).

Based on these assessment criteria, the Proponent has demonstrated that operation of the project will comfortably meet air quality outcomes presented in the Environmental Assessment for all pollutants when under the "normal" mode of operation. Under a worst-case scenario, the Proponent predicts that ambient dioxin concentrations will exceed existing Australian background levels, but not those recorded in Japan. The Proponent reinforces, however, that the worst-case scenario would never eventuate because the treatment process would not be operated in the absence of the scrubber unit.

Construction air quality impacts associated with the project are limited to potential dust generation, which the Proponent proposes to manage to minimise impacts during the construction period.

Consideration

While the Department generally concurs that the outcomes of the assessment of air quality impacts associated with the project are acceptable, there are a number of assumptions and calculations applied by the Proponent that the Department considers are not entirely accurate or scientifically robust.

In the first instance, the Proponent has misread the PCB Management Plan, which stipulates where stack discharges are subject to atmospheric mixing prior to potential contact with receptors, best practice control technology should be applied to ensure that a three-minute average PCB concentration at the site boundary does not exceed *one thirtieth* of the NIOSH and TWA value (ie 0.03 µgm⁻³). The Proponent in fact misread this outcome as "one thirteenth" of the value (ie 0.077 µgm⁻³). While this may represent a significant alteration in the assessment criteria applied by the Proponent, expected boundary concentrations in the order of 10⁻⁹ to 10⁻⁷ µgm⁻³ remain well below both outcomes. While not explicitly stated in the Environmental Assessment, the project would also fit within the existing discharge concentration limit stipulated in the Environmental Protection Licence for the

site ($1 \mu\text{gm}^{-3}$, compared with an expected discharge concentration in the order of 10^{-6} to $10^{-3} \mu\text{gm}^{-3}$, under standard conditions).

With respect to the assessment of dioxins and furans, the Department does not concur with the assessment approach applied by the Proponent in the Environmental Assessment. In the first instance, the Department considers it inappropriate that existing background concentrations of a particular pollutant be applied as assessment criteria without first establishing that those concentrations are acceptable for that purpose. In this circumstance the Proponent has assumed that background concentrations of dioxins and furans previously recorded in both Australian and Japanese contexts would be appropriate as a range of assessment criteria for the project. The Department considers that in all cases, established ambient and discharge criteria should be applied, and where such criteria do not exist, any derived assessment standards must be justified on the basis on environmental and human health outcomes.

The Department highlights that the Department of Environment and Conservation has nominated an ambient assessment criterion for dioxins and furans (I-TEQ) of $2.0 \times 10^{-9} \text{ mgm}^{-3}$ (1-hour average) in its *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*. Why the Proponent has not recognised this criterion in the Environmental Assessment, the criterion itself is of the same order as the background dioxin values applied by the Proponent as an assessment criterion (ie 0.02×10^{-9} to $3.0 \times 10^{-9} \text{ mgm}^{-3}$). The question of the ambient assessment criteria becomes academic in light of predicted dioxin concentrations attributable to the project, which are expected to vary from $5.5 \times 10^{-12} \text{ mgm}^{-3}$ (3-minute average) under normal conditions to $6.7 \times 10^{-10} \text{ mgm}^{-3}$ (3-minute average) under worst-case conditions. Dioxin impacts would therefore be well below the DEC's ambient air quality criteria. It is important to note that compliance with the ambient criteria for each three minute interval would ensure, by definition, that the criterion applied as an hour-average would be achieved.

In comparison to recorded Australian background urban concentrations of dioxins and furans, the project would result in a minimal incremental change under normal operating conditions. However, the Proponent has predicted that under worst-case emissions conditions, the project would cause an incremental increase in background concentrations of dioxins and furans significantly above the existing situation. The difference between normal and worst-case operating conditions is also a key issue for consideration at the point of discharge. Another aspect of the PCB Management Plan that the Proponent has not reflected in the Environmental Assessment is the requirement to meet a dioxin discharge concentration of 0.1 ngm^{-3} . This concentration represents current best environmental practice for the control of dioxin and furan compounds. Under normal operating conditions, the project would comfortably meet this concentration limit (predicted concentrations are in the order of 0.05 ngm^{-3}). However, the discharge criterion would not be met under worst case conditions (approximately 2.6 ngm^{-3}).

It is apparent, therefore, that under worst-case operating conditions, the project would lead to elevated ambient concentrations of dioxins and furans, and would not meet the requirements of the PCB Management Plan at the point of discharge. The Proponent has indicated that the worst-case scenario presented in the Environmental Assessment includes complete failure or inoperation of the gas scrubbing system, and that in reality the plant would not operate when the scrubber was not functional. To ensure that this is in fact the case, the Department recommends that any approval incorporate the explicit requirement that the treatment process not be operated unless both the scrubber and the catalytic oxidiser are fully operational, within normal design limits. In this manner, the emissions characteristics of the project will be maintained consistent with normal rather than worst-case conditions, and the air quality outcomes of the project will lie within acceptable limits. As an additional recommendation, the Hazard and Operability Study (HAZOP) for the project should also focus on safe and efficient shut procedures in the event of a scrubber failure, to prevent the realisation of worst-case air emissions characteristics.

Impacts with respect to other air emissions from the project, including volatile organic compounds and hydrogen sulphide lie well within acceptable environmental limits.

The Department of Environment and Conservation made no comment in its submission with respect to the acceptability of the air quality impact assessment, the predicted air quality outcomes or appropriate emissions criteria to be applied to the project. As such, the Department recommends imposition of the following air emissions criteria at the point of discharge, which are consistent with the requirements of the *Protection of the*

Environment Operations (Clean Air) Regulation 2002, the PCB Management Plan and existing requirements under the licence issued for the site under the *Protection of the Environment Operations Act 1997*.

Table 1 - Recommended Air Emissions Limits

Pollutant	Maximum Allowable Discharge Concentration Limit	Reference Conditions
Polychlorinated biphenyls (PCBs)	1 μgm^{-3}	dry, 273K, 101.3 kPa, 7% O ₂
total volatile organic compounds (VOC)	20 ppm	dry, 273K, 101.3 kPa, 7% O ₂
hydrogen sulfide	1 mgm^{-3}	dry, 273K, 101.3 kPa, 7% O ₂
dioxins and furans	0.1 ngm^{-3}	I-TEQ, dry, 273K, 101.3 kPa, 11% O ₂

The Department recommends that the Proponent also be required to establish a site-characteristic meteorological station to aid in the assessment of compliance with both air and noise limits to be imposed on the project.

With respect to monitoring of emissions to ensure compliance with discharge criteria, the Department recommends imposition of a similar monitoring regime to the one currently imposed under the Environment Protection Licence for the site. However, the Department considers it appropriate to increase monitoring frequency from annual to quarterly intervals given the scale of the project and at least until the Proponent has demonstrated reliable and consistent performance within discharge limits. Following such time, the Proponent may seek the Director-General's approval to alter monitoring frequency provided no exceedances, complaints or other operational incidents of concern have been recorded. The monitoring regime recommended by the Department is therefore as presented below.

Table 2 – Recommended Air Emissions Monitoring Regime

Pollutant/ Parameter	Units of Measure	Frequency	Method
Dioxins and furans	ngm^{-3}	quarterly	TM-18
Dry gas density	kgm^{-3}	quarterly	TM-23
Hydrogen sulfide	mgm^{-3}	quarterly	TM-5
Moisture content	%	quarterly	TM-22
Molecular weight of stack gases	gmol^{-1}	quarterly	TM-23
Polychlorinated biphenyls	μgm^{-3}	quarterly	TM-18
Temperature	$^{\circ}\text{C}$	quarterly	TM-2
Velocity	ms^{-1}	quarterly	TM-2
Volumetric flowrate	m^3s^{-1}	quarterly	TM-2
Total volatile organic compounds (VOC)	ppm	continuously	OM-2

5.2 Hazards and Risk Impacts

Issues

The principal potential land uses safety hazards associated with the project are associated with the storage and handling of hydrogen (fire and explosion) and the fact that up to 2% of the incoming transformer oil would be classed as scheduled oil (toxic) under the waste classification of the Department of Environment and Conservation. Handling of the oil is currently regulated through Environment Protection Licence No 11385 under the *Protection of the Environment Operations Act 1997*.

Consideration

The Department has considered the risk assessment presented in the Environmental Assessment and generally concurs with the methodology and outcomes of the assessment. Based on the quantities of dangerous goods to be stored and handled on the site, the principal material of land use safety concern is pressurised hydrogen gas.

The risk assessment presented by the Proponent suggests that for most scenarios, release and ignition of hydrogen gas does not represent an off-site safety concern. However, the failure of a hydrogen cylinder valve connection with the cylinder in a horizontal position has the potential to generate elevated and harmful radiation effects off-site, albeit for a very limited duration (in the order of seconds). Since the Proponent intends to store hydrogen cylinders vertically, the potential for this adverse safety outcome is limited, provided rigorous compliance with this commitment. A more general concern identified by the Department is the potential for an on-site incident involving hydrogen gas impacting on PCB contaminated materials. While these scenarios are unlikely to illicit an off-site environmental or human health impact, such flow-on effects would be inconsistent with the best practice of scheduled wastes with serious human health implications. It is therefore the Department's position that the most careful scrutiny of hydrogen storage be applied during detailed design and into operation of the project.

The Department recommends that the project be subject to detailed Hazard and Operability (HAZOP) and Fire Safety Studies during the detailed design phase to ensure that the potential factors contributing to releases of hydrogen and flow-on effects are addressed and removed from the project design. In this regard, the Department recommends that the HAZOP consider and specifically address the design of the cylinder holding/clamping system to ensure that cylinders are held vertically in service and in the event of a connection failure. Since the Proponent proposes to use hydrogen gas cylinders leased from a third party, the Department recommends that the HAZOP also focus on verification of their suitability for the proposed use.

In an operational context, the Department recommends that the Proponent prepare and implement an Emergency Response Plan and Safety Management System to ensure the on-going safety of the project and appropriate response in the event of any incident. The Proponent should also be required to prepare and implement a PCB Management Protocol to ensure handling and management of PCBs consistent with best environmental practice, both under normal operating conditions and in the event of an incident on the site. With these detailed design measures in place, the Department is satisfied that the project could be undertaken within acceptable environmental and public safety limits.

5.3 Noise Impacts

Issues

The Environmental Assessment demonstrates that construction noise impacts associated with the project would comply with noise goals applicable to a construction period of less than 26 weeks (as proposed).

The noise impact assessment presented in the Environmental Assessment demonstrates that the project would comfortably meet night time noise criteria at all receptors. The assessment is based on the assumption that only the treatment plant would operate at night (no mobile plant and equipment) and that noise impacts may be subject to amplifying effects from adverse meteorological conditions. The Proponent has not conducted an assessment of sleep disturbance impacts, noting that the treatment plant is not characterised with tonal or impulsive elements. It does, however, note that the pressure relief system applied to the treatment plant for emergency situations may generate sleep disturbance effects. The Proponent suggests that the plant could be retrofitted with silencing measures if the operational record of the plant demonstrated a need.

Noise modelling for the day time period demonstrates that the project could meet relevant noise criteria at all receptors except one. This residential receptor is predicted to receive noise of 2dB(A) above the 42 dB(A) noise criteria at that location, under a worst-case scenario. The Proponent suggests that the noise modelling is subject to conservative assumptions and that a noise increment in order of 2dB(A) would be imperceptible in reality.

Predicted noise impacts during the evening period are expected to exceed applicable noise criterion at three to six residential receptors under worst-case conditions. In the event that the treatment process and all mobile plant were operating concurrently, the Proponent predicts that six residential premises would experience noise impacts

above the limits stipulated in the NSW Industrial Noise Policy, with some receptors subject to 10dB(A) above these limits. If the project is limited to operation of the treatment process and a single truck during the evening period, exceedances would drop to impact only three residential premises by up to 6dB(A). To address this issue, the Proponent intends to prohibit the use of mobile plant and equipment on the site during the evening and night time periods (that is, only operate the treatment process).

Consideration

The Department is satisfied that the assessment approach applied by the Proponent with respect to noise impacts from the project is appropriate and consistent with the requirements of the NSW Industrial Noise Policy.

During construction of the project, the Department recommends that construction works be restricted to daylight hours during the week, morning and early afternoon on Saturdays, and prohibited on Sundays and public holidays. This is a common approach to the management of construction noise, particularly given the intensity of construction noise impacts compared with longer-term operational noise, and is a means to ensure respite periods for potentially affected receptors.

The Department is satisfied that the on-going noise impacts associated with the operation of the treatment process would meet acceptable noise impacts during the night. However, the Department does not agree with the Proponent that it is appropriate to retrofit the pressure management system at some future point in time if sleep disturbance becomes an issue. To address this issue, the Department recommends imposition of a sleep disturbance noise limit (45dB(A) as $L_{A1(1 \text{ minute})}$) and a requirement that the Proponent submit certification to the Director-General prior to the commencement of construction, that the pressure relief systems have been designed to achieve this limit (in addition to the 15-minute average noise limits for the day, evening and night periods). With the application of these measures, the Department considers that residual noise impacts at night could be maintained within acceptable limits.

With respect to noise impacts during the day time, the Department generally accepts the Proponent's position that the predicted 2dB(A) noise exceedance at a single property is within the limits of conservatism inherent in the noise modelling approach. Analysis of noise contributors from the project suggests that mobile plant and equipment forms a major component of the acoustic footprint of the project, as compared with the treatment process. Mobile plant and equipment is particularly amenable to noise management measures such as scheduling of operations, noise treatment of vehicles and relocation of activities within the site to benefit of structural shielding effects. Therefore, the Department considers that with the implementation of a detailed noise management plan for the project, these potentially elevated acoustic effects could be effectively managed to achieve the noise criteria detailed in the Industrial Noise Policy.

The Department considers that predicted unmitigated evening noise impacts, as presented in the Environmental Assessment, are unacceptable, particularly given the magnitude of the exceedance and the Proponent's admission that additional reasonable and feasible measures could be applied to reduce the impact. The Department considers that with this prohibition on mobile plant and equipment in place, the noise impacts of the project during the evening period would be similar to those predicted for the night time period, and in compliance with acceptable noise limits. The Department therefore recommends that a condition giving effect to this prohibition be included in any approval that may be granted for the project.

The Department also recommends that a comprehensive noise audit be undertaken with respect to the project within 90 days of the commencement of operation, to confirm that the project is operating within the bounds of the project approval and predicted noise outcomes. The noise audit would provide the Proponent with the opportunity to identify and apply additional noise management measures where divergence from predicted noise impacts is measured under actual operating conditions.

Provided the mitigation measures outlined above are implemented then the construction and operation of the project would not result in any adverse noise impacts on surrounding residents. The Department considers that the abovementioned measures are sufficient to protect the surrounding noise environment and community amenity and would result in acceptable noise emissions being generated from the site.

6. CONCLUSION

The Department has assessed the Environment Assessment and Statement of Commitments, and considered all issues raised in submissions on the proposal. Based on these considerations, the Department is satisfied that the impacts of the proposal can be mitigated and/or managed to ensure an acceptable level of environmental performance.

The site currently operates an oil treatment demonstration plant and the new facility would be housed within the same structure adjacent to the demonstration plant. Due to the nature of the project, being located in an industrial area and being sufficiently distant from dense residential development, it is not considered that the proposal would result in any adverse impacts on the surrounding environment.

A number of environmental commitments have been outlined to ensure that the proposed project would not result in any significant impacts to the surrounding environment. With these measures implemented during construction and operation, the proposed project would not have any significant impact to the surrounding environment. The implementation of the mitigation measures proposed as part of the Statement of Commitments provided in the Environmental Assessment would ensure that any potential impacts are minimised to an acceptable level and the project does not unduly impact on the surrounding community.

The Department considers that the proposed project would meet its key objective to offer a total life cycle management approach for the use of transformer oil. The project would provide an important and environmentally and commercially sustainable industry which would allow waste transformer oils to be recycled and treated as a long term asset rather than as a consumable material. It would also address the on-going issue of persistent organic pollutants of concern to the environment and human health. Used or spent transformer oil would be re-refined through the removal of oil oxidation products and chemical contaminants without reacting the base oil and therefore would achieve full re-refined oil recovery which would substantially minimise the disposal of waste oil within the industry.

7. RECOMMENDATION

The Department recommends that the Minister for Planning consider the findings and recommendations of the Departments report and grant consent to the proposal, subject to the recommended conditions of approval.

APPENDIX A – RECOMMENDED CONDITIONS OF APPROVAL

APPENDIX B – STATEMENT OF COMMITMENTS

APPENDIX C – RESPONSE TO SUBMISSIONS

APPENDIX D – SUBMISSIONS

APPENDIX E – ENVIRONMENTAL ASSESSMENT
