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PROPOSAL BY THIESS ENVIRONMENTAL SERVICES PTY LTD FOR THE RAVENSWORTH WASTE MANAGEMENT CENTRE, SINGLETON SHIRE

REPORT ON THE ASSESSMENT OF A DEVELOPMENT APPLICATION (DA No. 108-04-00) PURSUANT TO SECTION 80 OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

File: N98/00252

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1 SUMMARY

1.1 Background

Thiess Environmental Services Pty Ltd (the Applicant) proposes to construct and operate a landfill development on and adjacent to the site of the former Ravensworth No.2 coal mine in Singleton Shire local government area (LGA). The proposed landfill site is located approximately midway between Singleton and Muswellbrook on the New England Highway. The proposal also includes a rail terminal; a bridge over the New England Highway for a private road; engineering, filling and rehabilitation of landfill voids; and administrative and support infrastructure. The location is shown in Figure 1.

The proposal is subject to State Environmental Planning Policy (SEPP) No. 48 – Major Putrescible Landfill Sites and the Minister for Planning is the consent authority. The proposal is permissible under the Singleton Local Environmental Plan 1996, with development consent. It is designated development and also integrated development. A Development Application (DA) and Environmental Impact Statement (EIS) were submitted to the Department of Planning (the Department) on 5 April 2000. The DA and EIS were exhibited from 26 May to 31 July 2000. Concerns were raised in submissions relating to justifiable demand for landfill capacity, possible contamination of groundwater, management of leachate, and air and noise impacts of the proposal. The Applicant prepared a report and additional appendices to the EIS in response to these concerns. These documents were exhibited, along with the original EIS and DA, from 17 October to 21 December 2001.

All procedural regulatory requirements concerning public notification and exhibition of the Environmental Impact Statement (EIS) and associated documents have been satisfied.

The requirements of all applicable State, regional, and local planning instruments have been addressed.

There was widespread community opposition to the proposal and 1496 private objections were received. These included objections from adjoining business and mining activities. Among the submissions were three petitions with a total of 3852 signatures. Four government agencies objected to the proposal and six offered no objection. In particular the (then) Hunter Waste Planning and Management Board and the (then) Western Sydney Waste Board objected to the proposal.

In its latest submission, Singleton Shire Council requested a Commission of Inquiry into the proposed development. Council also stated that, should an Inquiry not be held, there should be further consultation with Council and a number of conditions of consent should be imposed.

The Department does not consider that a Commission of Inquiry is warranted. All issues have been publicly aired for some time, including public meetings, and all relevant information has been submitted and considered. A Commission of Inquiry will not add value to the decision-making process in this instance and further delays would increase the level of community uncertainty and outrage surrounding the proposal.

1.2 Assessment of Key Issues

The assessment is detailed in sections 8, 9 and Appendix D, and summarised below.

Waste Sources, Existing Landfill Capacity, and Justifiable Demand

Clause 12(a) of SEPP 48 requires the Minister to take into consideration whether a justifiable demand exists for landfill, having regard to waste disposal capacity requirements identified from time to time by the Environment Protection Authority.

The assessment of justifiable demand by the Applicant is based on waste generation and existing landfill capacity for putrescible wastes from the Sydney region, industrial wastes, and putrescible wastes from the Hunter region and Singleton Shire LGA.

Based on the Independent Public Assessment of Landfill Capacity (the *Independent Assessment*) carried out in 2000, the Department has previously concluded that there would be adequate disposal capacity for putrescible waste from the Sydney region for at least 10 years, once expansions to the Eastern Creek Waste Management Centre and the new Woodlawn facility are operational.

The Applicant has questioned this conclusion and provided an alternative model which predicts a capacity shortfall in the period 2003-2007, despite provision of these facilities.

The Department has analysed the demand and waste diversion predictions used by the Applicant and assessed the likely success of waste diversion strategies. The Applicant's forecasts, which are based on historical waste generation trends, do not appear to take any account of future waste avoidance measures and assume a slow rate of take up of technologies that would support waste diversion.

It is unrealistic to assume no current impact of waste avoidance and no future initiatives that will act to moderate waste generation. The waste avoidance assumptions of the *Independent Assessment* are still considered to be valid and are in line with OECD expectations.

The Department's assessment has confirmed that, contrary to the Applicant's claims, there is no short to medium-term justifiable demand for additional putrescible waste landfill capacity for waste from the Sydney region.

The Department has also determined that there is significant capacity available in Sydney and the Hunter region for both putrescible and non-putrescible solid waste, including industrial waste.

Furthermore, the proposed development is not included in any regional waste plan or other strategic waste plan. Although Singleton Shire LGA is not subject to a regional waste plan, none of the regional waste plans covering areas where the majority of waste would be sourced (the Hunter, Sydney, and Illawarra regions) include the Ravensworth WMC.

The Applicant has argued that, in the absence of a competing facility, such as Ravensworth, Collex will gain a virtual monopoly for putrescible waste disposal by virtue of its contract for Northern Sydney waste disposal.

As indicated above, the Department does not accept the Applicant's proposition that there is likely to be a capacity crisis if the Ravensworth facility does not proceed. The Department's view is that the key issue in relation to justifiable demand is not whether or not there is a right for an Applicant to compete in the marketplace, but whether or not there is a *need* for additional landfill capacity.

The Department concludes that the Applicant has not demonstrated that there is a justifiable demand for new landfill capacity.

Environmental and Socio-Economic Issues

The Department and other government agencies have assessed the environmental, social and economic impacts of the proposed development. These issues are considered in sections 8 and 9 of this report.

The key environmental issues are:

- groundwater and surface water quality;
- air quality;
- spontaneous combustion;
- agricultural impacts;
- noise;
- health impacts; and
- traffic.

The Department has sought and relied upon the advice of relevant government agencies with respect to these issues. The EPA, DLWC, RTA, and MSB have provided General Terms of Approval (GTAs).

The potential socio-economic impacts of the proposal proceeding include the creation of 15 full time jobs and 20 construction jobs, and flow on economic benefits to the region. Given the lack of justifiable demand, the Department questions whether the benefits are realisable and considers that foregoing the potential benefits would not have a significant impact on the community.

1.3 Conclusions and Recommendation

The Department's assessment concludes that there is no justifiable demand for the proposed landfill, particularly in the mid-term. The proposal is fundamentally inconsistent with, and does not satisfy the core requirements or objectives of the relevant State Environmental Planning Policy (SEPP 48). This issue is fundamental to the determination of the proposal.

There would be residual impacts and risks to environmental quality and amenity as a result of this proposal. Various measures have been proposed and considered in order to manage these residual risks. However, given the lack of justifiable demand for the proposal, these residual environmental and amenity impacts are neither tolerable nor warranted. Further, the assessment concludes that there is not substantive public interest in the development proceeding considering: the objectives of broad waste disposal policies, practices and demand management; and the community opposition and outrage the proposal has generated.

The Department has assessed the DA in accordance with the matters for consideration listed under Section 79C(1) of the Act. Based on this evaluation, it is concluded that the proposal does not warrant the granting of development consent and the Department recommends that the Minister refuse the Development Application.

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2 BACKGROUND

On 24 November 1998 the Applicant submitted a DA for the development of a waste management centre on the site of the former Ravensworth No 2 coal mine. The DA was not accepted by the Department for lodgement, pending clarification of several issues, and was subsequently withdrawn by the Applicant. Further work was done on issues such as the risk of introducing agricultural pests to the region and the reliance of the proposal on putrescible waste from the Sydney region to justify the need for a landfill.

The Applicant submitted a fresh DA and EIS with a revised scope for the project on 5 April 2000. The proposed landfill site is at the former Ravensworth No 2 open cut coal mine site, situated midway between Singleton and Muswellbrook in the Upper Hunter Valley (see Figure 1). The proposal also includes a rail terminal; a bridge over the New England Highway for a private road; engineering, filling and rehabilitation of landfill voids; and administrative and support infrastructure.

The proposal is subject to State Environmental Planning Policy (SEPP) No. 48 – Major Putrescible Landfill Sites and the Minister for Planning is the consent authority. The proposal is permissible development under the Singleton Local Environmental Plan 1996, with development consent. The proposal is both designated development and integrated development as detailed in section 3 of this report.

The DA and EIS were exhibited from 26 May to 31 July 2000. The development proposals generated wide public interest, concern, and opposition, particularly with regard to justifiable demand for landfill capacity, possible contamination of groundwater, management of leachate, and air and noise impacts of the proposal.

Community consultation and public meetings were undertaken by both the Applicant and Singleton Shire Council. In addition to formal submissions, direct representations were made to the Minister and the Department expressing concern and/or opposition to the proposal.

The Applicant prepared a report and additional appendices to the EIS in response to these concerns. These documents were exhibited, along with the original EIS and DA, from 17 October to 21 December 2001.

This report documents the outcome of the Department's assessment of the proposed development, consistent with its statutory and administrative responsibilities. The assessment is also intended to provide independent advice to the Minister for Planning in his role as consent authority for the proposed waste management centre.

3 DETERMINATION PROCEDURES

3.1 State Significant Development

SEPP 48 applies to the proposed waste management facility. Under SEPP 48, the Minister for Planning is the consent authority. In accordance with Section 76A(7)(b)(iii) of the Act, development to which SEPP 48 applies has been gazetted as State Significant Development.

3.2 Integrated Development

The proposal is integrated development, as it requires several other approvals, including: licences from the Environment Protection Authority (EPA) under sections 47 and 48 of the Protection of the Environment Operations Act 1997; the approval of the Department of Land and Water Conservation (DLWC) under section 116 of the Water Act 1912; an approval from the Mine Subsidence Board (MSB) under section 15 of the Mine Subsidence Compensation Act 1961;and the consent of the Roads and Traffic Authority (RTA) under section 138 of the Roads Act 1993.

The Department has consulted with each of the approval bodies and their GTAs have been provided.

3.3 Designated Development

The proposed landfill is designated development, falling under "waste management facilities or works" in Schedule 3 of the Environmental Planning and Assessment Regulation 2000 (the Regulation), and the preparation of an environmental impact statement was therefore required. The Director-General's requirements for the EIS were issued on 8 September 1998.

In particular, the Applicant was required to take account of the Department's EIS Guideline '*Landfilling*' and to address the Heads of Consideration of SEPP 48, notably justifiable demand.

3.4 Commission of Inquiry

Submissions from Singleton Shire Council and a number of individuals have requested that the Minister call a public Commission of Inquiry into the proposed development before he makes a determination.

Since the development application was first lodged, there has been detailed scrutiny of environmental impact and justifiable demand issues, including provision of supplementary information by the Applicant and two extended EIS exhibition periods between May 2000 and December 2001.

This has been a transparent process affording extensive opportunity for detailed public comment. In these circumstances, the Department considers that a Commission of Inquiry could delay determination of the application without significantly adding value to the assessment process. Accordingly, it is considered that a Commission of Inquiry is not warranted.

Figure 1: Regional Location

4 SITE DESCRIPTION AND LOCALITY

4.1 Ravensworth No 2 Mine Site

The Ravensworth No 2 mine site is located on the southeastern side of the New England Highway in the Singleton LGA. The site location is shown in Figure 2. The mine site occupies an area of 587 ha.

Ravensworth No 2 mine operated between 1972 and 1993 during which time approximately 60 million tonnes of coal was extracted from the site. The mine site has been highly disturbed by coal mining and related activities for many years. The site contains four disused open cut mining voids, overburden dumps subject to spontaneous combustion, and an ash disposal pipeline. Overburden piles have been shaped to give an undulating landform and there has been some revegetation with improved pasture species and native trees. Fly ash from Bayswater Power Station is currently transported to the site via a slurry pipeline and disposed of in the voids. Approximately 1,000,000 m3 of flyash is disposed of annually at the site and Void 1 has been fully utilised. Flyash disposal is proposed to continue until 2030. Nardell coal mine, located to the south, obtained development consent in 1996 to underground mine the coal seams below the Ravensworth No 2 open cut.

The site is adjacent to the New England Highway and the Main Northern Railway where Macquarie Generation has proposed a siding and coal unloader facility.

The proposed Ravensworth WMC would involve development of a limited area of the former mine site. The proposal includes subdivision of the mine site to create a 310 ha holding for the Ravensworth WMC. The EIS states that the project would utilise a section of one of the existing mine voids which would not be subject to subsidence as a result of underground mining of the site by the Nardell mine. The proposed landfill area is referred to as Ravensworth WMC West. The associated rail terminal, referred to as Ravensworth WMC East, is proposed between the New England Highway and the Main Northern Railway, adjacent to the Macquarie Generation coal unloading facility.

Both the Ravensworth WMC West and Ravensworth WMC East sites are owned by Macquarie Generation which supports the project. The land where the proposed access road bridge over the New England Highway would be located is owned by the RTA which has no objection to the project.

The site is situated within the catchments of Foy Brook (also known as Bowmans Creek), to the south and east, Bayswater Creek to the west and the Hunter River to the south. The landfill site is above the 1:100 year flood level.

4.2 Surrounding Land Uses/Regional Context

The surrounding area is subject to a variety of uses including coal mining, viticulture, electricity generation, agriculture, and facilities associated with coal mining such as coal conveyors, coal loaders, transportation networks and pipelines.

All the land immediately adjacent to the site is owned by either Macquarie Generation or coal mining companies for existing or planned coal mines. The nearest residences are the “Ravensworth” and “Ravensworth Farm” rural holdings, and smaller rural holdings along Hebden Road 1.8 km to the east of the site. Ravensworth Village is also located to the south east of the site.

Figure 2: Site Location

5 PROJECT DESCRIPTION

The proposed development consists of a landfill operation, Ravensworth WMC West, and associated rail unloading facility, Ravensworth WMC East. These components, which are shown diagrammatically in Figure 3, are summarised below.

Details of the proposed facility and its proposed location are contained in the EIS.

5.1 Landfill – Ravensworth WMC West

Overview

The proposal involves landfilling a 90 ha section of the site which traverses one of the mine voids. The ultimate capacity of this area is estimated to be 25 million tonnes. The Applicant seeks approval to accept up to 600,000 tonnes per annum of waste.

Waste would be sourced from Singleton Shire, and other regions of NSW including Sydney. The landfill would be classified as an Inert Waste (Class I and II), Solid Waste (Class I and II) and Industrial Waste landfill. Appendix E gives a fuller description of the wastes that can be accepted under these landfill types.

Waste Transport

Waste would be transported to the site by rail and road, with up to 520,000 tonnes per annum expected to arrive by rail. The Applicant proposes to use waste transfer stations to consolidate the majority of Inert and Solid wastes sourced out of the local area. Due to the risk of importing agricultural pests into the region, some wastes, including putrescible waste from the Sydney region, would be baled and wrapped in degradable plastic film before transport to the Ravensworth site. This would be carried out at waste transfer stations in Sydney and other pest-risk areas. Waste from other regions would be compacted and loaded into containers for transport by either road or rail.

Specially made containers would be used to transport compacted or baled and wrapped waste by rail. Containers would be leak-proof and have sealing inner and outer doors. Containers would be transported by truck to existing rail terminals and transferred to conventional freight trains for transport to Ravensworth WMC. The Applicant proposes to use the Chullora Freight Terminal in Sydney for transfer of waste from the region to rail. The proposal provides for between 3 and 7 trains a week to the site. Containers would be unloaded from trains at Ravensworth WMC East (described in section 5.2), loaded onto trucks, and hauled directly to the filling area via a private haul road.

Road haulage to the site would be with garbage compactors and other waste haulage vehicles. Access for such vehicles would be via Lemington Rd from the New England Highway.

Waste would be tracked from the point of collection, through transfer and transportation stages to disposal using a computer based system. The Applicant would comply with specific EPA requirements for the transfer and acceptance of Class 2 Solid wastes and Industrial wastes.

Landfill Design and Construction

The proposed landfill design is that of a “bioreactor”, or wet tomb, which involves the recycling of leachate to maintain the moisture content of the waste. The recycling of leachate accelerates the anaerobic conversion of organics in the waste to methane, which is extracted as landfill gas. The landfill would be lined with a base liner containment system to collect leachate and protect water resources on the site. This design increases landfill gas extraction, and provides for rapid degradation and stabilisation of waste which improves the rate of settlement of the landfill. Landfill gas would be extracted, via a reticulated collection system, once sufficient levels of gas are generated. The EIS states that this type of landfill method is that favoured by the EPA.

The cells would be excavated with large mining equipment mobilised for short periods of time to remove the overburden required to create a void for landfilling. This would be done in stages and the excavation would continue to either the groundwater table or sandstone basement, whichever is shallower. Spoil containing high levels of carbonaceous material would not be used for base or capping materials and would be emplaced within existing mining voids.

The base liner of the landfill would be constructed with compacted layers of flyash, soil, geofabric, and geosynthetic clay (GCL). The HDPE liner would be placed over this and covered in protective geofabric and 300mm of gravel which also acts as a leachate collection layer.

Landfill Operation

The proposed landfill operating hours are from 6:00 am to 6:00 pm, seven days a week. Waste would be received at the landfill on trucks travelling from either Ravensworth WMC East or the Lemington Rd entrance. Wastes would be inspected upon arrival at the site and at the point of discharge to confirm that they are acceptable for disposal in the landfill. The site would also have facilities for receiving, storing, and processing certain recyclable materials.

Due to the variety of wastes to be accepted at the Ravensworth WMC, the landfill would have three distinct disposal cells in operation at any one time, namely: general waste (Inert and Solid waste from non pest risk areas); bale fill waste cell (waste from pest-risk areas); and Industrial waste. The landfill would be developed in stages, as shown in Figure 3, of approximately 6 ha each.

Once deposited, the general waste would be spread, compacted and covered with a 150 mm layer of soil at the end of each day's operations. Baled waste would be unloaded with a forklift with rubber contact pads and stacked up to 8 bales high. Baled waste would not be compacted and would be covered daily with a 150mm soil cover. Baled waste cells would be separated from other cells by a fenced exclusion zone. Industrial wastes would be placed in separate cells with enhanced liners and separate leachate collection systems.

Cover materials would be sourced from material removed as part of the construction of the disposal area.

The proposal includes infrastructure and procedures for litter, dust and odour control at the landfill site.

The EIS contains a draft environmental management plan (EMP), which sets out organisational, technical and procedural safeguards proposed for the facility.

Landfill Closure

Once staged development of the landfill is complete, closure would be achieved with an engineered capping system. The final cap on the landfill would consist of:

- A geosynthetic clay liner (GCL) placed on top of the waste;
- A 300 mm thick layer of coarse gravel to allow percolating rainfall to drain from above the GCL cap;
- A 300 mm thick subsoil layer to support larger plant species; and
- A 150 mm thick topsoil layer.

Figure 3: Ravensworth WMC Infrastructure

Post-closure Management and Rehabilitation

Landfill gas would be collected from the capped landfill using an active collection system incorporating extraction wells, a reticulation system, and pumping equipment. Landfill gas would either be piped to Bayswater or Liddell power stations for use in electricity generation or used on site in a purpose built electricity generation plant.

Leachate would be collected from above the base liner and reinjected in the top of the landfill. Excess leachate would be treated in a plant on the site prior to reuse for dust suppression.

The surface of the capped landfill would be rehabilitated to provide for final landuses which would be determined in the community consultation process. This would incorporate areas of native vegetation to provide habitat for fauna in the area.

5.2 Ravensworth WMC East and Access Road Bridge

At Ravensworth WMC East, containerised waste received from Sydney and other regions of NSW would be unloaded onto trucks for transportation to the landfill. The facility would be located between the Main Northern Railway and the New England Highway as shown in Figure 3.

The terminal would include a 1,300m spur line off the Main Northern Railway adjacent to the Macquarie Generation coal loader. The trains would be unloaded with either a mobile reach-stacker or rail-mounted gantry crane. The facility would incorporate a paved hardstand area for temporary storage of full or empty containers.

Loaded trucks would transport containers to the landfill, approximately 900m away, via a sealed haul road passing over a bridge on the New England Highway. This bridge would be constructed over a fill embankment, constructed with fill from the site, to RTA requirements.

6 STATUTORY PROVISIONS

6.1 Singleton Local Environmental Plan 1996

The proposed Ravensworth WMC East and West sites are zoned Rural 1(a) under Singleton LEP 1996. The development is permissible in this zone with development consent.

6.2 Hunter Regional Environmental Plan 1989

The Hunter REP 1989 is the only REP relevant to this proposal. The REP encourages the adoption of contracts at waste disposal sites for resource recovery and recycling. One of the REP principles for waste disposal is that Councils should consult with the Department of Mineral Resources and EPA with a view to utilizing voids from open cut coal mining for the disposal of domestic, commercial and industrial waste. The REP encourages the use of rail transport for coal and other bulk materials, and aims to protect prime crop and pasture land from alienation, fragmentation, degradation, and sterilisation. It is considered that the proposal falls within the objectives of the REP.

6.3 Upper Hunter Cumulative Impact Study

This study was commissioned by the Department in 1997 and provides a framework for the strategic assessment of proposals in the context of cumulative impact of development in the area. The framework and guidelines for cumulative impact assessment contained in the study do not refer to waste disposal activities, however the issues relevant to the Ravensworth WMC that are likely to contribute to cumulative impacts such as dust, noise, groundwater, surface water and traffic have been addressed in the EIS.

6.4 State Environmental Planning Policies

State Environmental Planning Policy No. 11 – Traffic Generating Developments

The requirements of SEPP 11 have been addressed in the EIS and Section 8 of this report.

In accordance with the requirements of SEPP 11, the Department forwarded a copy of the DA and EIS to the Roads and Traffic Authority (RTA). The RTA was also an integrated approval body for the proposal. In its subsequent advice to the Department, the RTA did not raise any objection to the proposal. However, in its general term of approval (GTAs) the RTA seeks to limit road haulage to waste originating from the Singleton LGA, only.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

SEPP 33 requires consent authorities, in assessing DAs for industrial development, to consider the potential risk and offensiveness of the proposal in terms of impacts on human health, property and the biophysical environment.

A Preliminary Hazard Analysis (PHA) was prepared by the Applicant concluding that the development is not hazardous as defined in SEPP 33. The Department has independently reviewed the PHA and concurs with the Applicant's conclusion.

The proposal is potentially offensive in that it would potentially emit polluting discharges that could have adverse off-site impacts. The Department's position is that in order for a proposal to be not classified as offensive, it must be demonstrated that the proposal is able to obtain all relevant pollution control licences. In this case, the proposal requires licensing from the EPA under sections 47 and 48 of the Protection of the Environment Operations Act 1997.

The Department has received GTAs from the EPA for the above licences and therefore considers that the requirements of SEPP 33 are satisfied by the proposal.

State Environmental Planning Policy No. 44 – Koala Habitat Protection

Clause 7 of SEPP 44 requires a consent authority, prior to granting consent to a DA to which the Policy applies, to consider whether the land is "potential koala habitat" (as defined in clause 4 of the Policy). The EIS states that the proposed landfill site provides limited suitable habitat for Koalas, and that only 15% of trees on the site are of species listed in SEPP 44. These trees have all been planted as part of rehabilitation works on the site and are less than

15 years old. The EIS states that the trees would be unlikely to provide suitable habitat or feed source for Koalas.

Given the disturbed nature of the site and the limited extent of the trees, the Department supports this view.

State Environmental Planning Policy No. 48 – Major Putrescible Landfill Sites

SEPP 48 applies to the proposal as it would receive waste from more than one LGA and would have the capacity to receive more than 650,000 tonnes of waste over the life of the landfill. The Minister for Planning is the consent for developments to which the Policy applies.

Clause 12 of SEPP 48 lists matters that must be considered by the consent authority in determining a DA to which the Policy applies. These matters are:

(a) whether a justifiable demand exists for landfill, having regard to waste disposal capacity requirements identified from time to time by the EPA;

(b) whether the landfill site as proposed in the DA is included in a waste management or waste disposal strategy identified in a regional waste plan applying to the site;

(c) the views of such other public authorities as the consent authority considers relevant; and

(d) whether or not the proposed location of the landfill site is consistent with the locational principles included in the version of the publication of the Department of Urban Affairs and Planning entitled "EIS Practice Guideline – Landfilling" that is current at the time the DA is determined.

The question of justifiable demand is considered in section 8.1 and Appendix D of this report. The assessment concludes that a justifiable demand for landfill does not exist. The remaining matters are considered in section 8.2 and Appendix C of this report.

6.5 Regulations

The proposed landfill is designated development, falling under "waste management facilities or works" in Schedule 3 of the Environmental Planning and Assessment Regulation 2000 (the Regulation), and the preparation of an environmental impact statement was therefore required. In accordance with clause 73 of the Regulation, the Director-General required several matters to be specifically addressed in the EIS (the Director-General's requirements are at Appendix A of the EIS – Volume 2). The Director-General's requirements were issued on 8 September 1998.

The Department considers that, while issues were identified requiring further clarification, the EIS and other subsequent supporting documentation provide an adequate basis for the assessment process.

The EIS and subsequent documents have been publicly exhibited and all public notifications have been undertaken in accordance with regulatory requirements. All regulatory requirements have been met.

7 EIS EXHIBITION AND ISSUES RAISED IN SUBMISSIONS

The DA and EIS were placed on public exhibition from 26 May to 31 July 2000. In response to concerns from the public and Government agencies, the Applicant prepared various supplementary reports which formed volumes 5 and 6 of the EIS, and an *Assessment Report on the Need for Additional Disposal Capacity for the Sydney Region*. These additional documents were exhibited, along with the original EIS between 17 October and 21 December 2001.

Advertisements providing notification of the exhibition dates (and extensions to the originally advertised exhibition periods) were placed in the Sydney Morning Herald and the Singleton Argus. In addition, nearby and potentially affected landowners were notified of the DA and exhibition periods by mail. Relevant government agencies were also notified of the DA and exhibition periods by mail.

7.1 Private Submissions

During the first exhibition period, in 2000, private submissions objecting to the proposal totalled 487, including 416 form letters and three petitions containing a total of 3852 signatures. 14 submissions were received from special interest groups, 13 of those objecting to the proposal. Three submissions were received from businesses involved in coal mining in the area of the proposed site with two of those submissions objecting to the proposal. An objection was received from Nardell Coal Corporation citing potential for the Ravensworth WMC to impact on their underground mining activities, increase their liabilities, and sterilise coal resources.

The key issues raised in private submissions during the first exhibition period include:

- Landfilling is ecologically unsound and old technology. New technologies for waste management should be encouraged.
- Risk of phylloxera outbreak in Hunter Valley vineyards which would destroy million dollar industry.
- Spontaneous combustion at the Ravensworth site makes it unsuitable for landfill.
- Impacts to transport system and noise impacts from road transport of industrial waste.
- Rail noise impacts for people close to rail lines.
- Surface water contamination from leachate.
- The EIS does not adequately describe the proposal to landfill industrial waste.
- Cumulative impacts of industrial development in Hunter Valley not acceptable, and not fair to the region.
- The proposal is of regional significance, however the EIS and DA were not exhibited outside Singleton and Sydney.

During the second exhibition period 990 private submissions were received in opposition to the development. Of the private submissions 928 were form letters. No submissions supporting the proposal were received.

In addition 5 submissions were received from businesses with 4 of those objections. Objectors included the Nardell Coal Corporation, and operators or consultants in the waste management industry.

The following issues were raised, in addition to those stated above, in the second exhibition period:

- The proposal is inconsistent with the Government's views on waste as a resource and its support of alternative technologies.

- The proposal would undermine the "Waste Avoidance and Resource Recovery Bill", 2001.
- Adequate capacity for Sydney's waste already exists.

7.2 Government Agency Submissions

Fourteen Government agencies made submissions regarding the proposed Ravensworth WMC. A summary of all agency submissions is included in Appendix B.

Of the Government agencies, 4 objected to the proposal, 6 had no objection to the proposal, and four did not state a clear position on the proposal.

Agencies objecting to the proposal include Cessnock City Council, Hunter Waste Planning and Management Board, Western Sydney Waste Board, and Hunter Rural Lands Protection Board. Key issues raised by objecting agencies include:

- Justifiable demand has not been established.
- The proposal is contrary to waste minimisation and management objectives defined in:
  - ⇒ The Waste Management and Minimisation Act
  - ⇒ The Protection of the Environment Administration Act
  - ⇒ Regional Waste Plans
  - ⇒ The Alternative Waste Management Technologies and Practices Inquiry 2000 recommendations
- Potential to increase traffic impacts in Cessnock LGA.
- Potential for agricultural impacts due to Phylloxera outbreak.

Resource NSW made a submission stating the former Hunter Waste Planning and Management Board submission remains relevant in relation to waste avoidance and local initiatives.

Agencies offering no objection to the proposal include the Environment Protection Authority, the Department of Land and Water Conservation, the Mine Subsidence Board, the Roads and Traffic Authority, the Department of Mineral Resources, and the Department of Health – Hunter Public Health Unit. Many of these agencies made significant requests for further information from the Applicant which are outlined in sections 8 and 9 of this report. The information requested was supplied by the Applicant in the supplementary information that was exhibited in 2001.

Key issues raised by government agencies include:

- Air impacts require further clarification;
- Outstanding policy issues to be assessed before consent is given include:
  - ⇒ Question of justifiable demand
  - ⇒ Impact of the proposal on alternative waste management technologies
  - ⇒ Impact of the proposal on the Government's Waste Reforms
- Detailed plans are required before construction to ensure subsidence impacts can be managed;
- All waste sourced from outside Singleton LGA should be transported by rail;
- Additional road intersection upgrades would be required; and
- Additional groundwater monitoring would be required.

The relevant integrated approval bodies (EPA, DLWC, MSB, and RTA) were consulted by the Department in relation to their respective GTAs for the proposal. These have been provided, as noted in sections 8 and 9 of this report.

7.3 Singleton Shire Council

Singleton Shire Council resolved to oppose the proposal in August 2000 and called for a Commission of Inquiry (COI). Council subsequently conducted community consultation and commissioned an independent peer review of the EIS, which was funded by the Applicant.

The latest Council submission, made in January 2002, does not specifically object to the proposal. However, it encloses a Council resolution, stating (in part):

A. *That Council reconfirms its request to the Minister for Planning to conduct a Commission of Inquiry regarding the proposed Ravensworth Waste Management Centre.*

B. *That in the event the Minister declines to conduct a Commission of Inquiry, Council request to be consulted regarding the imposition of conditions of consent and that all matters listed hereunder be developed as consent conditions. . . .*

The submission included a number of reports for the Minister's consideration, together with a list of specific matters which Council wished to be covered by conditions of consent.

8 ASSESSMENT OF KEY ISSUES

8.1 Waste Sources and Justifiable Demand for Landfill Capacity

Clause 12(a) of SEPP 48 requires a consent authority to take into consideration whether a justifiable demand exists for landfill, having regard to waste disposal capacity requirements identified from time to time by the Environment Protection Authority.

The Thiess proposal is for a facility that can accept both putrescible solid (Class 1) and commercial and industrial solid (Class 2) wastes up to a maximum throughput of 600,000 tonnes per annum. Appendix E gives abbreviated definitions of waste and landfill classifications to assist in clarifying the following analysis.

While the EIS states that waste could be sourced from across NSW, volume 1 (section 2.1) of the EIS indicates that the Applicant sees the primary purpose of the facility as providing needed capacity for:

- putrescible waste from the Sydney Region;
- commercial and industrial waste from Sydney and elsewhere; and
- waste from Singleton Shire (and elsewhere in the Hunter Region)

This section summarises the Department's assessment of these elements. A detailed analysis is provided in Appendix D.

Putrescible Waste - Sydney Region

The Applicant's position primarily focuses on putrescible waste capacity needs for the Sydney region, using the Independent Public Assessment of Landfill Capacity and Demand[1] (*Independent Assessment*), released in September 2000, as a starting point.

On the basis of the report, the Department has previously concluded that the now approved Woodlawn and Eastern Creek facilities will provide adequate disposal capacity for putrescible waste for about 10 years, after which landfill capacity shortfalls could occur.

The Applicant has questioned this conclusion, on two main grounds:

1. There are significant uncertainties in the outcomes postulated in the *Independent Assessment*.
2. The *Independent Assessment* both understates future waste generation rates and is overly optimistic in its prediction of waste diversion rates.

The Applicant concludes its analysis with the statement:

"Accordingly, it is considered that there is a high probability that a capacity shortfall will occur in the period 2003-2007, despite the recent approvals of Woodlawn and Eastern Creek."

These arguments and conclusions are considered further in the discussion of the Department's position, which follows.

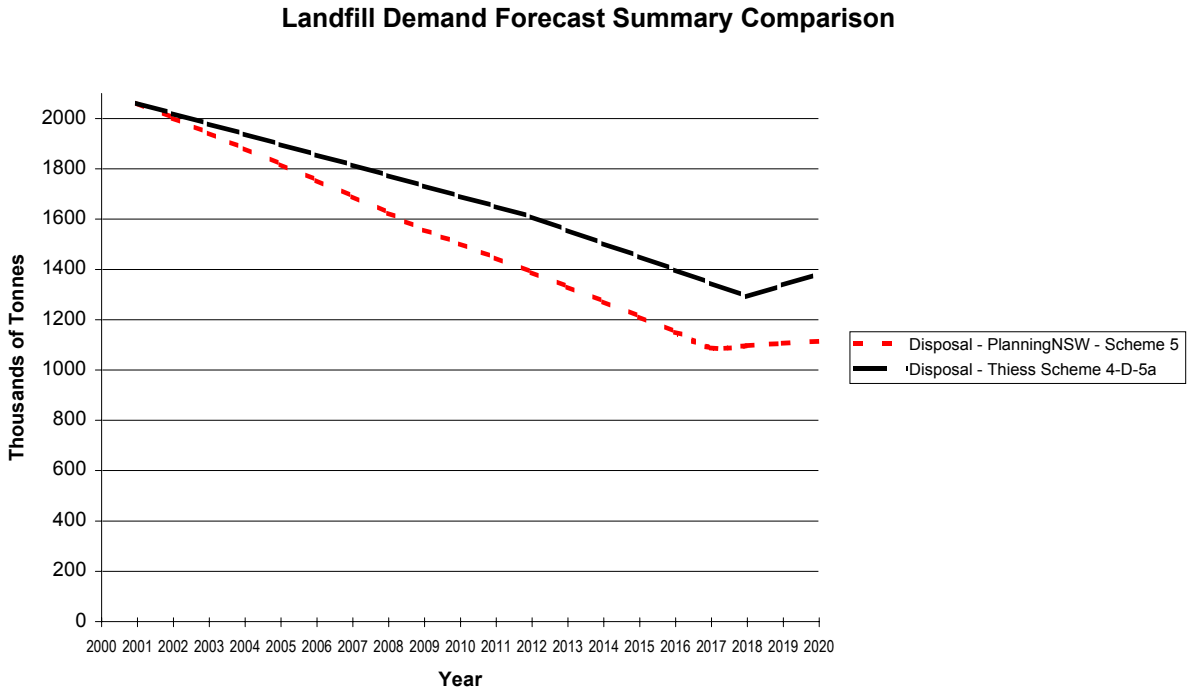
The Applicant has carried out a series of forecasts of waste generation to 2020, based on a statistical analysis of the linkage between population, increased economic growth and waste generation from 1992 to 1998. Forecasts are also made of the rate of penetration of waste diversion initiatives and the net impact on landfill capacity needs.

These net demand forecasts are significantly higher than those of the *Independent Assessment*, as shown below in Figure 4, which compares the Department's estimate of net

[1] State Government of New South Wales. *Independent Assessment - Landfill Capacity and Demand.* A.G.Wright 2000. Mr Wright's advice has been sought during the course of the Department's assessment, in order to clarify underlying assumptions in the *Independent Assessment* in relation to those used in the Thiess projections.

putrescible waste disposal rates with a broadly equivalent forecast prepared by the Applicant[2].

Figure 4: Putrescible Waste Disposal Forecasts



The key differences relate to the Applicant's assumptions about waste avoidance and waste diversion, compared with those in the *Independent Assessment.*

The Applicant's forecasts do not appear to take any account of future waste avoidance measures and assume a slow rate of take up of technologies that would support waste diversion.

The Department considers that it is unrealistic to assume no current impact of waste avoidance and no future initiatives that will act to moderate waste generation. The waste avoidance assumptions of the *Independent Assessment*, as noted above, are still considered to be valid and are in line with OECD expectations.

The Applicant has also questioned the rate of take up of the waste diversion initiatives set out in Scheme 5 of the *Independent Assessment*, which is the scheme on which the Department's projections are based.

Appendix D provides a detailed analysis of the various initiatives and the progress made towards achieving their projected outcomes. The analysis clearly demonstrates that the initiatives are viable and that good progress is being made.

The Department concludes that the assumptions underlying the *Independent Assessment*'s Option 5 remains viable.

In order to estimate the need for additional landfill capacity, the Applicant has generated a number of waste input plans, based on the waste generation and waste diversion forecasts

[2] The Applicant has, in fact, produced a wide range of forecasts, set out in Volume 6 of the EIS. None of these is exactly equivalent to those in the *Independent Assessment*. The Scenario shown is one that Thiess has indicated would be a realistic expectation.

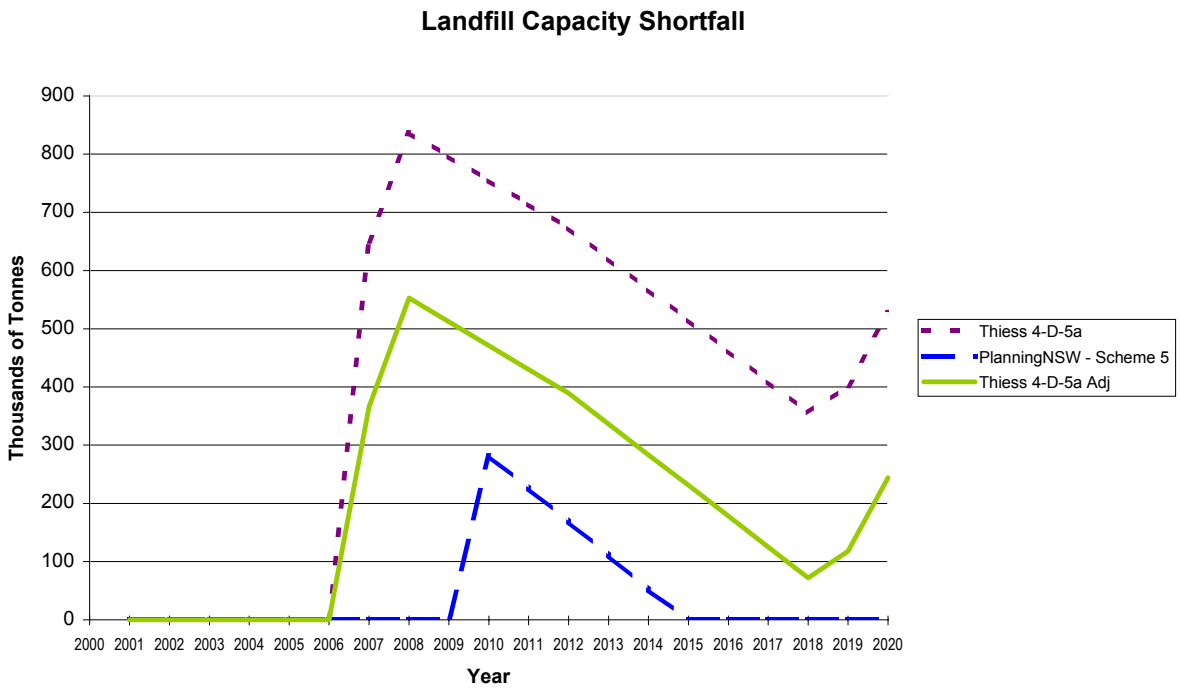
discussed above. While some plans indicate a possible waste capacity shortfall as early as 2003, Thiess has indicated that it considers the most likely input plan to be Plan D:

- Lucas Heights accepts 575,000 tonnes/annum from 2003;
- Eastern Creek accepts up to 1,200,000 tonnes/annum from 2003 until full;
- Woodlawn accepts all NSW Waste Board waste (ie a maximum of 156,000 tonnes/annum until Belrose is full and then 216,000 tonnes/annum); and
- Belrose, Jacks Gully and South Windsor operate as assumed in the *Independent Assessment.*

This corresponds to alternative 4-D-5A in Table 3.5 of volume 5 of the EIS and yields a predicted shortfall in capacity from 2007, as shown below in Figure 5.

It should be noted that the Department's projections have been updated, based on actual landfill capacities, as surveyed as at 30 June 2001. However, these do not materially affect any assessment outcomes.

Figure 5 :Landfill Capacity Shortfall Projections - Sydney Putrescible Waste



As indicated above, the Department considers that the Applicant's demand forecasts understate the likely future impact of waste avoidance measures and overstate the difficulty of the waste diversion task.

Further, the assumption by the Applicant that Woodlawn will operate at limited rates confuses current contractual arrangements with capacity needs. Subject to independent demonstration of justifiable demand to the Minister's satisfaction, Woodlawn can be operated at up to 500,000 tonnes per annum. Making such an adjustment to the Applicant's projections, as shown in Figure 9, significantly reduces the apparent shortfall.

The Department still considers that the *Independent Assessment's* forecasts of future capacity requirements, based on Scheme 5, are realistic. The capacity deficit, after making maximum use of the Woodlawn facility, is as shown in Figure 5. It indicates a nominal deficit only, between 2010 and 2014. Such a deficit could be accommodated by minor variations to operating rates of existing and approved facilities.

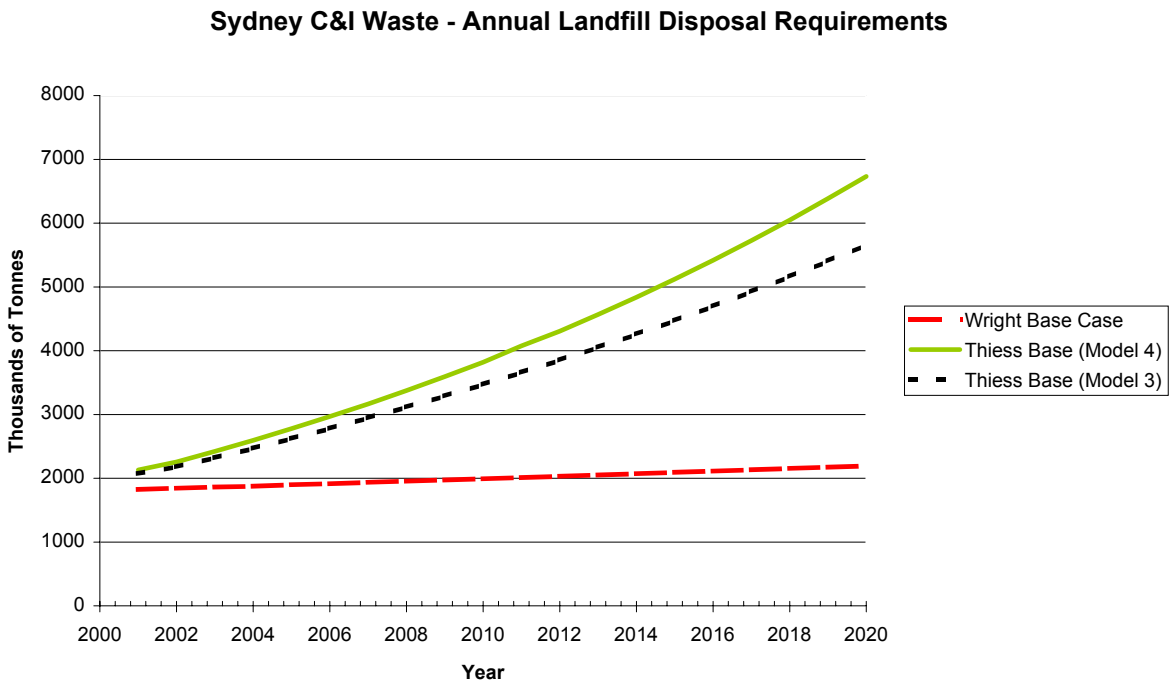
The Department's conclusion is that the Applicant has not demonstrated there is currently a need for additional capacity for putrescible waste from the Sydney region.

Commercial and Industrial (C&I) Waste Landfill Demand - Sydney Region

As noted in the putrescible waste analysis, above, the Applicant has used statistical analysis of past waste generation to forecast future generation of C&I waste in the Sydney region.

Thiess forecasts are compared with those of the *Independent Assessment*, in Figure 6. It is notable that the Thiess forecast represents a C&I waste generation annual growth rate some 2-3 percent greater than the growth of Gross State Product (GSP), as measured by the GSP Index.

Figure 6: Landfill Disposal Rate Projections - C&I Waste



As noted in the earlier discussion of putrescible waste generation rates, the Department considers that the Applicant's statistically based forecasts generally fail to adequately account for ongoing waste avoidance measures. Further, no basis has been provided by the Applicant to justify a rate of increase 2-3 percent faster than the rate of increase in GSP (ie an overall five percent per annum growth rate in the face of waste avoidance initiatives).

The Department considers that the Applicant's long term waste generation forecasts are overstated and do not have a credible basis.

Unlike putrescible waste, the Applicant has not attempted to produce supply/demand projections for C&I non-putrescible waste.

The EIS states that a combination of a lack of licensed facilities, combined with the Applicant's control over a significant waste volume, creates a significant demand for new C&I waste disposal capacity.

In 1998, the NSW Waste Boards completed a review of waste management infrastructure, and a report titled *Integrated Infrastructure for Greater Sydney* was prepared.

Using this data and information from other public sources, the Department has estimated the capacities at four major sites available for the disposal of Sydney metropolitan sourced non-putrescible wastes. These estimates are set out in Table 1.

Table 1: Estimated Capacity of Major Non-putrescible (Solid Class 2) Waste Sites

Site	**Nominal Capacity (cubic metres)**
St Peters – ex City of Sydney	1.5 million
Erskine Park – Enviroguard	4.0 million
Horsley Park – Collex[3]	6.8 million
Kemps Creek - Sita Australia[4]	21.0 million
Total	33.3 million

This is equivalent to around 30 million tonnes capacity in these four facilities alone.

Even accepting the Applicant's higher waste generation figures, the existing and approved facilities in the Sydney region are estimated to have sufficient capacity for at least 7 years, without factoring in the impacts of waste avoidance and diversion measures.

Accordingly, the Department does not consider that the Applicant has demonstrated a justifiable demand for significant new capacity for C&I waste originating from the Sydney region.

Hunter Region Waste

Table 2 sets out the most recent information available from the EPA on landfill usage and remaining landfill capacity in the lower Hunter region.

Table 2: Landfill Usage and Capacity - Lower Hunter Region - Year Ended June 2001

Facility	**waste deposited cub m**	**waste deposited tonnes**	**Space Remaining cub m**	**Space Remaining tonnes**	**years cover**
Summerhill (Newcastle)	261,925	222,636	3,692,003	3,138,203	14.1
Awaba (Lake Macquarie)	145,966	124,071	1,803,378	1,532,871	12.4
Raymond Terrace (Port Stephens)	15,176	12,900	3,414,864	2,902,634	225.0
Old Maitland Road (Cessnock)	58,050	49,343	250,000	212,500	4.3
Maitland City Council	65,522	55,694	1,563,284	1,328,791	23.9
Total	**546,639**	**464,643**			

[3] Approved but not yet commenced

[4] Also specifically licensed to accept industrial waste.

These figures are broadly consistent with those quoted by the Applicant. The Department notes that there appears to be adequate short to medium term putrescible waste capacity, at current disposal rates, with the exception of Cessnock.

Allowing that there is not a general shortage of landfill capacity in the Hunter region, the Applicant proposes (Volume 5: Supplementary Information, pp 7-8) that additional landfill capacity is required for the Lower Hunter Region, since the proposed Ravensworth landfill provides "… the opportunity for a managed regional infrastructure-based strategic solution to waste management." It is suggested that all councils could use the facility to deliver economies of scale and enable closure of local landfills.

While some existing landfills in the region do not meet current EPA requirements (in common with many other established facilities across NSW), progressive upgrading is being carried out.

The Department also notes that Resource NSW is currently coordinating a collective tender on behalf of four Hunter Councils (Newcastle, Lake Macquarie, Maitland and Cessnock) for total waste management solutions centred on beneficial processing of mixed residual waste using alternative technologies.

Reject and residual material following processing would be disposed of at landfills operated by the four Councils or at a single designated landfill. Further, it is noted that these Councils have an ongoing interest in continuing to receive (C&I and C&D) waste that is inappropriate for beneficial processing. This would include waste designated for disposal in Solid Class II and Inert Class I and II landfills.

The small amount of waste classified as Industrial (see Appendix E) is disposed of in a specially designated cell at the Kemps Creek landfill operated by SITA. This landfill takes Industrial Waste from all over NSW. Creation of a new site for Industrial waste at Ravensworth for this purpose is unlikely to be justifiable.

The Department considers therefore that these major councils are unlikely to seek or need the proposed Ravensworth landfill.

Further, a submission from the former Hunter Region Waste Board, confirmed by Resource NSW indicates that the Ravensworth proposal is not consistent with the agreed regional waste plan.

The Department considers that councils in the Upper Hunter are generally too far distant to economically transport waste from source to Ravensworth, given the existence of local solutions.

Accordingly, the Department does not consider that the Applicant has demonstrated a justifiable demand for significant new capacity for waste originating from the Hunter region.

Wastes From Elsewhere in NSW

In addition to waste from the Hunter Waste Board region, noted above, the Applicant has advised (Volume 1, Section 2.1.1) that Singleton Shire Council disposes of about 25,000 tonnes of waste annually at its Gresford Road facility. This facility has between three and four years remaining capacity at current disposal rates. Once this capacity is exhausted, the Ravensworth site would be able to provide capacity for the Shire's ongoing needs. However, the Department notes that Singleton Shire Council submissions do not unequivocally support the proposed development.

No specific information has been provided by the Applicant to show there is a need for capacity for waste from other sources. There is simply an indication that ". . . the proponent

will make the Ravensworth WMC available to accept a variety of wastes from other regions, as and when the need arises" (Volume 1, Section 2.1.4).

Given that waste from Singleton Shire would only represent four percent of the maximum throughput of the proposed facility and that other specific waste sources have not been identified, the Department does not consider that the Applicant has demonstrated a need for significant new landfill capacity to accept waste originating from elsewhere in NSW.

Competition considerations

The Applicant argues (Volume 5: Supplementary Information, pp 57-60) that, in the absence of a competing facility, such as Ravensworth, Collex will gain a virtual monopoly for putrescible waste disposal by virtue of its contract for Northern Sydney waste disposal.

As indicated above, the Department does not accept the Applicant's proposition that there is likely to be a capacity crisis if the Ravensworth facility does not proceed.

The *Independent Assessment*, which is still considered by the Department to be valid, demonstrated that, once supplemented by new long haul landfill capacity (ie the now approved Woodlawn facility), Sydney landfill space would not in fact be depleted over the entire 20 year review period under any realistic waste diversion take-up scheme.

The net outcome of current initiatives is that the community will have four broad competing options for short-term to long-term management of putrescible waste:

- increased diversion of waste to recycling to reduce residual waste;
- increased processing of residual waste for beneficial outcomes;
- disposal at various existing Sydney putrescible and non-putrescible waste landfills; and
- disposal at Woodlawn.

Finally, it should be noted that the key issue in relation to justifiable demand is not whether or not there is a right for an Applicant to compete in the marketplace, but whether or not there is a *need* for additional landfill capacity.

Accordingly, the Department concludes that competition issues do not provide a ground for establishing a justifiable demand for landfill capacity.

8.2 Other SEPP 48 Issues

Other SEPP 48 related issues are discussed in Appendix C.

The analysis concludes that the proposal is not included in any Regional Waste Plans or Strategies and that it does not appear to be consistent with the objectives of Regional Waste Plans for the Hunter and Western Sydney areas.

The views of other public authorities have been considered in section 7.2 and Appendix B of this report.

The proposed landfill site has been selected in a manner generally consistent with the Department's "EIS Guideline – Landfilling".

8.3 Groundwater and Surface Water Quality

Groundwater Quality

The EIS states that the risk of contamination of the groundwater system from the proposed landfill is minimal due to the use of a composite base liner and engineered capping system. This combination is said to ensure total containment of leachate within the proposed landfill during its operational life. Additionally the base of the landfill would be located 5 m above the predicted long term groundwater levels and the collection and recirculation of leachate would prevent a head of leachate forming on the base liner system which could promote leaks. The EIS describes a groundwater monitoring system proposed to detect any impacts on the groundwater quality due to the development.

Public submissions raised concern regarding landfill liner integrity and potential groundwater contamination.

The Department and the EPA requested significant amounts of additional information relating to groundwater impacts after the first exhibition period. This information mainly related to the integrity of the base liner system, the leachate collection system calculations, and reliability of predicted groundwater levels. The required information was provided by the Applicant in the supplementary information (volumes 5 and 6 of the EIS).

The Department of Land and Water Conservation (DLWC), in its submission after the first exhibition period in 2000, stated that the groundwater monitoring network for the project, as proposed, would be inadequate to assess the long-term impacts of the development. Notwithstanding this comment, DLWC has provided its GTAs for the proposal.

In considering the environmental issues associated with ground water impacts of the proposed development, the EPA has identified a need for an ongoing ground water monitoring program to demonstrate that leachate is not contaminating groundwater.

The EPA sets out detailed requirements for monitoring borehole location, monitoring methodology, standards and reporting.

These operational requirements have been incorporated into the EPA's General Terms of Approval (GTAs) for the proposal.

Having considered the information provided by the Applicant in relation to the groundwater impacts of the proposal, the EPA and DLWC have provided their GTAs, including requirements relating to ongoing operational control.

Surface Water

The EIS describes a surface water management system which diverts all off-site surface water away from the development and ensures that any on site water that departs the site is of satisfactory quality. Off-site surface water diversions are designed to a 1in 20 ARI storm and the on site system is designed to contain all leachate contaminated surface water within the site for up to 1 in 100 year ARI storm events. The surface water monitoring system would ensure that any surface runoff from the site is within EPA limits. The EIS states that the proposed development would not be affected, nor have any impact on, flood regimes in the Hunter River, Foy Brook, or Bayswater Creek.

A large number of public submissions expressed concern that the proposed landfill would contribute to surface water contamination.

DLWC, in its response to the first exhibition of the EIS in 2000, requested that the Applicant be required to submit all water quality monitoring data from the development.

The EPA requested further information relating to surface water impacts after the first exhibition period and the Applicant responded in the supplementary reports exhibited in 2001. This information relates to existing surface water quality, the proposed water balance on the site, the interaction of the proposed development and the existing flyash disposal operation, and the design of the water management system.

In considering the environmental issues associated with surface water impacts of the proposed development, the EPA has identified a need for an ongoing surface water monitoring program to cover construction, operation and rehabilitation of the landfill. The EPA sets out detailed requirements for monitoring locations, methodology, standards and reporting.

These operational requirements have been incorporated in the EPA's General Terms of Approval (GTAs) for the proposal.

Having considered the potential surface water impacts of the proposal and the control measures proposed, the EPA has provided its GTAs, including requirements relating to ongoing operational control.

8.4 Air Quality

The EIS identifies dust from construction and operations, odour and landfill gas as potential sources of air pollution. The Applicant proposes to manage landfill gas using the collection system described above and a landfill gas monitoring system that includes both surface and sub-surface detection to ensure there is no migration of landfill gas from the site. EIS predictions for both dust and odour concentrations at nearby receptors satisfy air quality goals for the project. Dust mitigation techniques such as watering are proposed for inclusion in the site EMP. The EIS proposes dust monitoring incorporating existing equipment from coal mines in the area and some new dust gauges. Proposed odour monitoring would be through independent observations and response to complaints from the public.

The EPA requested additional information relating to the quality of meteorological data used, background air quality data, the odour and dust emission rates used in calculations, and dispersion modelling for both dust and odour. The Applicant prepared a supplementary report titled “Response to NSW EPA Queries about Air Quality Assessment for the Ravensworth WMC, Ravensworth” which was exhibited during the second exhibition period in 2001.

The EPA has considered the environmental issues associated with the air quality impacts of the proposed development and requested that the Applicant conduct additional investigations to ensure compliance with air quality criteria. It has also identified the need to implement operational dust and odour controls and an air quality monitoring system to manage landfill construction and operation.

The EPA has included these assessment and operational requirements in its GTAs for the proposal.

Having considered the information provided by the Applicant in relation to the air quality impacts of the proposal, the EPA has provided its GTAs, including requirements relating to additional air quality impact investigations and ongoing operational control.

8.5 Spontaneous Combustion

Spontaneous combustion within the spoil piles on the Ravensworth No 2 mine site has the potential to significantly impact the proposed development and the surrounding environment. The Applicant prepared a position paper on spontaneous combustion at the site and a study of concept designs for the landfill that address the spontaneous combustion issue. These reports were included in the original EIS. The EIS concludes that of the concept designs studied, the “low elevation option” is the preferred choice. This option involves the removal of mining spoil subject to self-heating from below the landfill footprint. In this design, all overburden materials would be removed by bulk earthworks down to the level of the existing groundwater table or the basement (Archerfield Sandstone), whichever is shallower. Overburden would then be sorted and classified with material that is not capable of

sustaining combustion being used to backfill the excavation to 5m below the base liner level. The upper 5m of fill would be constructed from compacted flyash. The EIS states that modelling undertaken by the CSIRO has demonstrated that the flyash cover would be effective in protecting the base liner in the event that combustion occurs in the layers below. Outside the landfill footprint exposed excavation batters would be sealed with layers of compacted spoil and flyash to prevent oxygen ingress. The EIS states that the works proposed are expected to eliminate the occurrence of spontaneous combustion within the landfill area.

The potential impacts of spontaneous combustion were identified as an area of concern in a large number of public submissions. Many submissions noted the potential for explosions due the combined effect of spontaneous combustion and landfill gas generation.

The Department and EPA requested further information on the potential impacts of spontaneous combustion on the base liner integrity and groundwater bores, and the potential for landfill gas to influence spontaneous combustion. Information on testing procedures for spontaneous combustion was also requested. The Applicant responded to these requests in the supplementary information exhibited in 2001.

The EPA has assessed the potential spontaneous combustion impacts of the proposal and requires the Applicant to develop a testing and reporting program, construct thermal barriers over cell liners, and implement a temperature monitoring system to manage spontaneous combustion on the landfill site.

The EPA has provided its GTAs for the proposal which include the above operational requirements.

Having considered the information provided by the Applicant in relation to the spontaneous combustion implications of the proposal, the EPA has provided its GTAs, including requirements relating to ongoing operational control and monitoring.

8.6 Agricultural Impacts

Potential agricultural impacts of the proposal include the transportation of agricultural pests in waste brought to the site from outside the region. Such pests include Phylloxera, the Argentine Ant, European Wasp, and Queensland Fruit Fly.

The Applicant undertook an extensive literature review and field trials, in consultation with the Department of Agriculture, to assess the likely impact of transferral of agricultural pests to the Hunter region. The literature review determined that the only pest of concern was Phylloxera, an aphid that lives on and damages the root system and foliage of grapevines, based on the fact that the other pests either exist in the Hunter Valley or are likely to arrive by natural spread.

The Counties of Cumberland and Camden are registered as phylloxera infested areas under the Plant Diseases Act, 1924, and the Shires of Cessnock, Maitland, Singleton, Muswellbrook, and Scone (among others) are nominated as phylloxera-free areas.

The field study conducted involved an assessment of the mortality of both phylloxera and fruit fly in waste after compaction, baling and wrapping. Fruit fly is considered to have a very robust life cycle and was included for comparison. Test results concluded that a 100% mortality rate for both pests can be expected after baling and wrapping the waste.

The EIS also considered that the actual likelihood of phylloxera entering the waste stream was low since the pest can only survive on grape plants, roots or parts of grape plants, and that the wrapping of waste would prevent phylloxera emerging during transport or at the landfill.

The EIS concluded that the risk of phylloxera transferral and outbreak in the Hunter region due to the development is negligible, and that the project would have no adverse impacts to agriculture.

A large number of public submissions were concerned that potential phylloxera outbreaks caused by the proposed development could destroy the Hunter wine industry.

NSW Agriculture was involved in the design and observation of the field trials conducted by the Applicant but has not stated its formal position on the agricultural impacts of the project to the Department.

While it is not possible to demonstrate there will be zero risk, the Department notes the 100 percent pest mortality results from the trials carried out on behalf of the Applicant and that the nearest vineyard is some 10 kilometres from the Ravensworth site.

In considering risk criteria, the Department follows the general principle that "when a risk is to be imposed on an individual or a group of people . . . the concept of 'acceptability' of that risk is that it should be low relative to other known and tolerated risks" (from Hazardous Industry Advisory Paper (HIPAP) No 4: *Risk Criteria for Land Use Safety Planning*).

However, it is noted that 'tolerability' and 'acceptability' are different concepts. Acceptability is essentially a question of objective assessment, in which risks and associated social and economic costs are weighed up against potential benefits. Tolerability relates primarily to the extent that those exposed to risk are comfortable with the level of risk. While acceptability criteria are useful, they do not of themselves represent a level of tolerability. Tolerability is fostered by involving those exposed to the risk in the process of assessing, monitoring and managing the risk.

In this context, while the Department notes that agricultural impacts are likely to be very low, it recognises that the community may not consider such risks as tolerable. Risk tolerability should account for community perception and level of acceptance. NSW Agriculture has not stated its final position.

8.7 Noise

Construction

Construction would be over a 12 month period and involve works at Ravensworth WMC East, the highway overpass, and landfill site facilities, and excavation of the landfill void.

The EIS states that minor exceedences of 2 dBA above noise criteria at Hebden Road may occur during construction under adverse conditions. Adverse conditions are expected less than 17% of the time in early mornings

Ravensworth WMC Operations

Sources of noise have been identified in the EIS as train loading and unloading, truck movements to transfer containers to the landfill, and excavation and compaction plant at the landfill site.

The EIS predicts no exceedences of noise level criteria under neutral conditions. Under adverse temperature inversion conditions, when equipment is operating at or near ground level, exceedences of 6 to 7 dBA at one residence on Hebden Road were predicted. This situation would occur at least 20 years in the future when the landfill reaches ground level. The EIS anticipates that noise mitigation such as acoustic treatment of equipment could be implemented within this time frame to eliminate these exceedences.

The EPA requested more information on the data used for container unloading modelling and proposed mitigation techniques in the case of noise criteria exceedences. This information was provided by the applicant and made publicly available in the second exhibition period.

Rail Traffic

Shunting, container handling, and rail operation noise at Ravensworth WMC East were considered by the Applicant and based on the recent EIS for the adjacent Macquarie Generation Coal Unloader it was concluded that noise emissions would be well below the EPA criteria. Noise impacts at Nundah Bank, north of Singleton, from passing trains

associated with the development were considered and the EIS states that, even if the trains used on the project operated at the noise levels of existing trains, the additional train movements would not result in exceedence of EPA criteria.

Road Traffic

The EIS states that road traffic noise impacts would be negligible since the development is expected to increase traffic on the New England Highway by less than 1%.

Public submissions raised concern at the potential rail and road noise impacts due to the transport of waste to the proposed landfill site.

The EPA has considered the environmental issues associated with noise impacts of the development on the environment and surrounding residents and has set specific noise limits and requirements for noise mitigation including restricted operating hours for construction and operation of the facility. The EPA also requires the development of protocols for the management of road, construction, and operational noise, and compliance monitoring of noise levels.

The EPA has provided its GTAs for the proposal which include the above requirements.

After consideration of the information provided by the Applicant and the noise impacts of the proposal, EPA has provided operational conditions as part of its GTAs for the proposal.

8.8 Health Impacts

The EIS states that the transmission of any disease from the landfill would be through transport off site by vectors including insects, birds, and vermin such as rats and foxes. The proposal includes a series of measures to reduce access of vectors to the landfill including limiting the size of the working facing; daily covering of waste with overburden; covering of trucks hauling waste on the site; and contingency plans for vermin control. The EIS states that the risk of adverse health impacts from the proposed Ravensworth WMC is therefore very low.

Many public submissions were concerned with the potential health impacts of the proposed development.

The Hunter Public Health Unit of the Department of Health was advised of the Development Application and EIS, and provided a submission stating that public health should not be adversely affected by the proposal.

The Department notes the advice from the Department of Health that the proposal should not present adverse public health impacts.

8.9 Traffic

Road Traffic

The EIS includes a traffic impact assessment for proposed road traffic that would originate in the local area and areas where rail transport is not economically or technically feasible. The proposal seeks approval for 25 laden trucks per day, with an additional 30 vehicle movements estimated for site employees. The EIS states that this level of traffic increase would have no impact on traffic efficiency or local intersections. The proposal includes the construction of a new intersection at the junction of the access road and Lemington Rd.

RTA has assessed the information provided by the Applicant and provided its GTAs for the proposal, along with other recommended conditions of consent. The RTA states that it has no objection to the proposal subject to these recommended conditions which include upgrading of Lemington Rd/New England Highway intersection to a seagull intersection, and require that only waste from Singleton LGA be transported by road, among other conditions. These conditions go beyond the measures proposed by the Applicant in the EIS.

Having considered the information provided by the Applicant in relation to the traffic impacts of the proposal, the RTA has provided its GTAs, including requirements relating to limiting long distance road haulage of waste, additional infrastructure and control measures.

Rail Traffic

The EIS states that the proposed rail traffic that would be generated by the project is between 3 and 7 trains per week. As rail traffic in the vicinity of the site is currently approximately 36-40 trains per day it is anticipated that the proposal would only marginally increase rail traffic and would not have significant impacts on the rail transportation system.

The Rail Access Corporation (RAC) was notified of the DA and EIS. RAC has not indicated any areas of concern in relation to the potential rail traffic impacts of the proposal.

The Department accepts that the proposal will have minor impacts on the rail network.

9 OTHER ISSUES

9.1 Impact of Baling and Wrapping Waste

The EIS identifies the following potential impacts due to the baling and wrapping of putrescible waste from Sydney:

- Inhibition of the "bioreactor" operation of the landfill described in section 5.1 of this report.
- Inhibition of the stabilisation of the landfill.
- Impact on overall efficiency of the process and increased waste generation due to use of plastic.

The Applicant completed an assessment of the behaviour of baled waste in a landfill and concluded that waste degradation over the medium to long term is not expected to be influenced by the baling and wrapping process.

The process of compacting and baling waste in Sydney is expected to reduce compaction costs at the landfill site and is stated to be more energy efficient than alternative options including 'slug' packers and uncompacted transport of waste. The EIS states that 300 tonnes of plastic would be consumed in wrapping per year. The EIS justifies this consumption based on the fact that it represents only 0.075% of the anticipated annual waste intake to Ravensworth WMC.

The EIS concludes that the baling and wrapping of waste is "substantially more efficient than having to transport, place and compact unconsolidated waste".

The Department and the EPA requested further information from the Applicant relating to the expected degradation times of the plastic wrapping material. The Applicant's response is included in the supplementary information exhibited in 2001 and states that trials by Amcor Flexibles Australasia indicate that degradation time of the plastic wrap in a landfill is likely to be between 2 and 5 months.

The Department is concerned that this degradation time may have some impact on leachate flow and thus on the efficiency of the bioreactor.

Nevertheless, the baling and wrapping of waste is necessary to minimise risks to the surrounding community from agricultural pests originating from Sydney.

9.2 Heritage

Aboriginal Heritage

The Applicant conducted an Aboriginal Archaeological Field Survey in consultation with members of the Wonnarua Tribal Council. The survey found no sites of Aboriginal heritage significance in the area of the proposed development and concluded that the project would have no impact on Aboriginal heritage.

The National Parks and Wildlife Service (NPWS) was notified of the DA and EIS. NPWS did not request additional information from the Applicant nor has it advised the Department of its position.

Non-Aboriginal Heritage

The EIS states that no items of non-Aboriginal heritage were encountered during the field survey or upon review of heritage items in local and regional planning instruments.

Having regard to the previous use of the site, the Department concludes that significant heritage impacts are unlikely.

9.3 Flora and Fauna

Flora and fauna assessments of the Ravensworth WMC East and West sites were conducted in 1997 and 1998 respectively. Due to the highly disturbed nature of both sites, and lack of species recorded during field investigations, the studies found that the proposal would have no detrimental impacts on threatened species, populations or ecological communities. The studies note that the sites are also devoid of habitat for threatened species.

The National Parks and Wildlife Service (NPWS) was notified of the DA and EIS. NPWS did not request additional information from the Applicant nor has it advised the Department of its position.

Having regard to the previous use of the site, the Department concludes that significant flora and fauna impacts are unlikely. It is noted, however, that NPWS has not stated its final position.

9.4 Visual Amenity

The EIS states that the landfill facility would be visible during the latter stages of development from vantage points on Lemington Rd, Ravensworth Village, Hebden Rd, and from the "Ravensworth" and "Ravensworth Farm" properties. The first three areas would have limited views due to intervening stands of trees, while the final two properties would view Ravensworth WMC East, the haulage road and access bridge, and Ravensworth WMC West.

The EIS indicates that the primary visual impact of the project would be due to Ravensworth WMC East and the access road bridge which would be clearly viewed from the New England Highway and Main Northern Railway. These facilities would be visible over a distance of approximately 2km along these routes.

The EIS states that the overall visual impact of the proposed development would be minimal since they are limited to brief glimpses from the highway and railway line, and distant views of small parts of the project from the east.

The Department accepts that the visual impacts of the proposal could be appropriately managed.

9.5 Socio-Economic Impacts

The EIS considers impacts to both Singleton and Muswellbrook LGA's since the workforce at the proposed site is likely to be sourced from both areas. The proposal would create 20 full time construction jobs for 12 months and 15 full time operational jobs. The EIS states that employees would be sourced from the local area but that this is unlikely to have an impact on local services, housing, or population distribution. The project is predicted to have positive impacts on the local and regional economy based on the flow on effects of employment and capital investment. The EIS also outlines benefits to Singleton Shire Council and the NSW State Government in the form of host fees and waste levies.

The positive impacts of the proposal proceeding would include the creation of 15 full time jobs and 20 construction jobs, and economic benefits to the region.

The Department notes that these benefits would only be realised should the proposed waste management centre be able to operate at a significant throughput over the medium to long-term. If there is no overall justifiable demand for new landfill capacity, these local gains are likely to be offset by negative economic impacts elsewhere.

In view of its conclusion that there is currently no justifiable demand for new landfill capacity, the Department considers that foregoing the potential economic and social benefits of the proposal would not have a significant impact on the community.

9.6 Impacts on Nearby Developments

Proposed Nardell Underground Mine - Subsidence

The proposed development would occupy an area within the zone of zero subsidence effect from Nardell underground coal mine. The Applicant prepared an investigation of subsidence effects in areas outside the landfill footprint and concluded that continuous fractures are not expected to develop from the existing open cut voids to the underground mined areas. The potential for groundwater flows into the underground workings of the mine were assessed as negligible in the EIS for the Nardell mine due to the low hydraulic conductivity of the material below the existing open cut. The EIS states that it is therefore expected that the Ravensworth WMC would have no adverse interactions with the proposed Nardell mine.

The Department requested further information regarding the stability of the landfill footprint and the impact of subsidence from mining operations on liner integrity. The Applicant prepared several reports in response, and concluded that the predicted strains from mining activity in the area would not compromise the liner integrity.

Several submissions in opposition to the proposal were received from Nardell Coal Corporation citing potential for the Ravensworth WMC to impact on their underground mining activities, increase their liabilities, and sterilise coal resources

The Department of Mineral Resources (DMR) and the Mine Subsidence Board (MSB) initially expressed concern over the potential impacts of subsidence and resource sterilisation. DMR requested further information from the Applicant and concluded that the development would be able to accommodate the requirements of approved developments for adjacent mines.

MSB provided GTAs for the proposal giving conditional approval until final drawings are submitted certifying that any improvements on the site will be safe, serviceable, and repairable taking into account potential subsidence due to underground mining.

The EPA stated in its submission that provision should be made to ensure underground mining does not disrupt the integrity of the cell liner system. The EPA included a requirement in its GTAs that the Applicant demonstrate that an effective and enforceable mechanism is in place to prevent disruption of cell liners due to mine subsidence. The EPA suggests that this may statutory control by way of amendment of existing mine consents, plans or leases, or by contractual arrangement.

Having considered the information provided by the Applicant in relation to the impacts of the proposal on the Nardell Underground mine, the MSB and EPA have provided GTAs, including additional requirements relating to avoidance and mitigation of subsidence impacts. The Department considers that some residual risk remains to be further defined.

Flyash Disposal

The EIS states that the current flyash disposal operation is expected to have sufficient capacity in Voids 2 and 4, leaving Void 3 available for the WMC. As flyash would also be used beneath the landfill as fill material it is unlikely there would be any shortfall in capacity for flyash disposal on the site.

The Department is satisfied that the proposal would not significantly impact flyash disposal.

Macquarie Generation Coal Loader

The Macquarie Generation Coal Loader is located adjacent to the proposed Ravensworth WMC East. Trains accessing the Ravensworth WMC East would travel along part of the Macquarie Generation spur line before continuing onto the Ravensworth WMC East spur line. This would necessitate coordination between train timetables to ensure WMC trains do not impact on the Macquarie Generation trains. Since only 3 to 7 trains per week are proposed to the Ravensworth WMC East facility it is unlikely that there would be significant on the Macquarie Generation facility.

The Department is satisfied that the proposal would not significantly impact on the operation of the Macquarie Generation Coal Loader.

9.7 Assessment of Hazards

Earthquake

The Department and EPA both asked for additional information regarding liner integrity in the event of an earthquake. The applicant prepared a report analysing the earthquake risk at the site which also assessed the stability of the landfill during a seismic event with a coefficient of acceleration of 0.08. The study concluded that the strains developed on the liner system in such a seismic event would be well within manufacturer's specifications for the liner materials.

Bushfire

The EIS states that the risk of bushfire impacting on the proposed development is minimal due to the lack of combustible vegetation in the vicinity of the site. A series of bushfire protection measures are proposed in the EIS including buffer zones, fire trails, building design, and operational procedures.

Landfill Fires

Potential fires caused by spontaneous combustion, hot or volatile materials, or arson would be prevented through design of the landfill and operational controls. Controls would include non-acceptance of wastes with high potential for ignition, use of cover and compaction, prohibition of fire, site security, and training programs.

The Department has considered the range of controls proposed to mitigate the above hazards and concludes they are generally appropriate.

10 SECTION 79C CONSIDERATION

The Department has assessed the DA in accordance with the matters for consideration listed under Section 79C(1) of the Act. Based on this evaluation (attached as Appendix A), it is considered that the proposal does not warrant the granting of development consent and the Department recommends that the Minister refuse the Development Application.

11 CONCLUSION

The proposed Thiess Environmental Services Waste Management Centre at Ravensworth has attracted considerable public interest, concern and opposition. The proposal has been the subject of an extensive assessment process including two periods of public exhibition, due initially to an insufficient level of information from the Applicant.

Given the degree of public involvement and detailed assessment, the Department concludes that a Commission of Inquiry would not add value to the assessment.

There are three broad considerations that have been taken into account and balanced in finalising this assessment and making relevant recommendations to the Minister:

- consideration of justifiable demand as required by SEPP 48;
- environmental and amenity considerations; and
- the public interest.

The Department's independent assessment conclusively demonstrates that there is not a justifiable demand for the proposed landfill, whether putrescible or otherwise. The Department's assessment confirms the findings of the *Independent Public Assessment of Landfill Capacity and Demand* conducted in 2000, and refutes the Applicant's assertions that there is a justifiable demand. The proposed development is fundamentally inconsistent with a key objective of SEPP 48, in that the Applicant has failed to make a reasonable case to the Department that the use of landfill as a means of waste disposal is weighed against other waste management and waste disposal alternatives.

The Department has relied on advice from government agencies as to the environmental and amenity considerations. Relevant integrated approval bodies have provided their General Terms of Approval, notwithstanding incomplete resolution of some issues that have been raised. There will inevitably be a residual risk to people and the environment, which must be balanced against the justifiable demand for the development. That justifiable demand must also be considered in the context of the public interest.

The justifiable demand for landfill capacity is fundamental to the determination of the proposal. The public interest will not be adversely affected if the proposal does not proceed in the face of lack of demonstrated justifiable demand. Should the proposal proceed without a clearly demonstrated justifiable demand, community concern would be difficult if not impossible to address. Given the rapid changes in waste technologies and practices, the Department considers that the public interest would not be served by the commencement of a major landfill in advance of a clear demand being established.

The Department concludes that there is no justifiable demand for this facility and that the overall public interest would not be served in granting its approval.

12 RECOMMENDATION

It is RECOMMENDED that the Minister, in considering the findings and recommendation of this Report, refuse the Development Application submitted by Thiess Environmental Services Pty Ltd, on the basis of the findings outlined above.

Assessment prepared by:

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APPENDIX A: SECTION 79C(1) CONSIDERATIONS

The following assessment is based on the matters listed for consideration under Section 79C(1) of the *Environmental Planning and Assessment Act, 1979.*

(a) The Provisions of:

(i) any environmental planning instrument, and

(ii) any draft environmental planning instrument that is or has been placed on public exhibition and details of which have been notified to the consent authority, and

(iii) any development control plans, and

(iv) the Regulations (to the extent that they prescribe matters for the purposes of this paragraph)

that apply to the land to which the development application relates,

Relevant environmental planning instruments (EPIs) are addressed in Section 6 of this Assessment Report. It is considered that the proposal is inconsistent with the provisions of SEPP 48 relating to justifiable demand. The Applicant has not shown that justifiable demand for landfill capacity exists.

There are no matters listed under Clause 92 of the Regulation that are relevant to the proposal.

(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and the social and economic impacts in the locality,

The environmental, social and economic impacts of the proposed development are assessed in Sections 8 and 9 of this Report.

The positive impacts of the proposal proceeding include the creation of 15 full time jobs and 20 construction jobs, and economic benefits to the region. The Department notes that these benefits would only be realised should the proposed waste management centre be able to operate at a significant throughput over the medium to long-term. If there is no overall justifiable demand for new landfill capacity, these local gains are likely to be offset by negative economic impacts elsewhere. In view of its conclusion that there is currently no justifiable demand for new landfill capacity, the Department considers that foregoing these potential economic and social benefits would not have a significant impact on the community.

The proposal has generated a high level of community interest, concern and outrage. It is unlikely that such outrage will subside.

(c) the suitability of the site for the development,

The site suitability has been assessed in the EIS as part of the considerations under SEPP48. The site has been selected with regard to the Department's "EIS Guideline – Landfilling" and any potential impacts on, or conflicts with, adjoining landuses have been addressed. The EIS states that the site is a highly degraded former open cut coal mine and is not considered to have high environmental sensitivity.

(d) any submissions made in accordance with this Act or regulation

Exhibition of the proposal in 2000 and the subsequent exhibition of supplementary information in 2001 gave rise to a large number of public submissions objecting to the development. No public submissions were received supporting the proposal. The issues raised in these and Government agency submissions are examined in section 7 and Appendix B of this report. Submissions from the first exhibition period have been addressed by the Applicant. Submissions from the second exhibition period have been forwarded to the Applicant and no response has been received.

(e) the public interest

The Department has shown that a justifiable demand for the Ravensworth WMC proposal does not exist. Therefore, if the proposal does not proceed, there is not expected to be any impact on waste disposal in NSW, within the time frames studied in this report. The Department considers that the general public would not be affected in terms of the provision of waste management services if this proposal does not go ahead. As previously stated, the Department considers that foregoing the potential employment and economic opportunities that may result from the proposal would not significantly impact the public.

The proposal has attracted significant opposition from the public, as measured by the large number of submissions received.

The Department considers that a decision to refuse the Development Application for the Ravensworth WMC would be in the overall public interest.

APPENDIX B: SUMMARY OF AGENCY SUBMISSIONS

APPROVAL BODIES

Environment Protection Authority

Submission of 13 June 2000

- The EPA has partially completed assessment of proposal.
- Request for extensive amount of further information regarding noise, dust, and odour impact assessment in the EIS. These requests have been outlined in sections 8 and 9 of this report and were all responded to by the applicant in the supplementary volumes exhibited in 2001.

Submission of 30 June 2000

- Request for further information regarding SEPP48 considerations, baling of waste, subsidence, liner integrity, groundwater impacts, earthquake risk, wrapped waste degradation, spontaneous combustion, surface water impacts, and leachate management. These requests have been outlined in sections 8 and 9 of this report and were all responded to by the applicant in the supplementary volumes exhibited in 2001.

Submission of 4 September 2000

- Applicant has responded to previous request however EPA concerns have not been addressed.
- The EPA requests further information relating to air impacts of the proposed development. This request has been outlined in sections 8 and 9 of this report and was responded to by the applicant in the supplementary volumes exhibited in 2001.

Submission of 4 July 2001

- The EPA has reviewed Vol 5 of supplementary information and requested further information from the Applicant.
- Applicant has undertaken to provide the information before the end of the exhibition period, hence EPA does not object to exhibition of Volume 5.

Submission of 30 January 2002

- The EPA provides GTAs based on information provided to date.
- Additional investigations are required to confirm compliance with air criteria which must be satisfactorily completed before an Environment Protection Licence can be issued.

Department of Land and Water Conservation

Submission of 14 August 2000

- EIS has not addressed groundwater issues. Groundwater monitoring network is inadequate.
- GTAs for approval for monitoring bores under Part 5 of the Water Act 1912 provided.
- Request that Applicant submit all water quality monitoring data to DLWC.
- Rehabilitation has been adequately addressed.
- No part 3A permit is required for this proposal.

Submission of 9 January 2002

- GTAs are still applicable to proposal.

Mine Subsidence Board

Submission of 28th April 2000

- Area contains potential coal resource therefore any improvements may have design constraints to allow for subsidence if coal extraction takes place.
- Design guidelines for improvements provided.
- Lists improvements that are listed under Mine Subsidence Compensation Act, and those that are not.

Submission of 8 September 2000

- MSB has been made aware of Nardell Coal's proposal to mine under location of Ravensworth WMC site, hence GTAs must be modified.
- GTAs provided including requirements to submit drawings and specifications of works before construction commences, and details of seams to be mined.

Roads and Traffic Authority

Submission of 4 July 2000

- RTA raises no objection to proposal
- Recommended conditions of consent include upgrading of Lemington Rd/New England Highway intersection, and that only waste from Singleton LGA may be transported by road.
- Provides General Terms of Approval for RTA concurrence pursuant to section 138 of Roads Act 1993.

Submission of 22 August 2000

- RTA does not raise any further issues as a result of its review of submissions received.

Submission of 9 January 2002

- RTA does not raise any further issues as a result of second exhibition period.

OTHER AGENCIES

Singleton Shire Council

Submission of 25 July 2000

- Council resolved to request extension of exhibition period to allow Council to prepare a submission and consult with the community.

Submission of 16 August 2000

- Council resolved to oppose Ravensworth WMC, 6 to 5, due to the following reasons:
  - ⇒ EIS is flawed and does not address public health, environment, and community issues;
  - ⇒ Justifiable demand has not been established; and
  - ⇒ Widespread community opposition.
- Council requests a Commission of Inquiry.
- Attachments include the report to Council on the proposal.

Submission of 7 March 2001

- Council's Planning and Environment Committee has adopted a report proposing further community consultation regarding the Ravensworth proposal. The consultation includes a panel forum and independent expert peer review funded by the Applicant.
- Council reaffirms its request for a Commission of Inquiry.
- Council requests an extension of second exhibition period for submissions to be received following the panel forum.

Submission of 16 March 2001

- Clarification from Council that the proposed panel forum is not an attempt by Council usurp direct consultation between the Applicant and the community.

Submission of 23 October 2001

- Request to extend exhibition period until 21 December to allow for panel forum as previously requested.

Submission of 30 January 2002

- No objection or support for proposal indicated.
- Council is of the view that a COI should be held into the proposal.
- If Minister declines to hold COI, Council requests to be consulted regarding imposition of conditions of consent.
- Attached report to Council detailing the transcript of the panel forum held on 13 December 2001, and the independent assessment by Sinclair Knight Merz into the proposal. Also attached are further submissions to Council.

Cessnock City Council

Submission of 20 July 2000

- Council opposes any increase in vehicle movements through its community due to the proposal.

Submission of 7 November 2001

- Council reiterates its opposition to any increase in vehicle movements through its community.

Submission of 15 November 2001

- Council is opposed to the proposal due to the potential for the introduction of Phylloxera to the area.

NSW Agriculture

Submission dated 9 March 2000

- NSW Agriculture provided advice and supervised Phylloxera trials by the Applicant.
- Not prepared to provide statement that pest risk assessment followed NSW Agriculture protocols, or that the assessment was adequate to warrant assessment by way of EIS exhibition.

Department of Mineral Resources

Submission of 31 July 2000

- Concern that liner system would not tolerate any subsidence, and potential for leachate to leak into rock mass and underground workings.
- Inability to tolerate subsidence may result in resource sterilisation for Nardell Project.
- DMR has requested further information from Applicant.
- Based on discussions with Applicant DMR supports the proposal.
- Provided a list of recommended consent conditions relating to levels of subsidence that the development could tolerate.

Waste Service NSW

Submission of 16 March 2001

- Refutes the statement by Thiess in Supplementary Information to EIS that according to a Heads of Agreement entered into with Waste Service, Thiess would be supplied residual waste from Waste Service Transfer Stations at Ryde, Auburn and Artarmon.
- Waste Service has written to Thiess requesting that the statement be withdrawn and correctional notices be forwarded to all persons who have received the memorandum.

Submission of 25 October 2001

- Request to extend exhibition period.

Submission of 20 December 2001

- Reiterates the earlier statement that Waste Service regards itself as having no on-going obligations with respect to the development of the Ravensworth WMC.
- States that Thiess has now agreed to remove all statements referring to Waste Service from the EIS.

Hunter Public Health Unit – Department of Health

Submission of 18 July 2000

- The Hunter PHU considers that the general health of the public should not be adversely affected by the development provided the EIS and licencing/approval conditions are adhered to.

Hunter Waste Planning and Management Board

Submission of 11 July 2000

- Objects to the proposal.
- Proposal does not provide details of waste types and quantities.
- Inquiry into alternative waste management technologies found that bioreactor landfills compared poorly to other alternatives, contrasting information provided in the EIS.
- Proposal is contrary to the objectives of the Waste Management and Minimisation Act, and the boards approved Regional Waste Plan.
- Community consultation is not documented in EIS
- Baling and wrapping of waste is contrary to principles of ESD.
- Socio- economic impacts have been poorly assessed.

- There is no commitment to recycling and resource recovery.

Resource NSW

Submission of 7 December 2001

- Hunter Waste Planning and Management Board submission remains relevant in relation to waste avoidance and local initiatives.

Western Sydney Waste Board

Submission of 27 July 2000

- Objects to proposal.
- No justifiable demand for waste from Western Sydney.
- Doubling landfill capacity will impede implementation of more sustainable alternatives to waste management.
- Proposal conflicts with legislative objectives to avoid waste being lost to landfill.
- A detailed submission is attached outlining alternative technologies and waste management objectives under the Regional Waste Plan developed by the Board.

Southern Sydney Waste Board

Submission of 31 July 2000

- No clear position stated.
- Pretreatment/stabilisation of waste should be undertaken before landfilling.
- Alternative Waste Management Technologies and Practices Inquiry, 2000, strongly in favour of pretreatment of waste prior to landfilling to maximise resource recovery.
- Submission to Independent Assessment- Landfill Capacity and Needs Inquiry attached for information.

Hunter Rural Lands Protection Board

Submission of 27 July 2000

- Objects to proposal due to risk of Foot and Mouth disease outbreaks associated with feral pigs feeding off waste from imported animal products at the landfill.
- Requests that facility be made 100% inaccessible to pigs.

APPENDIX C: SEPP 48 CONSIDERATIONS

Heads of consideration under clause 12 of SEPP 48.

Matters to be considered
In determining a development application for consent to carry out development to which this Policy applies, the consent authority is to take the following matters into consideration:

(a) whether a justifiable demand exists for landfill, having regard to waste disposal capacity requirements identified from time to time by the Environment Protection Authority;

This consideration is covered in detail in Appendix D and in section 8.1 of this report. The Department has concluded that there is no justifiable demand for the landfill.

(b) whether the landfill site as proposed in the development application is included in a waste management or waste disposal strategy identified in a regional waste plan applying to the site;

The proposed development is not included in any regional waste plan or other strategic waste plan. Although Singleton Shire LGA is not subject to a regional waste plan, none of the regional waste plans covering areas where the majority of waste would be sourced (the Hunter, Sydney, and Illawarra regions) include the Ravensworth WMC.

(c) the views of such other public authorities as the consent authority considers relevant;

The views of public authorities are covered in detail in Appendix B and summarised in section 7.2 of this report.

Most significant of the submissions by other public authorities are those by the *Hunter Waste Planning and Management Board* and the *Western Sydney Waste Board*. These agencies offered their opposition to the proposal based on the following key issues:

- Justifiable demand has not been established.
- The proposal is contrary to waste minimisation and management objectives defined in:
  - ⇒ The Waste Management and Minimisation Act
  - ⇒ The Protection of the Environment Administration Act
  - ⇒ Regional Waste Plans
  - ⇒ The Alternative Waste Management Technologies and Practices Inquiry 2000 recommendations

Resource NSW made a submission stating that the former Hunter Waste Planning and Management Board submission remains relevant. Cessnock City Council objected to the proposal due to potential traffic and agricultural impacts. The Hunter Rural Lands Protection Board objected to the proposal due to potential agricultural impacts.

Singleton Shire Council objected to the proposal in August 2000 and called for a Commission of Inquiry. The latest Council submission, made in January 2002, while not specifically objecting to the proposal reiterated its request for a COI.

Other agencies raised issues that would require further addressing, as noted in Appendix B, without specifically objecting to the proposal. These included the Environment Protection Authority, the Department of Land and Water Conservation, the Mine Subsidence Board, the Roads and Traffic Authority, the Department of Mineral Resources, and the Department of Health – Hunter Public Health Unit.

(d) whether or not the proposed location of the landfill site is consistent with the locational principles included in the version of the publication of the Department of Urban Affairs and Planning entitled "EIS Practice Guideline - Landfilling" that is current at the time the development application is determined.

Section 4 of the Department's EIS Guideline for Landfilling, dated September 1996, provides the most up-to-date locational principles for landfill proposals. The proposal's consistency with these principles is assessed below.

Is the site consistent with any existing waste management plans or strategy?

As noted above, the proposal is not included in any regional waste plans or other strategic waste plan.

Submissions from the former Waste Boards indicate that the proposed development is not consistent with the Regional Waste Plans for their respective areas. These include the Hunter and Western Sydney areas.

Is the proposed land use prohibited on the site?

The proposed landfill is permissible with development consent within the zoning of the proposed site.

Is the site fundamentally inappropriate because of its high environmental sensitivity?

Table 1 of the Department's EIS Guidelines for Landfilling lists environmentally sensitive areas that should be avoided by landfill developments. The assessment of the provisions of this list in the EIS concludes that the proposed landfill site is not located with or adjacent to an area of high environmental sensitivity. The Department considers that the site is not fundamentally inappropriate under the terms of the EIS Guideline-Landfilling.

Is the proposal likely to be compatible with surrounding zoning/land use considering separation distances?

The site is located within the area of the former Ravensworth No.2 open cut coal mine. Surrounding landuse includes coal mining, transport infrastructure, and agriculture. The majority of adjoining land is owned by either mining companies for existing or future coal mining activities or by Macquarie Generation for transport infrastructure.

The nearest residences are "Ravensworth", "Ravensworth Farm", Ravensworth Village, and residences on Hebden Rd, 1.8 km from the proposed site.

Neighbouring mines has raised some concerns in relation the risk of subsidence. This is considered in the body of this report.

Separation distances from sensitive receptors have been assessed in the EIS as adequate to ensure that health, environmental and agricultural impacts are mitigated.

The EIS states that the proposed project would be compatible with the surrounding landuses and separation distances would be adequate.

The Department considers that the proposal is generally compatible with surrounding landuses. However it notes that the mitigation of potential agricultural impacts is partially dependent on the separation distance of approximately 10 km from the nearest vineyard, and that the risk of agricultural impacts has been assessed as low, but not non-existent.

APPENDIX D: ANALYSIS OF MEDIUM TO LONG TERM LANDFILL REQUIREMENTS

SUMMARY

Clause 12(a) of SEPP 48 requires a consent authority to take into consideration whether a justifiable demand exists for landfill.

The EIS indicates that the Applicant sees the primary purpose of the facility as providing needed capacity for:

- putrescible waste from the Sydney Region;
- commercial and industrial waste from Sydney and elsewhere; and
- waste from Singleton Shire (and elsewhere in the Hunter Region)

Provided the Ravensworth WMC is suitable in each case, Thiess proposes to take waste from any source that it directly or indirectly controls or is contestable, up to a total maximum throughput of 600,000 tonnes per annum.

In support of its contention that there is a justifiable demand for landfill capacity, the Applicant focuses its arguments on a detailed analysis of putrescible waste capacity requirements and availability. Forecasts of waste generation to 2020 are made, based on a statistical analysis of waste generation in the Sydney region from 1992 to 1998 inclusive.

The Applicant notes that the Minister for Urban Affairs and Planning commissioned an Independent Public Assessment of Landfill Capacity[5] in 2000. The conclusion of that assessment was that there would be adequate disposal capacity for putrescible waste from the Sydney region for at least 10 years.

The Applicant has questioned this conclusion, on two main grounds:

3. There are significant uncertainties in the outcomes postulated in the *Independent Assessment*.
4. The *Independent Assessment* both understates future waste generation rates and is overly optimistic in its prediction of waste diversion rates.

The analysis concludes with the statement:

"Accordingly, it is considered that there is a high probability that a capacity shortfall will occur in the period 2003-2007, despite the recent approvals of Woodlawn and Eastern Creek."

The Applicant has argued that there is a justifiable demand from four main standpoints:

1. Net shortfall between total waste generation and available landfill capacity (in particular, Sydney putrescible waste);
2. Existing Thiess contracts for waste with commercial customers (up to 300,000 tonnes per annum);
3. Thiess agreements for the supply of waste, should Ravensworth be approved (with Singleton Shire Council and Waste Service NSW); and
4. The right to compete for disposal of waste which is contestable in the marketplace.

The Department acknowledges that each of these factors may be relevant in evaluating the commercial viability of a landfill proposal and may be considered in the overall assessment. However, only the first item is strictly relevant in considering whether or not there is a justifiable demand for landfill capacity *per se*.

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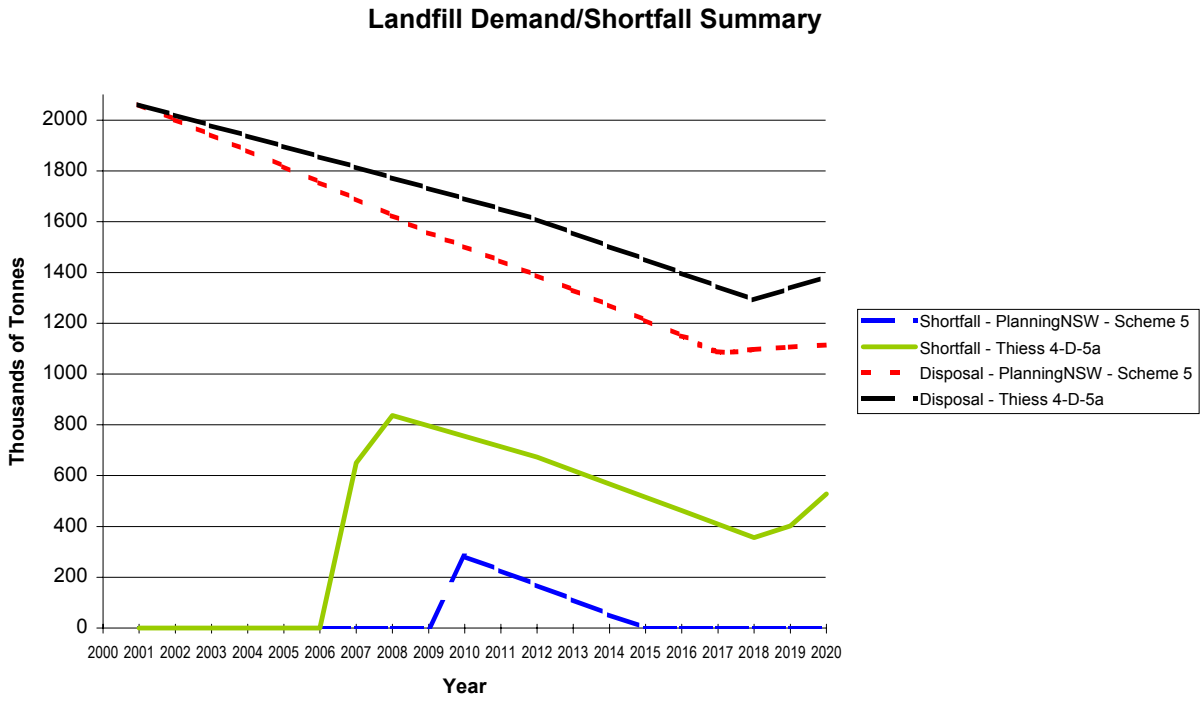
[5] State Government of New South Wales. *Independent Assessment - Landfill Capacity and Demand.* A.G.Wright 2000. Mr Wright's advice has been sought during the course of the Department's assessment, in order to clarify underlying assumptions in the *Independent Assessment* in relation to those used in the Thiess projections.

The following assessment shows major flaws in the Applicant's demand and waste diversion projections and confirms that the forecasts in the *Independent Assessment* are still realistic.

Contrary to the Applicant's position, existing and approved landfill sites provide adequate short to medium capacity without the need for the substantial additional capacity that would be provided by the proposed Ravensworth Waste Management Centre.

This is summarised in Figure 7, which compares one of the Applicant's forecasts of net putrescible waste disposal rates and capacity needs in the Sydney region with those that the Department considers realistic.

Figure 7: Summary of Putrescible Waste Landfill Capacity Requirements



The analysis indicates that, while there are uncertainties in forecasts of waste capacity needs, even with the Applicant's comparatively pessimistic assumptions, current and approved landfill capacity for putrescible waste from the Sydney region is likely to be adequate until at least 2007 and probably beyond.

The Department's assessment also indicates that there is significant capacity still available in Sydney and the Hunter region for both putrescible and non-putrescible solid waste, including industrial waste.

Finally, it should be noted that the key issue in relation to justifiable demand is not whether or not there is a right for an Applicant to compete in the marketplace, but whether or not there is a *need* for additional landfill capacity.

Accordingly, it is concluded that the Applicant has not demonstrated a justifiable demand for new landfill capacity.

INTRODUCTION

Clause 12(a) of SEPP 48 requires a consent authority to take into consideration whether a justifiable demand exists for landfill, having regard to waste disposal capacity requirements identified from time to time by the Environment Protection Authority.

The Thiess proposal is for a facility classified to accept both putrescible solid (Class 1) and commercial and industrial solid (Class 2) wastes up to a maximum throughput of 600,000 tonnes per annum. Appendix E gives abbreviated definitions of waste and landfill classifications to assist in clarifying the following analysis.

While the EIS states that waste could be sourced from across NSW, volume 1 (section 2.1) of the EIS indicates that the Applicant sees the primary purpose of the facility as providing needed capacity for:

- putrescible waste from the Sydney Region;
- commercial and industrial waste from Sydney and elsewhere; and
- waste from Singleton Shire (and elsewhere in the Hunter Region)

This analysis covers each of those aspects.

Overview of the Applicant's Position

The Applicant has quoted from the NSW EPA submission to the Commission of Inquiry for the Woodlawn Landfill in regard to the process followed by the EPA in determining whether justifiable demand has been demonstrated by a putrescible waste landfill Applicant. Five terms are suggested:

1. The minimum operating capacity and expected total capacity of the proposed landfill;
2. The proposed source of waste;
3. Identification of any regional waste plans which currently apply to any area from which waste is proposed to be sourced;
4. Identification of the need for additional landfill capacity within any of these regional waste plans; and
5. The status of discussions or participation in any processes to become a service provider in respect to waste identified in 4 above.

The Applicant considers these aspects and also discusses the Department's assessment of justifiable demand, in relation to the Woodlawn facility.

The Thiess position is summarised below. References are mainly to the supplementary information provided by the Applicant as representing its current position.

Waste Types and Sources

The Applicant's position is primarily set out in volume 5, sections 3.1 and 3.2 of the EIS.

The Ravensworth facility has been designed to accept Inert (Class I and II), Solid (Class I and II) and Industrial waste as defined in the NSW EPA's *'Environmental Guidelines: Assessment, Classification and Management of Liquid and None-Liquid Wastes'* (NSW EPA, 1999).

Within these constraints, it is proposed to accept waste from a variety of sources. The waste to be accepted includes that which the Applicant directly controls, waste which the Applicant has arrangements in place to accept and other waste which is contestable in the marketplace, up to a maximum of 600,000 tonnes per annum.

Waste Directly Controlled by the Applicant

Thiess indicates that it is itself a supplier of waste. In NSW alone, Thiess has contracts with over 2500 customers for the management of more than 300,000 tonnes of waste per annum,

over half of which is generated within the Sydney and Hunter regions. Nominated major commercial customers include Telstra, Australia Post and Woolworths.

The Applicant intends to deliver waste that it collects and controls to the Ravensworth WMC, subject to the site being the most suitable location for disposing of such waste. No criteria are given by Thiess for suitability, so that it is not possible from this statement to estimate the practical maximum tonnage of these streams.

Waste Which the Applicant Has Arrangements in Place to Accept

Thiess indicates that it has an agreement in place with Singleton Shire Council that, should the site be developed, waste collected by Council would be delivered to Ravensworth WMC.

Further, it is stated that the Applicant and Waste Service NSW have entered into a Heads of Agreement to form a strategic alliance to develop a new waste management centre to assist in the management of Sydney's waste. The Department notes, however, that Waste Service NSW contends that the Heads of Agreement are no longer current.

Thiess indicates that it intends to exercise its rights under its agreements with suppliers of waste and deliver waste which it has secured under those agreements to the Ravensworth WMC.

Waste Which Is Contestable in the Marketplace

Thiess states that the collection of the domestic waste stream is dominated by local councils and commercial contractors, who collect under contract for local councils. Waste collected by a council is owned by the council. Domestic waste in the Sydney region (except for Hawkesbury Shire) is delivered to waste service transfer stations or waste management centres, the latter of which are licensed as Solid Waste Class I Landfills.

Thiess indicates that the disposal of such waste may become contestable in the future if councils elect to contract with industry for this function.

Commercial and industrial waste streams are typically collected by contractors and this waste stream is not controlled nor owned by councils. An open competitive market exists for the collection of such wastes.

It is the Applicant's intention to actively compete for waste which is openly contestable in the marketplace and deliver such waste to the Ravensworth WMC, subject to the site being the most suitable location for disposing of such waste.

In summary, provided the Ravensworth WMC is suitable in each case, Thiess proposes to take waste from any source that it directly or indirectly controls or is contestable.

Putrescible Waste Capacity Needs - Sydney Region

The Applicant's position primarily focuses on putrescible waste capacity needs for the Sydney region and is set out in Volume 5, section 3.5; Volume 6, Appendix 6Q, 6R of the EIS; and a SCS-Wetherill Environmental Assessment Report[6].

The Applicant notes that the Minister for Urban Affairs and Planning commissioned Mr Tony Wright to conduct an Independent Public Assessment of Landfill Capacity and Demand to assist him in making a determination of landfill proposals at that time. That study was completed and the report made publicly available in September 2000. The report was used as a basis for the Department's assessment of recently approved proposals for a new facility at Woodlawn and an extension to an existing facility at Eastern Creek. The conclusion of those assessments was that the two proposals would provide adequate disposal capacity for putrescible waste for about 10 years, after which landfill capacity shortfalls could occur.

The Applicant has questioned this conclusion, on two main grounds:

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[6] SCS-Wetherill Environmental. *Assessment Report on the Need for Additional Disposal Capacity for the Sydney Region*. Sydney, August 2001.

1. There are significant uncertainties in the outcomes postulated in the *Independent Assessment*. Under some scenarios, there could be significant capacity shortfalls for putrescible waste from the Sydney region, even allowing for the Woodlawn Landfill at its maximum capacity of 500,000 tonnes per annum.

   This contention is supported by a comparison of four regression-based waste generation models against the *Independent Assessment* model (Volume 5. Table 3.4).

2. The *Independent Assessment* both understates future waste generation rates and is overly optimistic in its prediction of waste diversion rates (scheme 5). The Applicant states that "… scenarios that rely on higher diversion rates (ie *Independent Assessment* Scheme 5 are considered less likely to be achieved because such scenarios require major structural change to the waste management industry to bring about the rapid implementation of alternative technologies on a large scale."

The Applicant concludes its analysis with the statement:

"Accordingly, it is considered that there is a high probability that a capacity shortfall will occur in the period 2003-2007, despite the recent approvals of Woodlawn and Eastern Creek."

These arguments and conclusions are considered further in the discussion of the Department's position, which follows.

The Department's Approach to the Assessment

The Applicant has argued that there is a justifiable demand from four main standpoints:

1. Net shortfall between total waste generation and available landfill capacity (in particular, Sydney putrescible waste);
2. Existing Thiess contracts for waste with commercial customers (up to 300,000 tonnes per annum);
3. Thiess agreements for the supply of waste, should Ravensworth be approved (with Singleton Shire Council and Waste Service NSW);
4. The right to compete for disposal of waste which is contestable in the marketplace.

The Department acknowledges that each of these factors may be relevant in evaluating the commercial viability of a landfill proposal and may be considered in the overall assessment. However, only the first item is strictly relevant in considering whether or not there is a justifiable demand for landfill capacity *per se*.

Accordingly, the following discussion sets out the Department's analysis of the supply and demand balance for the main categories of waste for which the Applicant is seeking approval.

The discussion critically examines the Applicant's projections against the *Independent Assessment* and sets out the Department's position.

Organisation of the Assessment

In order to differentiate more clearly the consideration of each issue, the assessment has been organised by waste regions and categories, as follows:

- Sydney Region Putrescible Waste
  - ⇒ Putrescible Waste Generation
  - ⇒ Comparison of Waste Generation Models
  - ⇒ Comparison of Waste Diversion Models
  - ⇒ Putrescible Waste Landfill Capacity Requirements

- Sydney Region Industrial Waste
  - ⇒ Commercial and Industrial (C&I) Waste Landfill Demand
  - ⇒ Commercial and Industrial (C&I) Waste Capacity Requirements
- Hunter Region Waste
  - ⇒ Waste Generation
  - ⇒ Waste Capacity Requirements
- Wastes from Elsewhere in NSW
- Competition Considerations
- Overall Conclusions.

ASSESSMENT OF JUSTIFIABLE DEMAND - SYDNEY REGION PUTRESCIBLE WASTE

Putrescible Waste Generation - Sydney Region

Applicant's Position

The Applicant has carried out a forecast of waste generation to 2020 (Volume 5, Supplementary Information, pp 35-44), based on a statistical analysis of the linkage between population, increased economic growth and waste generation.

The Applicant and its consultants have made forecasts of population growth and economic growth, using input from ABS, Access Economics and BIS Shrapnel. The work has been reviewed (at Supplementary Appendix 6e) by Robert Johnson, who points out that GSP growth over the last 15 years has varied between -0.9 percent/year and +5.3 percent/year, with an average of 3.3 percent/year. The Applicant has opted for a growth forecast of around 3.4 percent, which is not inconsistent with the historical figures.

The average population growth forecast used is 1.1 percent/year, consistent with the *Independent Assessment* assumptions set out below.

Figure 8 shows a range of possible putrescible landfill demand scenarios, based on *Independent Assessment* and Thiess projections of future waste generation, taking into account the introduction of new technologies and practices and the net effect on waste generation.

Five demand scenarios have been compared:

Base Case: This is the *Independent Assessment* Base Case. It assumes that the status quo continues, with 25% municipal recycling and reprocessing and 24% recycling of Commercial and Industrial (C&I) waste. This is not considered a realistic future scenario and is shown for comparison purposes only.

Progressive Take-up (Scheme 5): This scheme, phased over eight/16 years is, according to the *Independent Assessment*, representative of the pace of reform in the best US cities. It provides good opportunities for cost control and management of change, compared with the more aggressive scenarios.

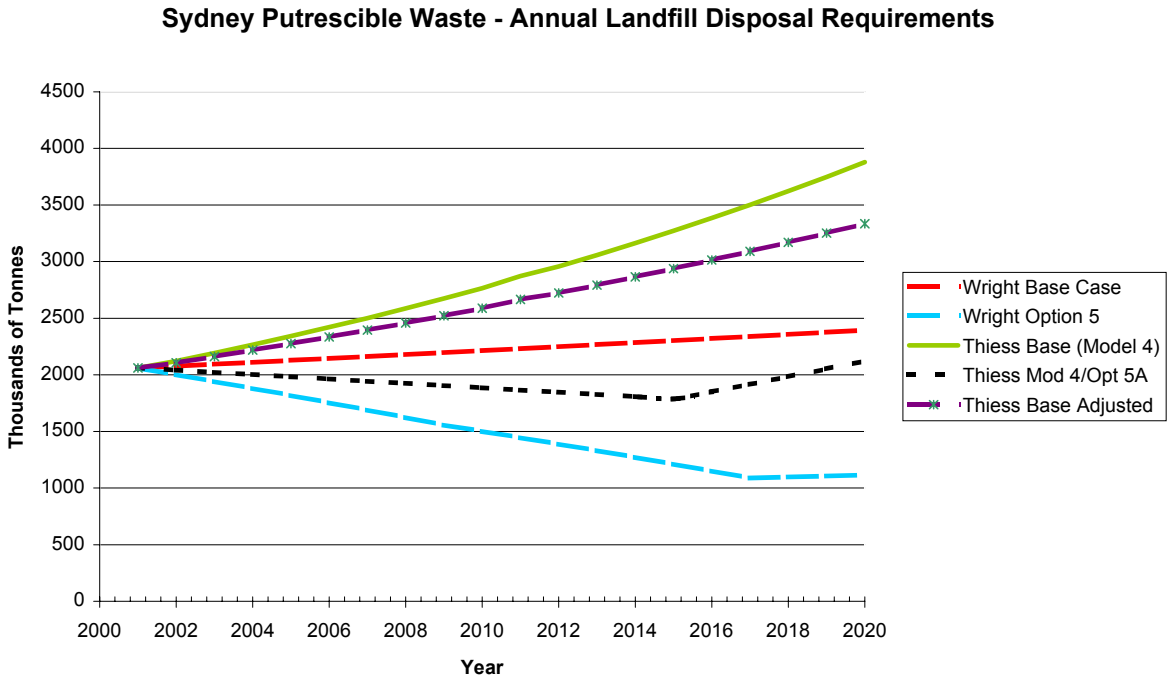
Thiess Model 4 Case: This is an adjusted base-case projection, based on linear regression analysis of total domestic waste generation in kg/capita against Gross State Product (GSP). GSP growth of 3.4% per annum has been assumed from 2002/3 onwards. The assumed population growth rate is 1.4% per annum in 2001/2, declining to 0.9% per annum in 2019/2020. The model assumes 71% of domestic waste and 25% of C&I waste presents for disposal as putrescible waste throughout the period.

Thiess Model 4/Modified Scheme 5a Case: This uses Model 4 as the base case, with diversion similar to the *Independent Assessment* Scheme 5, but with the time scale extended to 12/18 years.

Thiess Base Adjusted: This is an adjusted base-case projection, to show the effect of applying the *Independent Assessment* waste avoidance assumptions to the Thiess Model 4 Case, as discussed on page 55 of this report.

Scheme 5 (*Independent Assessment*) and Model 4/Scheme 5a (Thiess) have been used as representative bases for considering capacity requirements, as discussed below.

Figure 8: Landfill Disposal Rate Projections - Putrescible Waste



Independent Assessment Position

For the *Independent Assessment,* it was necessary to initially forecast the annual amounts of waste generated each year from 2001 to 2020. Overall waste generation has been traditionally related to the level of consumption in the economy. In turn, consumption is logically related to population size and the level of economic activity. With favourable economic conditions since the mid 1990s, and moderately increasing population, overall waste tonnages increased measurably.

On the other hand, business efforts to avoid the creation of waste in the first place tend to decouple the linkage between consumption and waste generation. It is difficult to detect the impact of waste avoidance initiatives because, by definition, waste avoided has not actually been created and thus, cannot be measured. It is notable that waste avoidance activities have intensified over the last five to ten years. This resource efficiency is exemplified in reduced packaging and increased in-factory use of materials that would once have been disposed of as worthless.

The key assumptions made as inputs to the *Independent Assessment* forecast and used in the 2000 report are as shown in Table 3, below.

Table 3: Input Assumptions - *Independent Assessment*

Municipal waste growth due to population increase:	1.2 percent/year
C&I waste growth due to economic activity (but taking account of waste avoidance initiatives currently in train):	2.0 percent/year
Municipal waste decline from 2002 due to new waste avoidance initiatives:	0.5 percent/year
C&I waste decline from 2002 due to new waste avoidance initiatives:	1.0 percent/year

Municipal waste growth was assumed to increase in line with population growth in the Sydney Region. The population growth forecast of 1.2 percent/year was obtained from the PlanningNSW Demographics Unit in August 2000. The forecast for C&I waste generation growth was based on forecast economic growth of 2.5 to 3.0 percent/year tempered back to 2.0 percent/year to account for ongoing waste avoidance activities undertaken by companies as a matter of course. These include package and product redesign to use less material.

Estimates were then made of the future impact of increased waste avoidance measures. These were expected to come to fruition from 2002 onward as a result of:

- the anticipated provisions of the Waste *Avoidance and Resource Recovery Act 2001,* with its innovative extended producer responsibility/product stewardship requirements;
- the National Packaging Covenant; the important work being done by the NSW EPA in cleaner production; and
- the anticipated role of Resource NSW.

OECD work published in 2001[7] shows that decoupling of waste generation rates from economic growth rates has been occurring and is expected to continue. The OECD expects a further 20 percent reduction in waste generation intensity to 2020. Consistent with this OECD forecast, the *Independent Assessment* adopted a 1.0 percent/year waste generation decline for the C&I sector and a 0.5 percent/year waste generation decline for the municipal sector. These estimates are considered to remain realistic, 15 months after they were made as part of the *Independent Assessment.*

Department's Analysis

The Department accepts that a forecasting technique based on analysis of past trends, such as that adopted by the Applicant, may give valid results in predicting short-term future demand in some circumstances.

However, two key weaknesses of the use of this approach by the Applicant are:

1. it represents a 20 year extrapolation, based solely on past waste generation patterns over a limited period (1992-1998); and
2. no allowance has been made for potential reduction in waste generation due to waste avoidance. This is a most significant omission, given the importance placed on waste avoidance by the NSW Government, as evidenced by the recently proclaimed Waste *Avoidance and Resource Recovery Act* 2001.

The EIS quotes an unattributed OECD source to show a direct coupling between economic growth and waste generation over the last 20 years. The Department notes that the statements referred to do not purport to be a prediction of future trends. Further, they are at variance with those published in the official OECD report referred to above. The Department has determined that the quotation is, in fact, from a short paper posted on the OECD Web site prior to 2001, promoting a workshop on waste minimisation.

The Department considers it unrealistic to assume no current impact of waste avoidance and no future initiatives that will act to moderate waste generation. The waste avoidance assumptions of the *Independent Assessment*, as noted above, are still considered to be valid and are in line with OECD expectations.

If the Applicant's projections are adjusted to make allowance for modest waste avoidance initiatives, in line with these assumptions, the forecast waste generation rates are significantly reduced, as shown in Figure 8.

It should also be noted that the Applicant's projections of putrescible waste presenting for disposal are inflated by a high forecast growth in the rate of C&I waste generation, 25

[7] OECD Publications. *OECD Environmental Outlook.* France 2001 (This is not the paper referenced by the Applicant, as noted later on this page).

percent of which requires disposal as putrescible waste. The validity of the assumed C&I growth rate is questioned later in this analysis.

It is concluded that the Applicant's waste generation projections considerably overstate the likely long-term trend.

Nevertheless, the following analysis conservatively takes into account the capacity need implications, should the Thiess forecasts be realised.

Waste Diversion - Sydney Region

(To avoid duplication of discussion, both municipal and C&I waste diversion are covered in the following discussion.)

Independent Assessment Position

Having determined the likely amount of waste generated (and presenting for recycling, processing or disposal), the *Independent Assessment* considered three separate dimensions of waste diversion for beneficial uses:

1. the *extent* of waste diversion, as expressed by four possible Scenarios achieving progressively improved diversion from landfill;
2. the time *required* to implement and accomplish each Scenario, ranging from gradual take-up to rapid take-up of waste reduction initiatives; and
3. various waste *input rates* to Sydney landfill sites to maximise productive capacity.

Modelling was then undertaken to incorporate all permutations and suggest the most realistic overall Scheme(s). Nine Schemes were presented. The analysis presented Schemes 5 and 7 as spanning the achievable to optimistic range of take-up rates, as follows:

Table 4: Waste Diversion Take-up Rates

	Scheme 5	**Scheme 7**
Improved Initiatives Scenario	8 years	6 years
Aggressive Initiatives Scenario	16 years	12 years
Ultimate Initiatives Scenario	N/a	18 years

A key finding was that both Scheme 5 and Scheme 7 provided for an achievable transition to a new way of managing waste.

The Department concurred with that conclusion but considered that Scheme 5 represented the most realistic projection of the rate and extent of waste diversion.

Applicant's Position

The Applicant and its consultants have performed the same analyses as undertaken for the *Independent Assessment.* Key input differences between the Thiess and *Independent Assessment* analyses are:

- the higher waste generation rates, as noted above; and
- extension of the time required to achieve waste diversion scenarios (eg Option 5a), as used in this analysis.

Since the latter significantly impacts projected capacity requirements, it needs to be considered in some detail.

The Applicant argues that the Scheme 5 take-up rate is unrealistically rapid. The argument is supported in the main by reference to recycling experience in the USA and, in particular, Seattle and Portland.

The main argument appears to be that because recycling seems to be levelling-off in the USA (at around 35 percent) it is infeasible for Sydney to attain, in the eight years implied by Scheme 5, the diversion rates described at Scenario 2 (Improved Initiatives). Instead, Thiess proposes it would be feasible to attain this level of diversion in the 10 years implied by Scheme 2, although no particular evidence is provided in support of this position.

Department's Analysis

The Waste Diversion Task

In the first instance, it is helpful to disaggregate the components of the waste diversion task, as shown below in Table 5 and Table 6, which compare the Scenario 1 (Current Arrangements) position to the Scenario 2 (Improved Initiatives) position, as defined in the *Independent Analysis*.

Table 5: Scenario 1. Current Arrangements

Waste Flows	**Municipal - tpa**	**C&I - tpa**
Waste generated	1,800,000	2,100,000
Less dry recycling	300,000	405,000
Less garden waste processing	150,000	45,000
Less construction recycling	0	50,000
Disposal	**1,350,000**	**1,600,000**

Table 6: Scenario 2. Improved Initiatives

Waste Flows	**Municipal - tpa**	**C&I - tpa**
Waste generated	1,800,000	2,100,000
Less dry recycling	369,000	580,000
Less garden waste processing	300,000	45,000
Less food waste processing	0	130,000
Less residual waste processing	217,000	83,000
Less construction recycling	0	50,000
Disposal	**914,000**	**1,212,000**

The **net waste diversion** flows needed to move from the Scenario 1 position to the Scenario 2 position are shown in Table 7.

Table 7: Net Increased Diversion for Beneficial Purposes

	Municipal - tpa	**C&I - tpa**
Dry recycling	69,000	175,000
Garden waste processing	150,000	0
Food waste processing	0	130,000
Residual waste processing	217,000	83,000

In order to gain an appreciation for the degree of realism in these projections, comment on progress and prospects in each of the elements is made below.

Municipal Dry Recycling

Achievement of the additional 69,000 tpa of kerbside recycling required is already well advanced. Scenario 1 was based on an 18 percent recycling rate. The EPA reports recycling for 2000 at 20 percent of waste generated. The two percentage points difference amounts to 36,000 tpa, half of the target improvement.

C&I Dry Recycling

Since the Waste Inquiry was completed in June 2000 (but using 1998 published data), C&I recycling appears to have increased markedly. Office paper recycling systems have developed significantly, recovering a further 30,000 tpa to 50,000 tpa, based on industry estimates (current data are not yet available).

Waste industry sources also point to significantly increased source separation by C&I waste generators, prompted by the now $40 to $50 per tonne difference between disposal of waste presenting as "mixed putrescible" Class 1 landfill disposal (Waste Service operated) and waste presenting as suitable for Class 2 landfill disposal (private sector operated).

This increased readiness to separate waste is expected to promote increased recycling of dry materials such as industrial plastics and timber. Work undertaken by the former Waste Boards and being progressed by Resource NSW addresses these opportunities.

Municipal Garden Waste Processing

Discussions with the Local Government and Shires Associations (LGSA) confirm increased garden waste collection since 1998 (though 2000/01 data are not yet available). The target of a further 150,000 tpa seems readily achievable within the eight year timeframe of Scheme 5.

It is noteworthy that the ACT Government processes some 100,000 tpa of garden waste entirely on a self delivery basis (around 0.5 tonnes per person each year). Sydney only processed 150,000 tonnes in 1998 on a collection basis (around 0.035 tonnes per person). There is clearly scope for significant improvement.

Food Waste Processing

In the last few years supermarket chains have acted to divert increased quantities of fruit and vegetable waste for beneficial processing. Moreover, the *Earthpower* food waste processing plant is now under construction at Camellia, with a capacity of around 80,000 tpa.

Residual Waste Processing

While progress to date has been limited, the Department is aware of a number of significant current initiatives, including a worldwide tender by Waste Service NSW for processing technology solutions. Moreover, a critical mass of waste treatment projects appears to be developing, with recent announcements by the SHOROC group of councils, Southern Sydney councils and Fairfield Council.

Overall Evaluation

The Applicant and its consultants argue that "… major structural change to the waste industry" (Volume 5, pp 44) is required to bring about alternative technologies and achieve the waste diversion scenarios and particularly Scheme 5. The Department considers that this statement is not supportable in the light of the progress outlined above.

The level of diversion is modest and achievable within the Scheme 5 time-frame of eight years.

One of the Applicant's consultants (SCS-Wetherill Environmental) suggests that Scheme 5 "… relies very heavily on implementation of improved technologies, many of which are not commercially available at this time." The Department does not support this contention, since:

- Scenario 2 (Improved Initiatives) provides for processing of only 300,000 tpa of mixed residual waste by 2008 and a further 107,000 tpa by 2016. This amounts to only four 100,000 tpa plants, to be delivered progressively over 16 years;
- several technologies are already commercially available. Biological and thermal plants are operating in many part of the world, including Australia. Further, the Department notes that Thiess is actively promoting its own capability for provision of mixed residual waste processing capacity in other parts of Australia.

The Department concludes that the timeframe of the *Independent Assessment*'s Option 5 remains viable.

Putrescible Waste Landfill Capacity Requirements - Sydney Region

Applicant's Position

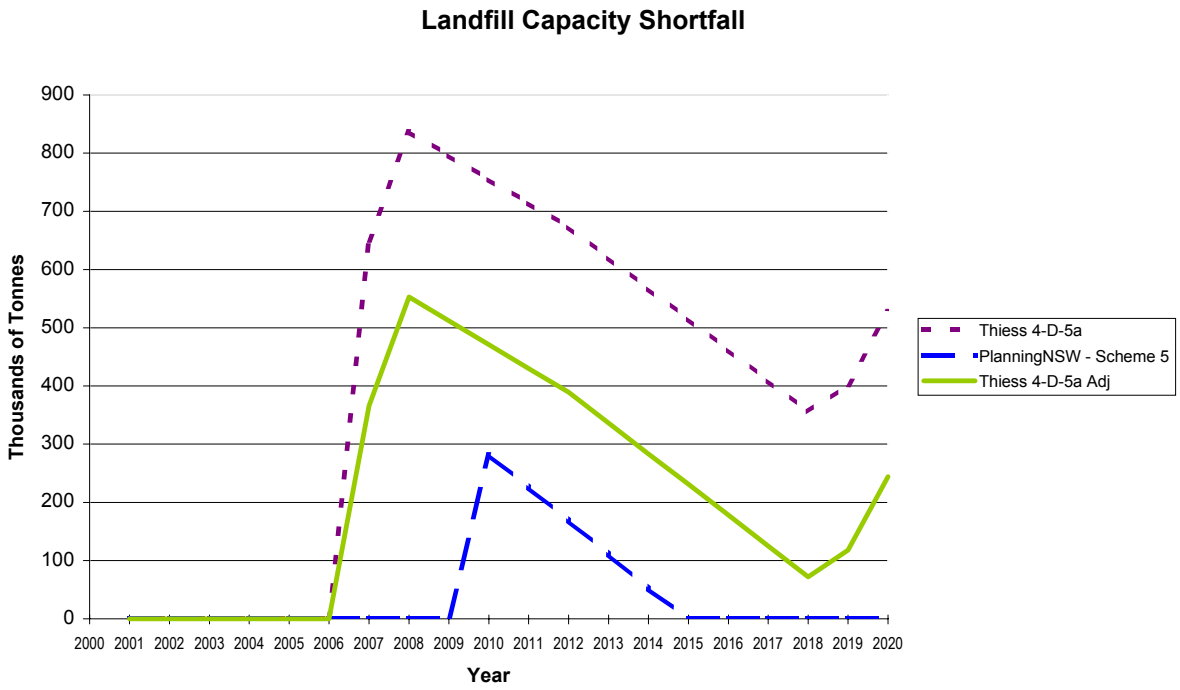
The Applicant has generated a number of waste input plans, based on the waste generation and waste generation forecasts discussed above. While some plans indicate a possible waste capacity shortfall as early as 2003, Thiess has indicated that it considers the most likely input plan to be Plan D:

- Lucas Heights accepts 575,000 tonnes/annum from 2003;
- Eastern Creek accepts up to 1,200,000 tonnes/annum from 2003 until full;
- Woodlawn accepts all NSW Waste Board waste (ie a maximum of 156,000 tonnes/annum until Belrose is full and then 216,000 tonnes/annum); and
- Belrose, Jacks Gully and South Windsor operate as assumed in the *Independent Assessment.*

This corresponds to alternative 4-D-5A in Table 3.5 of volume 5 of the EIS and yields a predicted shortfall in capacity from 2007, as shown below in Figure 9.

It should be noted that the Department's projections have been updated, based on actual landfill capacities, as surveyed as at 30 June 2001. However, these do not materially affect any assessment outcomes.

Figure 9 :Landfill Capacity Shortfall Projections - Sydney Putrescible Waste



Department's Analysis

As indicated above, the Department considers that the Applicant's demand forecasts understate the likely future impact of waste avoidance measures and overstate the difficulty of the waste diversion task.

Further, the assumption by the Applicant that Woodlawn will operate at limited rates confuses current contractual arrangements with capacity needs. Subject to independent demonstration of justifiable demand to the Minister's satisfaction, Woodlawn can be operated at up to 500,000 tonnes per annum. Making such an adjustment to the Applicant's projections, as shown in Figure 9, significantly reduces the apparent shortfall.

The Department still considers that The *Independent Assessment's* forecasts of future capacity requirements, based on Scheme 5, are realistic. The capacity deficit, after making maximum use of the Woodlawn facility, is as shown in Figure 9. It indicates a nominal deficit only, between 2010 and 2014. Such a deficit could be accommodated by minor variations to operating the rates of existing and approved facilities.

A comparison of the overall capacity deficit over the whole period 2001-2020 is given in Table 8.

Table 8: Capacity Deficit Comparisons

	Cumulative Deficit - Tonnes
Thiess 4-D-5a	8,284,000
Thiess 4-D-5a Adjusted	4,308,000
PlanningNSW (Scheme 5)	840,000

This analysis indicates that, while there are uncertainties in forecasts of waste capacity needs, even with the Applicant's comparatively pessimistic assumptions, current and approved landfill capacity in the Sydney region is likely to be adequate until at least 2007 and probably beyond.

Suggestions by the Applicant that a significant shortfall could develop much sooner are based on scenarios that fail to make use of existing and approved landfill capacity.

Further, in the present climate of change in waste technology, it is not desirable that major new landfill capacity should be provided in advance of a clear need being established. Table 8 shows that the 25,000,000 tonnes potential capacity of the Ravensworth facility, at up to 600,000 tonnes/year is likely to be much greater than the net requirement.

The Department's conclusion is that the Applicant has not demonstrated there is currently a need for additional capacity for putrescible waste from the Sydney region.

ASSESSMENT OF JUSTIFIABLE DEMAND - SYDNEY REGION INDUSTRIAL WASTE

Commercial and Industrial (C&I) Waste Landfill Demand - Sydney Region

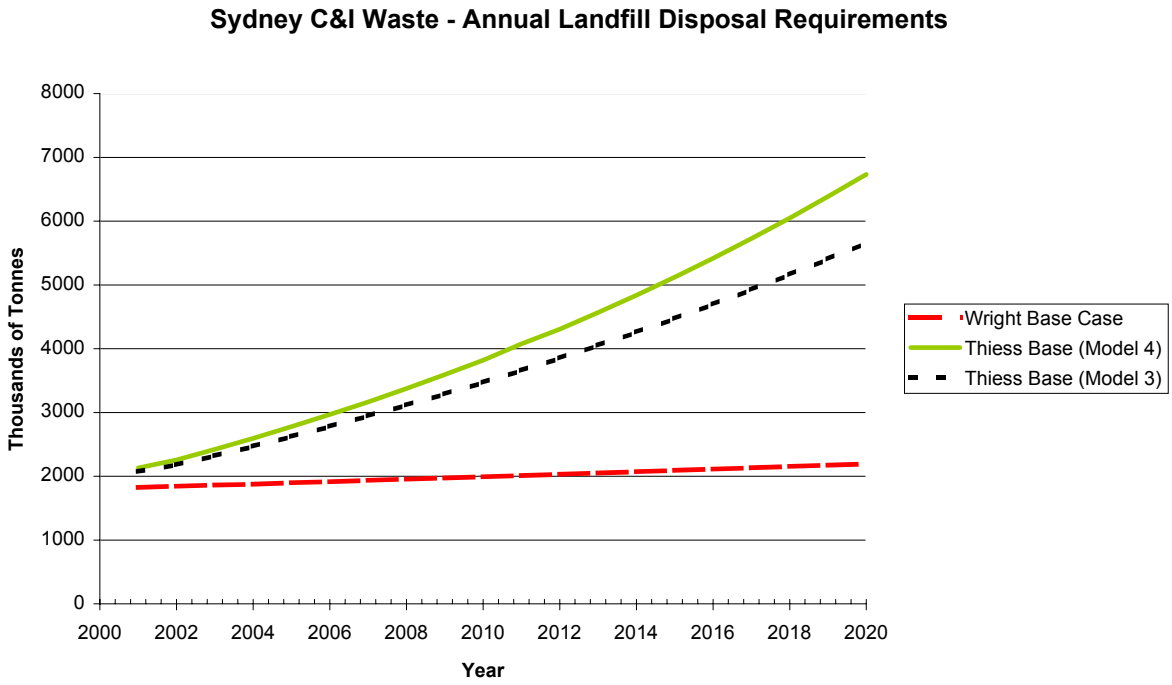
Applicant's Position

As noted in the putrescible waste analysis, above, the Applicant has used statistical analysis of past waste generation to forecast future generation of C&I waste in the Sydney region.

Thiess Model 3[8] and Model 4 forecasts are compared with those of the *Independent Assessment*, in Figure 10. It is notable that the Thiess forecast represents a C&I waste generation annual growth rate some 2-3 percent greater than the growth in the GSP Index.

As a result of this increase, the putrescible component of C&I waste rises from 34 percent of the putrescible waste presenting for disposal in 2001 to 58 percent in 2020 (using Model 4).

Figure 10: Landfill Disposal Rate Projections - C&I Waste



Department's Assessment

As noted in the earlier discussion of putrescible waste generation rates, the Department considers that the Applicant's statistically based forecasts generally fail to adequately account for ongoing waste avoidance measures. Further, no basis has been provided by the Applicant to justify a rate of increase 2-3 percent faster than the rate of increase in GSP (ie an overall five percent per annum growth rate in the face of waste avoidance initiatives).

Accordingly, the Department considers that the Applicant's long term waste generation forecasts are overstated and do not have a credible basis.

Nevertheless, the implications of using the higher figures have been taken into account in projecting the forward capacity requirements, below.

[8] Model 3 relates waste generation in tonnes per annum to the GSP index, whereas Model 4 expresses waste generation in kg/capita. Whereas municipal waste generation tends to be a function of population, C&I waste generation is related to economic activity.

Commercial and Industrial (C&I) Waste Capacity Requirements - Sydney Region

Applicant's Position

Unlike putrescible waste, the Applicant has not attempted to produce supply/demand projections for C&I non-putrescible waste.

Rather, as noted in the earlier overview, Thiess indicates that it is itself a supplier of waste. In NSW alone, Thiess has contracts with over 2500 customers for the management of more than 300,000 tonnes of waste per annum, over half of which is generated within the Sydney and Hunter regions. Nominated major commercial customers include Telstra, Australia Post and Woolworths.

The Applicant intends to deliver waste, which it collects and controls, to the Ravensworth WMC, subject to the site being the most suitable location of disposing of such waste.

Further, Thiess indicates in Volume 1 of the EIS that there are currently no industrial waste facilities in NSW.[9]

The EIS states that a combination of a lack of licensed facilities, combined with the Applicant's control over a significant waste volume, creates a significant demand for new C&I waste disposal capacity.

Department's Assessment

The capacity needs for wastes presenting as "*putrescible wastes"* have been dealt with earlier in this analysis. These wastes can only be disposed in Solid Waste Class I Landfills. (See Appendix E for definitions).

In the metropolitan area of Sydney, the demand for, and supply of, landfill space for wastes that are categorised as inert, solid (excluding putrescible) and industrial is not publicly available but estimates can be made for planning purposes, as shown below.

In 1998, the NSW Waste Boards completed a review of waste management infrastructure, and a report titled *Integrated Infrastructure for Greater Sydney* was prepared. The report lists 31 facilities that (at that time) were available to receive wastes that did not include putrescible wastes. Of these facilities estimates of remaining capacity for 11 (out of 31) were provided. Informal advice indicates that the data is considered indicative but not accurate.

Using this data and information from other public sources, an estimate has been made of the capacities at four major sites available for the disposal of metropolitan sourced non-putrescible wastes. These are set out in Table 9.

[9] Thiess has subsequently acknowledged that a facility operated by Sita Environmental Solutions at Kemps Creek has subsequently been licensed and is now operational.

Table 9: Estimated Capacity of Major Non-putrescible (Solid Class 2) Waste Sites

Site	**Nominal Capacity (cubic metres)**
St Peters – ex City of Sydney	1.5 million
Erskine Park – Enviroguard	4.0 million
Horsley Park – Collex[10]	6.8 million
Kemps Creek - Sita Australia[11]	21.0 million
Total	33.3 million

This is equivalent to around 30 million tonnes capacity in these four facilities alone, compared with the *Independent Assessment's* estimated annual demand of less than 2 million tonnes per annum. The inclusion of other smaller sites would bring remaining Sydney capacity to over 15 years.

In relation to the Applicant's statements concerning the need for licensed industrial waste sites, the Department observes that, consistent with the definition in Appendix E, only a relatively small portion of the total C&I waste stream would require disposal in a licensed industrial waste landfill.

Even accepting the Applicant's higher waste generation figures, the existing and approved facilities in the Sydney region are estimated to have sufficient capacity for at leat 7 years, without factoring in the impacts of waste avoidance and diversion measures.

Accordingly, the Department does not consider that the Applicant has demonstrated a justifiable demand for significant new capacity for C&I waste originating from the Sydney region.

[10] Approved but not yet commenced

[11] Also specifically licensed to accept industrial waste.

ASSESSMENT OF JUSTIFIABLE DEMAND - HUNTER REGION WASTE

Waste Generation - Hunter Region

Applicant's Position

The Applicant has provided data, taken from the Hunter Waste Board (HWB) 1998 Regional Waste Plan), to establish the waste generation profile in the HWB region.

Table 10: Hunter Waste Board Region Waste Disposal Profile

Waste Stream	1990 Waste Disposal (tonnes)	1996 Waste Disposal (tonnes)
Domestic	191,710	191,650
Council	41,190	32,700
Commercial/Industrial	173,300	141,250
Construction/Demolition	55,300	44,100
Total	**461,500**	**409,700**

The Applicant notes that waste diversion in the Hunter region has been similar to that quoted in the *Independent Assessment* for the Sydney Region. Between 1990 and 1996 there was a 16 percent decrease in waste to landfill.

The Applicant has not provided forecasts of future waste generation rates.

Department's Assessment

Table 11 sets out the most recent information available from the EPA on landfill usage and remaining landfill capacity in the lower Hunter region.

Table 11: Landfill Usage and Capacity - Lower Hunter Region - Year Ended June 2001

Facility	waste deposited cub m	waste deposited tonnes	Space Remaining cub m	Space Remaining tonnes	years cover
Summerhill (Newcastle)	261,925	222,636	3,692,003	3,138,203	14.1
Awaba (Lake Macquarie)	145,966	124,071	1,803,378	1,532,871	12.4
Raymond Terrace (Port Stephens)	15,176	12,900	3,414,864	2,902,634	225.0
Old Maitland Road (Cessnock)	58,050	49,343	250,000	212,500	4.3
Maitland City Council	65,522	55,694	1,563,284	1,328,791	23.9
Total	**546,639**	**464,643**			

These figures are broadly consistent with those quoted by the Applicant. The Department notes that there appears to be adequate short to medium term putrescible waste capacity, at current disposal rates, with the exception of Cessnock.

Waste Capacity Requirements - Hunter Region

Applicant's Position

Allowing that there is not a general shortage of landfill capacity in the Hunter region, the Applicant proposes (Volume 5: Supplementary Information, pp 7-8) that additional landfill

capacity is required for the Lower Hunter Region, since the proposed Ravensworth landfill provides "… the opportunity for a managed regional infrastructure-based strategic solution to waste management." It is suggested that all councils could use the facility to deliver economies of scale and enable closure of local landfills.

In support of the desirability of closure and consolidation of current landfills, the Applicant has quoted from reports by Hitchcock and Ellis and Nolan-ITU, which canvass limitations and inadequacies in a number of the HWB region landfills (Volume 5, Section 3.4.3, pp 21-25).

These reports highlight differences between the environmental standards of some of the existing landfills compared with those of new facilities, such as that proposed for the Ravensworth Site (although, it is noted that Summerhill, the largest of the landfills in the area, is operating to current landfill standards).

The Applicant concludes, "Based on the findings of these reports, it is considered that there is insufficient *'environmentally sound disposal capacity for the HWMR to cope with the residual waste after avoidance, re-use and recycling.'"*

Department's Assessment

While some existing landfills in the region do not meet current EPA requirements (in common with many other established facilities across NSW), progressive upgrading is being carried out. For example, as noted by the Applicant, Lake Macquarie City Council has committed substantial funds towards improving the environmental performance of the Awaba landfill. The Applicant has not shown that the main facilities cannot be upgraded to a level that would allow ongoing operation.

The Department also notes that Resource NSW is currently coordinating a collective tender on behalf of four Hunter Councils (Newcastle, Lake Macquarie, Maitland and Cessnock) for total waste management solutions centred on beneficial processing of mixed residual waste using alternative technologies.

Reject and residual material following processing would be disposed of at landfills operated by the four Councils or at a single designated landfill. Further, it is noted that these Councils have an ongoing interest in continuing to receive (C&I and C&D) waste that is inappropriate for beneficial processing. This would include waste designated for disposal in Solid Class II and Inert Class I and II landfills.

The small amount of waste classified as Industrial (see Appendix E) is disposed of in a specially designated cell at the Kemps Creek landfill operated by SITA. This landfill takes Industrial Waste from all over NSW. Creation of a new site for Industrial waste at Ravensworth for this purpose is unlikely to be justifiable.

The Department considers therefore that these major councils are unlikely to seek or need the proposed Ravensworth landfill.

A further Hunter Council, Port Stephens, has let a contract to EWT/Bedminster for waste processing at Raymond Terrace. This processing site also includes a Solid Waste Class II landfill, used for process wastes and regional C&I waste.

Further, a submission from the former Hunter Region Waste Board, confirmed by Resource NSW indicates that the Ravensworth proposal is not consistent with the agreed regional waste plan.

The Department considers that councils in the Upper Hunter are generally too far distant to economically transport waste from source to Ravensworth, given the existence of local solutions.

Accordingly, the Department does not consider that the Applicant has demonstrated a justifiable demand for significant new capacity for waste originating from the Hunter region.

JUSTIFIABLE DEMAND - WASTES FROM ELSEWHERE IN NSW

In addition to waste from the Hunter Waste Board region, noted above, the Applicant has advised (Volume 1, Section 2.1.1) that Singleton Shire Council disposes of about 25,000 tonnes of waste annually at its Gresford Road facility. This facility has between three and four years remaining capacity at current disposal rates. Once this capacity is exhausted, the Ravensworth site would be able to provide capacity for the Shire's ongoing needs. However, the Department notes that Singleton Shire Council submissions do not unequivocally support the proposed development.

No specific information has been provided by the Applicant to show there is a need for capacity for waste from other sources. There is simply an indication that ". . . the proponent will make the Ravensworth WMC available to accept a variety of wastes from other regions, as and when the need arises" (Volume 1, Section 2.1.4).

Given that waste from Singleton Shire would only represent four percent of the maximum throughput of the proposed facility and that other specific waste sources have not been identified, the Department does not consider that the Applicant has demonstrated a need for significant new landfill capacity to accept waste originating from elsewhere in NSW.

COMPETITION CONSIDERATIONS

Applicant's Position

The Applicant argues (Volume 5: Supplementary Information, pp 57-60) that, in the absence of a competing facility, such as Ravensworth, Collex will gain a virtual monopoly for putrescible waste disposal by virtue of its contract for Northern Sydney waste disposal. The argument is based on the propositions that:

1. landfill space in Sydney is in critical under-capacity; and
2. waste processing technologies will not be successful in diverting waste from landfill.

The implication of these dual arguments is that a situation will soon arise when the only way of dealing with putrescible waste will be to utilise the Woodlawn facility. This would be a logical outcome if Sydney landfill space were allowed to become exhausted and the emerging waste processing technologies were to prove ineffective or insufficient.

Thiess further argues that it should be able to provide capacity for waste for which it has existing commercial contracts and waste that is contestable in the marketplace.

Department's Assessment

As indicated above, the Department does not accept the Applicant's proposition that there is likely to be a capacity crisis if the Ravensworth facility does not proceed.

The *Independent Assessment*, which is still considered by the Department to be valid, demonstrated that, once supplemented by new long haul landfill capacity (ie the now approved Woodlawn facility), Sydney landfill space would not in fact be depleted over the entire 20 year review period under any realistic waste diversion take-up scheme. Moreover, the success of waste processing technologies is visible by reference to notable achievements in Europe and North America.

Further, the key to reducing waste disposal to landfill was clearly shown to be much broader than mixed waste processing. Recycling of kerbside and business materials, and processing of source separated organics are the main focus of these scenarios, and, significantly, of the recently proclaimed *Waste Avoidance and Resource Recovery Act* 2001.

The net outcome is that the community will have four broad competing options for short-term to long-term management of putrescible waste:

- increased diversion of waste to recycling to reduce residual waste;
- increased processing of residual waste for beneficial outcomes;
- disposal at various existing Sydney putrescible and non-putrescible waste landfills; and
- disposal at Woodlawn.

This presents a broad range of options, which will contribute to preservation of Sydney landfill space.

Finally, it should be noted that the key issue in relation to justifiable demand is not whether or not there is a right for an Applicant to compete in the marketplace, but whether or not there is a *need* for additional landfill capacity.

Accordingly, the Department concludes that competition issues do not provide a ground for establishing a justifiable demand for landfill capacity.

OVERALL CONCLUSION

The Department's foregoing analysis indicates that the Applicant has not demonstrated a justifiable demand for additional landfill capacity now or in the immediate future.

Even in the longer term, it is doubtful that the demand could sustain a development of the scale of the proposed Ravensworth facility, also throwing into the doubt the ability of the proposal to provide the claimed benefit of accelerated rehabilitation of the former mine site.

APPENDIX E: LANDFILL AND WASTE DESIGNATIONS

Care needs to be taken in considering the definitions of waste types and landfill types. The two are often used interchangeably and incorrectly. They do not always match, as shown below.

Waste Types

The Supplementary Information proposes that Ravensworth would accept various categories of solid waste materials:

- Solid Waste
- Inert Waste
- Industrial Waste.

The following abridged definitions for these categories of waste have been extracted from the NSW EPA publication *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-liquid Wastes,* July 1999 (the Guidelines).

Solid Waste:

- Municipal waste, being waste consisting of household domestic waste or local council generated waste (eg waste from street sweeping, litterbins and parks).
- Biosolids categorised as Restricted Use 2 or 3 in accordance with the criteria set out in the Biosolids Guidelines manure and night soil.
- Waste contaminated with lead from residential premises or educational or child-care institutions.
- Cleaned pesticide, biocide, herbicide or fungicide containers. Drained and mechanically crushed oil filters, and rags and oil absorbent materials from automotive workshops. Non-chemical waste generated from manufacturing and services.
- Disposable nappies, incontinence pads and sanitary napkins.
- Food waste, vegetative waste generated from agriculture or horticulture.

Inert Waste:

- Virgin excavated natural material that is not mixed with any other waste and that has been excavated from areas that are not contaminated, as a result of industrial, commercial, mining or agricultural activities, with manufactured chemicals and that does not contain sulphidic ores or soils, or consists of excavated natural materials that meet such criteria as may be approved by the EPA.
- Building and demolition waste being material resulting from the demolition, erection, construction, refurbishment or alteration of buildings or from the construction, repair or alteration of infrastructure-type development such as roads, bridges, dams, tunnels, railways and airports, and which is not mixed with any other type of waste, and does not contain any asbestos waste. Asphalt waste.
- Biosolids categorised as Unrestricted Use, or as Restricted Use 1, in accordance with the criteria set out in the Biosolids Guidelines.
- Used, rejected or unwanted tyres. Office and packaging waste that is not mixed with any other type of waste.

Industrial Wastes:

- Stabilised asbestos waste in bonded matrix. Asbestos fibre and dust waste.
- Any non-liquid radioactive waste that contains a substance that emits ionising radiation spontaneously, and has a specific activity ratio or a total activity ratio that is greater than one.

A Further Category:

In addition, a group of wastes termed "*putrescible waste*" is defined in the Guidelines and used in the definition of landfills, but is not one of the categories of waste defined above, but (confusingly) falls within the definition of Solid Waste. Putrescible waste is defined as follows:

> *"food waste, or waste consisting of animal matter (including dead animals or animal parts), or biosolids categorised as Stabilisation Grade C in accordance with the criteria set out in the Biosolids Guidelines.*

Landfill Types

There are five classes of landfill:

Solid Waste:	Class I
	Class II
Inert Waste:	Class I
	Class II

Industrial Waste

Landfills are licensed according to the categories of waste that are permitted to be emplaced in the facility. The following abridged descriptions of the categories of waste permitted for each of the five classes of landfill have been extracted from the Guidelines.

Type of Landfill	**Wastes permitted to be landfilled**
Solid Waste Class I Landfill	Waste, including putrescible waste, that is assessed or specified as *inert waste* or *solid waste* and asbestos waste.
Solid Waste Class II Landfill	Waste, excluding putrescible waste, that is assessed or specified as *inert waste* or *solid waste* and asbestos waste.
Inert Waste Class I Landfill	Waste that is assessed or specified as *inert waste* and stabilised asbestos wastes in bonded matrix.
Inert Waste Class II Landfill	Waste that is not a physically, chemically or biologically treated or processed waste that is assessed or is specified as *inert waste*, except biosolids.
Industrial Waste Landfill	Waste that is assessed or specified as inert waste, solid waste or industrial waste, except putrescible waste unless specifically permitted in the licence.

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