RESPONSE TO SUBMISSIONS

WASTE AND RESOURCE MANAGEMENT FACILITY

SSD 15-7256

RESOURCECO PTY LTD

35-37 FRANK STREET

WETHERILL PARK

NEXUS
Environmental Planning Pty Ltd

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10 June 2016

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Part 1

Introduction and Background

1.1 Background

ResourceCo RRF Pty Ltd (**ResourceCo**) seeks the approval of the Minister for Planning to establish a Waste and Resource Management Facility at Nos.35-37 Frank Street, Wetherill Park (**the Site**).

The objectives of the proposal are:

(a) To establish a commercially viable Waste and Resource Management Facility which is capable of recovering waste from the waste stream for reuse.

(b) To assist the NSW State government in achieving its objectives for the recovery and recycling of waste as detailed in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.

(c) To establish an environmentally responsible and sustainable industry which would create employment.

It is proposed to establish a Waste and Resource Management Facility on the Site which will process waste material to produce *Processed Engineering Fuel* (**PEF**) and other reusable commodities including aggregates, metal, timber and soil.

PEF is primarily a plastic-based material with high calorific value, derived from waste streams such as Commercial and Demolition (**C&D**) waste, Commercial and Industrial (**C&I**) waste and pre-processed Municipal Solid Waste (**MSW**). The proposed development would process dry, non-putrescible C&I, mixed C&D waste and non-recyclable residuals from recycling operations.

PEF is an alternative fuel used in energy intensive industries to replace fossil fuels, such as coal and pet coke, and is most commonly used in the cement manufacturing industry.

The recycling of combustible waste into PEF brings the following benefits:

- Diversion of waste from landfill
- Conservation of natural fossil fuel by replacing it with sustainable green fuel
- Achieving carbon emission reduction in the cement manufacturing process
- Cost saving for industry through replacement of fossil fuel with PEF.

The proposed facility has the capability to convert up to 250,000 tonnes of raw material per annum into approximately 150,000 tonnes of PEF and over 75,000 tonnes of reusable commodities. All raw materials are separated during processing and over 90% of the material is recycled.

1.2 The Site

The legal description of the Site is:

Lot 31, DP 589097
Nos.35-37 Frank Street
WETHERILL PARK

Figure 1-1 shows the regional location of the Site.

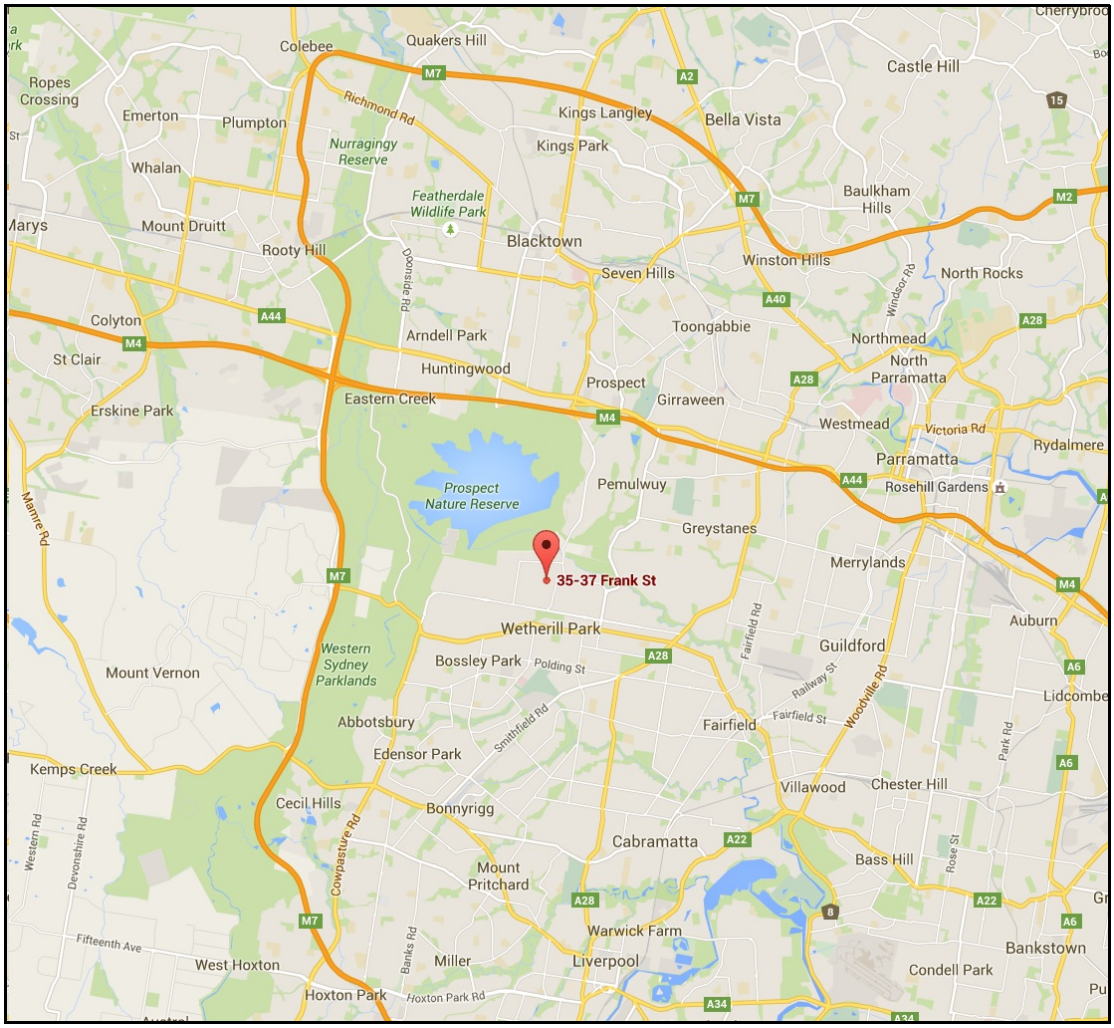


Figure 1-1: Regional location of the Site. (© GOOGLE Maps).

The Site has:

- a northern boundary of 77.66m
- a western boundary of 268.46 m
- a southern boundary of 77.38 m
- an eastern boundary of 267.49 m.

The Site has an area of approximately 2.077 hectares.

An easement for transmission line 30.38 m wide is located in the southern section of the Site.

The Site is in the ownership of Simsmetal Holdings Pty Limited.

The Site is currently vacant. There is a building located at the southern section of the Site, that building being associated with the previous use of the Site by Sims Metal.

There is no vegetation located on the main part of the Site, however, there is a stand of trees located at the Frank Street frontage of the Site.

1.3 Operational History of the Site

Sims Metal purchased the Site from Wanless Waste Services in the early 1980s. The Site operated as a scrap metal facility with the operational layout generally unchanged until its closure as a scrap yard in December 2013.

At the time of purchase of the Site by Sims Metal, a shredder was located on the central, eastern section of the Site. Sims Metal replaced the shredder with a metal shear upon purchasing the Site. The metal shear remained in place until it was demolished in August 2014 following the closure of the Site.

The front section of the Site, and haul roads along the eastern and western boundaries, were sealed between 1978 and 1986.

The front section of the Site had not been used for processing and stockpile of scrap metal with the exception of the large warehouse which was used for the storage of non-ferrous metals.

The centre and northern sections of the Site have been in a predominantly unsealed state and generally occupied by scrap metal stockpiles throughout the operational lifetime of the Site.

1.4 The Proposed Development

It is proposed to establish a Waste and Resource Management Facility on the Site which would process waste material to produce *Processed Engineering Fuel* (**PEF**) and other reusable commodities including aggregates, metal, timber and soil.

The source material is comprised of dry mixed light loads which usually contain a mix of timber, metals, plastics, cardboard and paper. The material stream may also include small amounts of concrete, bricks and rubble.

The source material is stockpiled within a purpose built industrial shed. Material is sorted such that ferrous and non-ferrous metals, clean timber, inert fractions such as aggregates, soil, bricks and concrete, and non-recyclables are removed from the combustible portion of the material stream. The combustible material is then processed for manufacturing of PEF.

All salvaged metals are transported to approved recycling facilities. ResourceCo will transport the inert fractions such as aggregates and soil to approved recycling facilities to process for resupply to the civil construction market.

The manufacture of PEF is carried out using a fully automated process, although some manual picking is undertaken in the process.

Material would arrive at the Site and would be taken over a weighbridge. Visual inspection of the load would take place at this time to determine the category of material. The driver would be issued with a docket and directed to the relevant section of the Site for placement of the material for processing.

No wet or putrescible waste or other non-approved materials would be processed at the facility. Only approved waste materials would be processed at the facility.

The proposed facility would operate in accordance with an Environment Protection Licence.

1.5 The Approval Process

Pursuant to **Schedule 3** of the *Environmental Planning and Assessment Regulation 2000* (**the Regulation**), the proposed development is Designated Development being *Waste management facilities or works*.

Clause 89C of the Environmental Planning and Assessment Act 1979 deals with State Significant Development and states:

> ***89C Development that is State significant development***
>
> *(1) For the purposes of this Act, State significant development is development that is declared under this section to be State significant development.*
>
> *(2) A State environmental planning policy may declare any development, or any class or description of development, to be State significant development.*
>
> *(3) The Minister may, by order published in the Gazette, declare specified development on specified land that is not declared under subsection (2) to be State significant development, but only if the Minister has obtained and made publicly available advice from the Planning Assessment Commission about the State or regional planning significance of the development.*
>
> *(4) A State environmental planning policy that declares State significant development may extend the provisions of the policy relating to that development to State significant development declared under subsection (3).*

State Environmental Planning Policy (State and Regional Development) 2011 (**SEPP SRD)** has as its aims:

> *(a) to identify development that is State significant development,*
>
> *(b) to identify development that is State significant infrastructure and critical State*

significant infrastructure,

(c) to confer functions on joint regional planning panels to determine development applications.

Clause 8 of SEPP SRD states:

8 Declaration of State significant development: section 89C

(1) Development is declared to be State significant development for the purposes of the Act if:

(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and

(b) the development is specified in Schedule 1 or 2.

(2) If a single proposed development the subject of one development application comprises development that is only partly State significant development declared under subclause (1), the remainder of the development is also declared to be State significant development (except so much of the remainder of the development as the Director-General determines is not sufficiently related to the State significant development).

(3) This clause does not apply to development that was the subject of a certificate in force under clause 6C of State Environmental Planning Policy (Major Development) 2005 immediately before the commencement of this Policy.

Schedule 1 of SEPP SRD contains the following definition:

Waste and resource management facilities

(1) Development for the purpose of regional putrescible landfills or an extension to a regional putrescible landfill that:

(a) has a capacity to receive more than 75,000 tonnes per year of putrescible waste, or

(b) has a capacity to receive more than 650,000 tonnes of putrescible waste over the life of the site, or

(c) is located in an environmentally sensitive area of State significance.

(2) Development for the purpose of waste transfer stations in metropolitan areas of the Sydney region that handle more than 100,000 tonnes per year of waste.

(3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per year of waste.

(4) Development for the purpose of waste incineration that handles more than 1,000 tonnes per year of waste.

(5) Development for the purpose of hazardous waste facilities that transfer, store or dispose of solid or liquid waste classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste that handles more than 1,000 tonnes per year of waste.

(6) Development for the purpose of any other liquid waste depot that treats, stores or disposes of industrial liquid waste and:

(a) handles more than 10,000 tonnes per year of liquid food or grease trap waste, or

(b) handles more than 1,000 tonnes per year of other aqueous or non-aqueous liquid industrial waste.

The proposed development would recycle more than 100,000 tonnes per annum of commercial and industrial waste (approximately 250,000 tonnes per annum) and, as such, is a *State significant development* for the purposes of SEPP SRD. As such, an Environmental Impact Statement is required to accompany the application for the proposed development.

Part 2

RESPONSE TO SUBMISSIONS

2.1 Respondents

Six (6) submissions were received during the exhibition period. Each submission was reviewed and the key issues identified.

Submissions were received from:

- NSW Environment Protection Authority.
- Fairfield City Council.
- NSW Roads and Maritime Services.
- Fire and Rescue NSW.
- NSW Department of Primary Industries.
- Southern Sydney Regional Organisation of Councils.

A copy of each of the submissions is at **Attachment 1**.

The key issues raised in the submissions related to the following:

NSW Environment Protection Authority

- Energy from waste
- Noise
- Air quality
- Water

Fairfield City Council

- Land Use, Proposed Development and Local Impact
- Traffic and Parking
- Environment Protection

NSW Roads and Maritime Services

No objection is raised to the proposed development.

Fire and Rescue NSW

- Smoke Hazard Management

- Potential High Fire Load
- Management of Polluted Fire Water

NSW Department of Primary Industries

- Potential Impacts on Groundwater

Southern Sydney Regional Organisation of Councils

- Clarification if the PEF is for local or international use.

2.2 NSW Environment Protection Authority Submission

2.2.1 Energy from Waste

The EPA submission states:

> *The application provides limited information to demonstrate compliance with elements of the NSW Energy from Waste Policy ("the Policy") that apply to Processed Engineered Fuel ("PEF") proposals.*
>
> *EPA requires the following additional information to allow an assessment of the proposal under the Policy:*
>
> *i. Additional information on each waste stream to be received at facility including:*
>
> *a. quantities - maximum volume of each waste type to be stored onsite at any one time and the maximum throughput of each waste type;*
>
> *b. specifications;*
>
> *c. suppliers;*
>
> *d. upstream management procedures (to support waste specifications and controls for non-conforming wastes as well as PVC and hazardous materials); and*
>
> *e. current destination for each waste stream.*
>
> *ii. Demonstrated compliance with resource recovery criteria in Table 1 of the Policy for each waste stream.*
>
> *iii. More information on contaminated material management of waste inputs including:*
>
> *a. detailed information on procedures for hazardous material identification and removal;*
>
> *b. controls and management for the removal of halogenated substances (including PVC materials); and*
>
> *c. quarantine and management protocols for identified hazardous materials.*

iv. Additional information on the halogenated substances contained in the PEF including laboratory test results of current residual waste to landfill and expected PEF material post processing. Facilities in NSW using the PEF will be required to demonstrate the content of halogenated substances in waste fuels and Group 6 emissions standards within the Protection of the Environment Operations (Clean Air) Regulation 2010, as outlined in the Technical Criteria of the Policy.

v. PEF is not being used on site and no information on the destination for this material is provided. More information is required to detail contingency management plans for the PEF material. For example, failure of pickup and transport, resulting in stockpiling of PEF.

vi. Specific export requirements apply to the export and transport of waste materials. The Proponent must ensure that they comply with all relevant requirements.

vii More information to describe how the development is consistent with the aims and objectives in the NSW Waste Avoidance and Resource Recovery Strategy 2014-2021.

Response

i. a. quantities - maximum volume of each waste type to be stored onsite at any one time and the maximum throughput of each waste type;

The waste streams which will be received at the facility includes the following:

- Residual waste from mixed C&D recycling facilities. This waste compromises non-recyclable plastics, paper, cardboard and timbers.
- Dry C&I waste from C&I waste collection companies.
- Dry mixed C&D waste from C&D waste collection companies.

The maximum volume of waste stored on site at any one time will be 2,000 tonnes inside the plant building in the designated raw feed area. The proportions of waste types which will be received are as follows and, therefore, the estimate amount of this type of waste stored on site as proportions of the total 2,000 tonnes:

- Residual waste from mixed C&D recycling facilities: 47% (approximately 900 tonnes).
- Dry C&I waste: 40% (approximately 800 tonnes).
- Dry mixed C&D waste: 13% (approximately 300 tonnes).

The maximum throughput of each type of waste is planned to be:

- Residual waste from mixed C&D recycling facilities: 120,000 tonnes per annum.
- Dry C&I waste: 100,000 tonnes per annum.
- Dry mixed C&D waste: 30,000 tonnes per annum.

b. specifications;

The specifications of each type of waste is:

- Residual waste from mixed C&D recycling facilities. This waste compromises non-recyclable plastics, paper, cardboard and timbers. The recycling facilities already extract all viable recyclable materials as they are economically motivated to do so wherever possible. Any remaining residual material is, therefore, not able to be practically recycled any further into products other than fuel.
- Dry C&I waste from C&I waste collection companies. Many of the C&I waste collection companies are collecting C&I waste from source segregated waste generation sites.
- Dry mixed C&D waste from C&D waste collection companies.

c. suppliers;

The suppliers of each type of waste are:

- Residual waste from mixed C&D recycling: the operators of mixed C&D recycling facilities.
- Dry C&I waste: collectors of dry C&I waste from commercial and industrial premises and operations.
- Dry mixed C&D waste: collectors of dry mixed C&D waste from construction sites, skip bin operators, RORO bin operators and general C&D industry sites.

d. upstream management procedures (to support waste specifications and controls for non-conforming wastes as well as PVC and hazardous materials); and

Please refer to the answers in question iii a) and iii b) below.

e. current destination for each waste stream.

The current destinations for each type of waste are:

- Residual waste from mixed C&D recycling: landfill.
- Dry C&I waste: landfill.
- Dry mixed C&D waste: landfill (ResourceCo is targeting only those C&D collectors who currently are not able to take their waste to a C&D recycling facility).

ii. Demonstrated compliance with resource recovery criteria in Table 1 of the Policy for each waste stream.

The PEF plant is designed to extract commodities from the waste streams during processing with only the remaining residuals to be turned into PEF. The commodities extracted include the following:

- Metal
- Large aggregates
- Small aggregates
- Soil
- Clean timber

The planned proportion of commodities to be extracted from each type of waste (and therefore the consequent proportion of PEF produced) will be in line with the Energy From Waste Policy as follows:

- Residual waste from mixed C&D recycling: this waste stream does not contain a large proportion of recyclable materials as the prior recycling operations have recovered all the practical recyclable material. It is, therefore, expected that the majority of this residual waste stream received from these recyclers will be processed into PEF. This residual waste stream will, however, be processed through the full plant as per all other incoming streams and, therefore, should any recoverable commodities remain in this residual waste stream, it will be extracted throughout the course of the processing.
- Dry C&I waste: clean timber – 25%, aggregates/soil – 15%, metal – 3%, residual to landfill – 10%, PEF – approximately 50%.
- Dry mixed C&D waste: clean timber – 30%, aggregates/soil – 35%, metal – 6%, residual to landfill – 6%, PEF – approximately 25%.

iii. More information on contaminated material management of waste inputs including:

a. detailed information on procedures for hazardous material identification and removal;

ResourceCo has significant experience in the identification and management of incoming waste materials which are not compliant with the licenced materials able to accepted onto a site. For the Wetherill Park PEF plant, ResourceCo will implement the same successful procedures used elsewhere in its business. As a summary, the process for identifying and removing non-compliant materials (including hazardous materials and large volumes of PVC) is as follows:

- The Customer Service Officer at the incoming weigh bridge asks the driver if there are any non-compliant items in the load, as well as doing a visual inspection of

the load on the weigh bridge. Should any non-compliant items be identified, the truck will be asked to immediately leave the site without being allowed to tip off the load and remove the non-compliant items accordingly. **Attachment 2** contains the Job Description for a Customer Service Officer ResourceCo will implement at Wetherill Park, and **Attachment 3** contains the Mixed Waste Receival Safe Operating Procedure (**SOP**).

- If the load passes the Customer Service Officer inspection, it is then directed to enter the plant building and tips its load onto the floor in the raw feed receival area. The Waste Receival Inspection Officer, who is trained in identify non-compliant materials, inspects the load to identify any non-compliant materials and in particular asbestos. **Attachment 4** contains the Job Description for this role. **Attachment 5** contains the Asbestos related management plan and incident SOPs.

- If asbestos is identified in the load after it has been tipped, then the Asbestos management plan will be enacted which covers the handling and removal of this material.

- If other non-compliant materials are identified they will be removed from the raw feed area and placed into a bay where they will be removed from site in an appropriate manner to an appropriate receiver of these materials. Such other materials may include (but not be limited to) organic wastes, batteries, gas bottles, e-waste, mattresses etc.

- Importantly, these incidents will be recorded against the waste deliverer and feedback given to delivering company that non-compliant materials have been delivered and cannot be going forward. Should a particular company have multiple incidents then they will be banned from delivering loads to the facility.

b. controls and management for the removal of halogenated substances (including PVC materials); and

PEF produced by this plant will be used as cement kiln fuel and, therefore, go through the cement kiln process. **Attachment 6** contains a paper on the cement kiln process and their emission impacts.

The PEF specification for the cement kiln use is attached as **Attachment 7** and covers limits for halogenated substances.

To ensure that the PEF produced is within the specification, the following controls and procedures are used:

- New waste streams under consideration for acceptance into the PEF plant are first analysed to determine their performance against the PEF specification. If a potential waste stream falls outside one or more of the specifications then it is not accepted into the PEF plant.

- The PEF plant has a PVC picking line where manual pickers remove PVC materials from the PEF material going through the processing plant. These PVC products are then disposed to landfill.

- An online analyser provides real time recording of the Chlorine content of the PEF

(as well as other parameters). Should fuel going through the analyser be beyond the specification, then this fuel is diverted for re-processing or to landfill disposal.

- It should be noted that, in the case of a cement kiln, the focus on Chlorine is to prevent blockages within the cement manufacturing process.

c. *quarantine and management protocols for identified hazardous materials.*

Please refer to the answers provided to question iii a) above.

iv. *Additional information on the halogenated substances contained in the PEF including laboratory test results of current residual waste to landfill and expected PEF material post processing. Facilities in NSW using the PEF will be required to demonstrate the content of halogenated substances in waste fuels and Group 6 emissions standards within the Protection of the Environment Operations (Clean Air) Regulation 2010, as outlined in the Technical Criteria of the Policy.*

Attachment 6 contains an explanation of the cement kiln process and how it does not allow for the formation of hazardous emissions from halogenated substances. Chlorine build-up in a cement plant, however, can interfere with the cement processing equipment, and, therefore, this substance is analysed carefully to ensure it is below a set threshold. Accordingly, please find attached in **Attachment 8** analysis of the Chlorine content in the typical waste which will be accepted into the facility. The PEF will be within the specification in **Attachment 7** and the plant is designed to achieve this specification as outlined in the response to question iii b).

v. *PEF is not being used on site and no information on the destination for this material is provided. More information is required to detail contingency management plans for the PEF material. For example, failure of pickup and transport, resulting in stockpiling of PEF.*

The PEF is being sold as fuel for cement kiln consumption, in this case primarily local cement kiln facilities, however, should excess PEF be produced then this PEF will be exported to cement kiln customers in South East Asia. The plant is designed with a baler and wrapping production line in place which will bale and wrap excess PEF for export – these bales are loaded into 40 foot sea containers and transported to the port for shipping on standard container vessels. This export production line will be used as the "overflow contingency" for when local facilities are unable to consume all the PEF which the plant is producing, including when the local facilities may be experiencing process issues or when they are stopped for periodic maintenance. In addition to this contingency line, the plant is designed with a 2,000 tonne raw feed storage area and a 1,800 tonne PEF storage area which together hold a significant volume of stock to cover fluctuations in demand.

vi. *Specific export requirements apply to the export and transport of waste materials. The Proponent must ensure that they comply with all relevant requirements.*

ResourceCo complies with all relevant requirements including export from Australia. In this regard, **Attachment 9** contains a letter from the Australian Department of Environment. All overseas kilns which consume ResourceCo PEF comply with local regulations – please see the confirmation of this in **Attachment 10**.

vii *More information to describe how the development is consistent with the aims and objectives in the NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*

The ResourceCo Wetherill Park PEF facility in consistent with the aims of objectives of the Waste Avoidance and Resource Recovery Strategy through increasing resource recovery by creating a valuable product in PEF from non-recyclable waste streams which currently go to landfill (and have no other means of being converted into a reusable commodity of value). This is particularly effective for C&I waste and residual components from C&D recycling.

2.2.2 Noise

The EPA submission states:

The EPA has reviewed the Noise Impact Assessment ("NIA") and requires the following additional information:

viii. *The proposed site is to operate mainly during daytime and evening hours, however some activities will occur during the early morning and night-time periods. As such we require the Proponent assess any potential sleep disturbance impacts. There may be a potential for short-term noise events from activities such as dumping onto the tipping floor, shredding, and metal-on-metal impacts. There may also be some potential for explosive events from gas bottles in the incoming waste stream. The sleep disturbance assessment must also detail how short noise events term and the potential for gas bottle explosions will be managed and, if necessary, mitigated.*

ix. *Noise monitoring has only been carried out at Res 1 – Maugham Crescent. It is possible that the background noise levels at Res 2 – Hassel Street and Res 3 – Chifley Street will be lower than those at Res 1 as they are further removed from the traffic noise influence of The Horsley Drive. Background noise levels at Res 2 and 3 should be considered.*

x. *It is unclear how the criteria for evening and night-time periods at receiver Res 1 were derived in Table 4-3 of the NIA. The Proponent must provide an explanation for the derivation process in the text accompanying the table.*

xi. *The NIA identified prevailing westerly winds in Section 5.1, however Section 4 states that a highest tenth percentile modelling approach was used in the assessment. The report must clarify which method was used to predict noise emission levels under adverse meteorological conditions.*

xii. *Table 7-2 of the NIA states that the daytime construction noise management level is 58 dBA for receivers Res 1 to Res 4. As the daytime rating background level for Res 1 is 47 dBA, this value must be revised to 57 dBA.*

Response

Wilkinson Murray Pty Ltd has reviewed the EPA comments and has revised the Acoustic Impact Assessment, a copy of which is at **Attachment 11**. Wilkinson Murray Pty Ltd state:

Issue viii

Given the set back to residences and shielding by intervening buildings, no sleep disturbance impacts are likely. These events contain more energy in the mid and high frequency bands and will be more attenuated over the distance and shielding than lower frequency noise associated with engines and plant. In relation to short term events such as explosions, ResourceCo have advised that over recent years the amount of gas bottles in the waste stream has dramatically diminished and the few which arrive are sorted and separated before they are processed, hence no explosions are expected. Their advice is copied

Incoming Feed traffic Warden

All incoming vehicle movements are directed by the Traffic Warden. This person's role is to ensure that all loads delivered and vehicle movements are performed in a timely and organised manner. The traffic Warden will also visually inspect each load for materials that would cause the load to be rejected such as asbestos and listed wastes. Materials such as EOL tyres, mattresses, lead acid batteries and gas bottles are also at this point removed from the process to ensure that these materials are not put into the sorting process. It is further up to the driver as to whether or not he reloads these materials and removes them from site or ResourceCo charge an additional fee per item for appropriate disposal.

Issue ix

The location RES 1 was selected as it is the closest noise catchment to the site with the monitoring location some distance and also shielded from The Horsley Drive, as well as set back from traffic noise on Victoria Street and industrial noise to the north.

All other noise catchments (on their northern/western boundaries facing the ResourceCo site) were considered to be closer to other sources of traffic noise (Victoria Street or Hassall Street) and also industrial noise such that similar or higher background levels were expected. It was not expected at the other noise catchment areas, that background levels would be sufficiently low enough, in conjunction with the increased set back to these receivers from the site, for these to be considered the potentially most affected residences.

Issue x

Because the amenity criteria is numerically lower than the intrusive criteria, then the PSNL has been set as a 15-minute level considered to be equivalent to the amenity criterion which is assessed over the whole day, evening or night period. The report have been amended to clarify the 3dB difference.

Issue xi

This is an error in Section 4 and the 10^{th} percentile methodology was not used for this assessment and the section has been amended. Section 5.1 has also been amended to clarify when the adverse conditions need to be used to compare to the criterion.

Issue xii

This was a typographical error and has been amended in the relevant tables. It has no effect on the calculations or assessment.

2.2.3 Air Quality

The EPA submission states:

> *The EPA has undertaken a review of the Air Quality Impact Assessment (AQIA) and requires that the AQIA and notes that the assessment is incomplete. There is no estimation of impacts to the air environment from construction (being earthworks and building) of the proposal. The Proponent must include construction impacts in their assessment.*

Response

Wilkinson Murray Pty Ltd has reviewed the EPA comments and has revised the Air Quality Impact Assessment, a copy of which is at **Attachment 12**. Wilkinson Murray Pty Ltd state:

> *The revised AQIA considers air quality impacts associated with construction of the development. The bulk earthworks phase is identified as the most likely construction phase to impact the surrounding air environment. Particulate emissions associated with the three month earthworks phase have been estimated and are slightly lower than those during operations. Accordingly, ground level concentrations of dust and particulates at sensitive receivers will be similar, yet slightly lower, than those during operations.*
>
> *Specific measures to manage dust impacts during construction have been included in the updated AQIA.*

2.2.4 Water

The EPA submission states:

> *The EPA has reviewed the EIS and determined that additional information is required to ensure that all water pollution risks are identified and appropriately managed.*
>
> *Stormwater / wastewater / leachate management systems*
>
> *It is unclear how wastewater from material processing or leachate from waste stockpiles will be managed. The EIS indicates that water will be used for waste processing, namely dust suppression, however the fate of this process water is unclear.*
>
> *The EIS includes a proposed treatment train but it is unclear if this only applies to stormwater. As there will be a range of materials stored and processed at the Site there is potential for a range of non-trivial pollutants to be potentially present in process water. The proposed stormwater pollution control system would be unlikely to adequately treat pollutants other than those typically found in stormwater.*
>
> *Further information is required to demonstrate how contaminated run off will be managed and appropriately disposed of. If a discharge is proposed further information is required regarding how contaminated runoff will be treated to an appropriate level*

prior to discharge. The Proponent must clearly demonstrate:

xiii. how stormwater and contaminated runoff will be managed, including:

a. areas that discharge direct to stormwater (e.g. carpark; roofs); and

b. areas that receive contaminated runoff;

xiv. how leachate and process water will be managed, including detail of the fate and treatment of any contaminated water and the practical measures that will be taken to ensure it does not enter stormwater infrastructure.

Potential impacts on watercourses and groundwater

The EPA understands that discharges will potentially occur from the sediment basin and a stormwater drain at the southern boundary of the Premises. However it is unclear if the sediment basin will only receive stormwater. If the sediment basin is to receive wastewater from the premises the Proponent will need to consider all pollutants potentially present that pose a risk of non-trivial harm to human health or the environment and assess the potential impacts on receiving waters.

In addition the proponent has not considered the environmental values of Prospect Creek or the practical measures that could be taken to restore or maintain those values.

The EPA requires the EIS includes an assessment of the impact of any proposed discharge from the Premises including:

xv. characterisation of the water, identifying all pollutants that pose a risk of non-trivial harm to human health or the environment, including their concentrations and loads;

xvi. an assessment of the expected frequency and volume of discharges;

xvii. an appraisal of the practical measures that can be taken to prevent, control, abate or mitigate the pollution and protect the environment from harm;

xviii. a description of the receiving environment, including the environmental values of the receiving waters affected by any discharge and the practical measures that could be taken to restore or maintain those environmental values; and

xix. an assessment of the nature and degree of impact that any proposed discharge will have on the receiving environment. This must include consideration of the indicators and associated trigger values or criteria for the identified environmental values with reference to ANZECC (2000) Guidelines.

Site Water Balance

The water balance detailed in the EIS focusses on the water demands of the proposed facility rather than water outputs. In addition, there appears to be no analysis or statement regarding the volume and frequency of overflow discharges. The EPA requires that the EIS includes:

xx. a comprehensive water balance which quantifies all water inputs and outputs including, but not limited to, the water used in processing the waste.

Response

Stormwater / wastewater / leachate management systems

It is unclear how wastewater from material processing or leachate from waste stockpiles will be managed. The EIS indicates that water will be used for waste processing, namely dust suppression, however the fate of this process water is unclear.

As described in Section 2.2 of the EIS, the source material for processing will comprise dry mixed light loads containing a mix of timber, metals, plastics, cardboard and paper. The material stream may also include small amounts of concrete, bricks and rubble.

The source material will be stockpiled within a purpose built manufacturing facility shed. Ferrous and non-ferrous metals, inert fractions such as aggregates, soil, bricks and concrete, and non-recyclables will be removed from the combustible portion of the material stream. The combustible material will then be processed to manufacture the Processed Engineering Fuel (PEF).

All material receival and processing will occur within the enclosed and roofed manufacturing facility shed. All metals and inert fractions will be separated prior to the combustible portion being fed into a series of shredding and sorting processes as described in Section 2.5 of the EIS. **The separation, shredding and sorting processes do not require any water for operation.**

The only water required for the process will be for fine mist sprays to control dust within the shed. To the extent possible, recycled rainwater will be used for these fine mist sprays. Application of water for dust control purposes will be limited to the quantity necessary for dust control and would either be lost by evaporation or become embedded in the product. **No free water will drain from within the manufacturing facility shed and therefore no treatment will be required within the shed.**

The EIS includes a proposed treatment train but it is unclear if this only applies to stormwater. As there will be a range of materials stored and processed at the Site there is potential for a range of non-trivial pollutants to be potentially present in process water. The proposed stormwater pollution control system would be unlikely to adequately treat pollutants other than those typically found in stormwater.

The stormwater treatment train has been designed using the principles of Water Sensitive Urban Design (WSUD) to treat stormwater from the hardstand external to the manufacturing facility shed. **There would be no external sources of stormwater pollutants other than those typically found in stormwater**.

The other potential source of pollutants will be a self-bunded fuel tank will be installed adjacent to the office complex. There will be no outside storage of lubricants or chemicals.

Prior to being loaded into containers, baled and plastic wrapped PEF product (as described in Section 2.5.10 of the EIS) will be temporarily stored on the hardstand area adjacent to the south-west corner of the shed. The plastic wrapping will isolate the baled product from rainfall.

Further information is required to demonstrate how contaminated run off will be managed and appropriately disposed of. If a discharge is proposed further information is required regarding how contaminated runoff will be treated to an appropriate level prior to discharge. The Proponent must clearly demonstrate:

xiii. how stormwater and contaminated runoff will be managed, including:

a. areas that discharge direct to stormwater (e.g. carpark; roofs); and

b. areas that receive contaminated runoff;

xiv. how leachate and process water will be managed, including detail of the fate and treatment of any contaminated water and the practical measures that will be taken to ensure it does not enter stormwater infrastructure.

For the reasons set out above, there will be no sources of 'leachate', or 'contaminated runoff' on the site.

The proposed stormwater drainage and pollution control system is described in the *Stormwater Management Report* (Mott MacDonald, January 2016) and is designed to cater for pollutants typically found in stormwater runoff from a hardstand area of an industrial site. The *Stormwater Management Report* provides full details of the proposed stormwater treatment systems and assesses their performance by means of the industry standard MUSIC software.

In response to the specific issues noted by the EPA:

xiii. a. The *Stormwater Management Report* and associated drawings clearly describe and show separate drainage systems for:

- the hardstand stormwater drainage to the north (about 80% of the site);
- the hardstand stormwater drainage to the south (Frank Street) (about 20% of the site);
- the roof drainage from the manufacturing facility shed to a rainwater holding tank under the building slab;
- the roof drainage from the office and workshop building to two tanks for supply of water for toilet flushing and landscape watering.

b. No contaminated runoff would be generated on the site.

xiv. As described in Item 1 above, the only 'process' water will be that required for dust suppression within the manufacturing facility shed, which will either be lost by evaporation or become embedded in the product. **There will be no 'leachate' generated.**

Potential impacts on watercourses and groundwater

The EPA understands that discharges will potentially occur from the sediment basin and a stormwater drain at the southern boundary of the Premises. However it is unclear if the sediment basin will only receive stormwater. If the sediment basin is to receive wastewater from the premises the Proponent will need to consider all pollutants potentially present that pose a risk of non-trivial harm to human health or the environment and assess the potential impacts on receiving waters.

The sediment basin will only be retained while required during the earthworks construction.

There will be no wastewater generated on site (other than sewage from the toilets, etc. that would be directed to the sewer).

As described above, there will be no sources of stormwater pollutants other than those typically found in stormwater. The *Stormwater Management Report* provides details of the stormwater pollution systems that will treat all stormwater before discharge.

In addition the proponent has not considered the environmental values of Prospect Creek or the practical measures that could be taken to restore or maintain those values.

The Proposed project site occupies a minute fraction of the Wetherill Park industrial area. Notwithstanding, the proposed rainwater recycling for various purposes, (principally dust suppression) will contribute to reducing the flows in Prospect Creek, which are likely to be several times the pre-development flows.

Although the overall effect of the proposed stormwater pollution control system cannot be quantified in terms of the whole of the Prospect Creek catchment, the MUSIC model analysis in the *Stormwater Management Report* demonstrates that the proposed stormwater pollution control systems will achieve the pollution reduction targets specified by Blacktown City Council (the downstream LGA). No water quality targets are specified by Fairfield City Council for the Wetherill Park area.

The EPA requires the EIS includes an assessment of the impact of any proposed discharge from the Premises including:

xv. characterisation of the water, identifying all pollutants that pose a risk of non-trivial harm to human health or the environment, including their concentrations and loads;

As described in response to previous issues:

- any potential sources of pollutants arising from the separation, shredding and sorting processes will be carried out within an enclosed shed and will not, therefore, be exposed to rainfall;
- the *Stormwater Management Report* identifies the relevant pollutants of potential concern (gross pollutants; coarse, medium and fine sediments; oil and grease; heavy metals; and nutrients;
- there will be no potential sources of heavy metals on the hardstand area;
- the proposed treatment train for both stormwater outlets includes treatment devices that are capable of capturing hydrocarbons;
- as set out in Table 4.10 of the *Stormwater Management Report*, the potential loads of gross pollutants, suspend solids and nutrients are specifically considered in the MUSIC modelling, which demonstrates that the proposed stormwater

treatment systems will be capable of achieving the required reduction in pollutant loads.

xvi. *an assessment of the expected frequency and volume of discharges;*

Because the collection and storage of roof runoff is an important element of the site WSUD system, the expected frequency and volume of discharges can be expected to be less than other comparable sites within the Wetherill Park industrial area

xvii. *an appraisal of the practical measures that can be taken to prevent, control, abate or mitigate the pollution and protect the environment from harm;*

The *Surface Water Assessment* and the *Stormwater Management Report* provide full details of the practical measures that can be taken to prevent, control, abate or mitigate the pollution and protect the environment from harm.

xviii. *a description of the receiving environment, including the environmental values of the receiving waters affected by any discharge and the practical measures that could be taken to restore or maintain those environmental values; and*

As stated above, all practical measures will be taken to maintain the environmental values of Prospect Creek.

xix. *an assessment of the nature and degree of impact that any proposed discharge will have on the receiving environment. This must include consideration of the indicators and associated trigger values or criteria for the identified environmental values with reference to ANZECC (2000) Guidelines.*

See response above.

Site Water Balance

The water balance detailed in the EIS focusses on the water demands of the proposed facility rather than water outputs. In addition, there appears to be no analysis or statement regarding the volume and frequency of overflow discharges. The EPA requires that the EIS includes:

xx. *a comprehensive water balance which quantifies all water inputs and outputs including, but not limited to, the water used in processing the waste.*

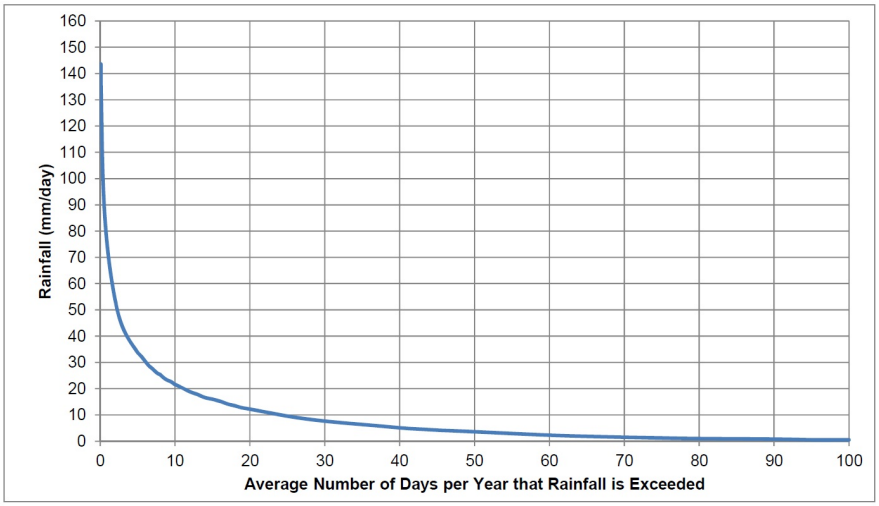
In order to respond to this issue, three graphs have been prepared using the climate data and water balance model described in the *Surface Water Assessment* (Advisian, January 2016). The climate data for the water balance analysis is described in Section 4.1 of that report and the assumptions regarding uses for recycled roof runoff are set out in Section 4.2 of the report. The three graphs show:

- Graph 1 below shows the probability of daily rainfall (based on 127 years of daily rainfall data from Prospect Reservoir). The average annual rainfall is 870 mm, with 5 mm or more falling on about 20 days per year on average.

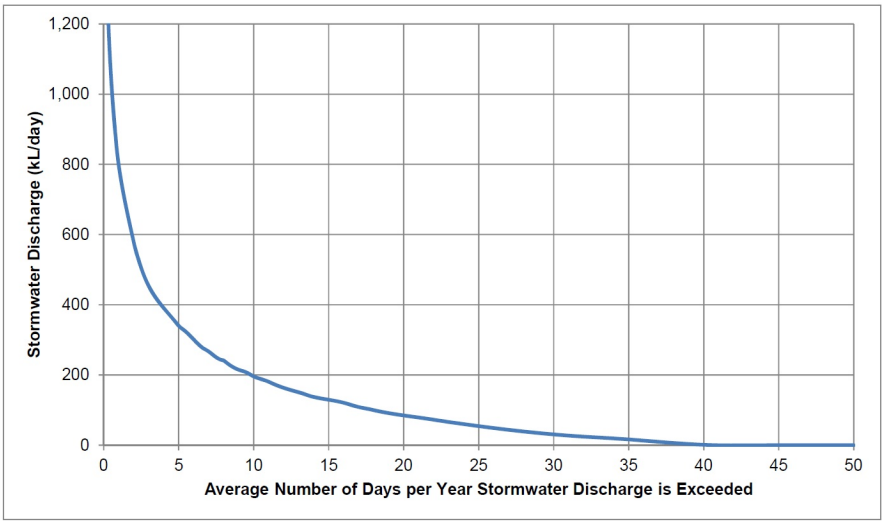
- All stormwater runoff from the hardstand area will drain off-site via the WSUD stormwater pollution control systems. The probability of stormwater runoff is shown in Graph 2. Because of rainfall losses due to minor surface depressions and evaporation, rainfall less than about 5 mm per day is unlikely to produce measurable runoff. On average, stormwater runoff can be expected about 40 days per year. The average annual volume of stormwater is expected to be about 6,465 kL/year of which 60% can be expected on about 10 days per year. Similar stormwater discharge characteristics can be expected for the other industrial sites in the immediate area of the site.

- Graph 3 shows the frequency of overflow from the rainwater collection and storage system. It shows that some overflow can be expected on about 8 days per year. The average annual overflow would be about 1,285 KL/year.

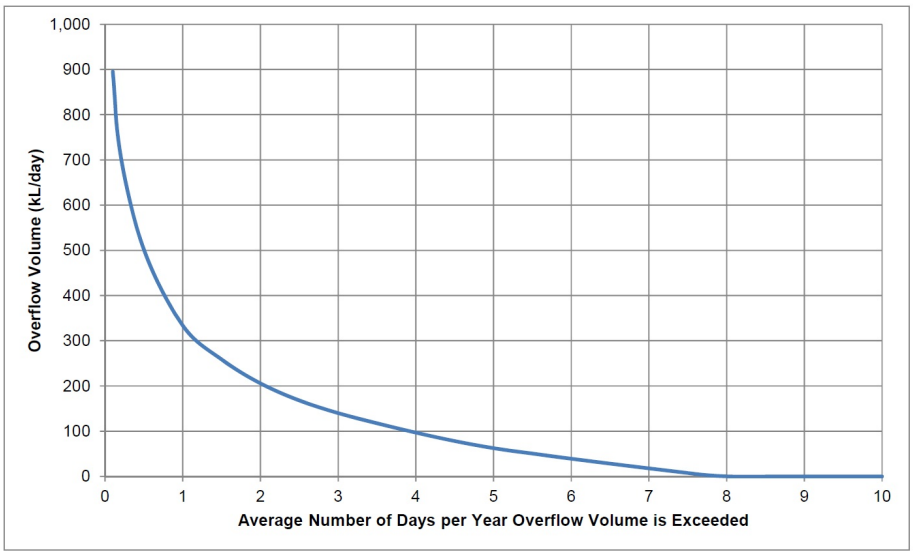
- Based on the data used to generate the graphs, the overall average annual water balance for the site is set out in Table 2 following Graph 3.



1. Daily Rainfall Probability for Prospect Reservoir
(BoM site closest to Wetherill Park with long term records)



2. Daily Stormwater Discharge Overflow Probability



3. Daily Overflow Probability for the Rainwater Collection and Re-use System

Table 2: Site Water Balance Summary

Water Source/Use	Average Annual Volume (kL)
Water Demands	
Process dust suppression	15,047
Landscape irrigation	97
Toilet flushing	306
Amenities (say 10 L/person/day)	146
Total demand	15,596
Water Supply	
Supply from rainwater	4,587
Potable supply	11,009
Total Supply	15,596
Site Discharge	
Stormwater discharge	6,465
Rainwater system overflow	1,285
Total discharge	7,750

2.3 Fairfield City Council

2.3.1 Land Use, Proposed Development and Local Impact

The Council submissions raises no objection to the proposed development in terms of its impact to land use and local impact.

2.3.2 Traffic and Parking

The Council submissions states:

Council raises no objection to the proposal subject to the following being satisfactorily addressed prior to determination:

a) The proposal shall be referred to the Roads and Maritime Services for comment.

b) That the existing vehicular crossings in Frank Street shall be retained.

c) The existing crossing on the eastern side of the site shall be used for staff and visitor vehicles and shall be a combined driveway.

d) The demand for car parking shall be determined by a car parking survey of a comparable facility in order to provide on-site parking.

e) That manoeuvring on the site, particularly in the vicinity of car parking space No.2 shall be re-evaluated to ensure compliance.

f) That the applicant shall liaise with Council's Subdivision Branch in regard to replacing the drainage pit grate located within the western vehicular crossing.

g) That car parking areas shall be designed in accordance with AS 2890.1:2004.

h) That a Traffic Management Plan shall be submitted for the demolition/construction activities, detailing routes, number of trucks, hours of operation, access arrangements and traffic control measures.

i) That and Incident Management Strategy shall, be submitted for crashes involving toxic and flammable loads transported on arterial roads.

Response

a) The proposal shall be referred to the Roads and Maritime Services for comment.

The application was forwarded to the RMS. The RMS raised no objection to the proposed development.

b) That the existing vehicular crossings in Frank Street shall be retained.

The Traffic Assessment Report, at its section 2.4, states that all trucks are to enter and exit the site via the western crossing. In section 3.3.1 of the traffic assessment, it is stated that the western crossing will be widened to 13.5 metres to cater for the truck traffic expected to service the development.

c) The existing crossing on the eastern side of the site shall be used for staff and visitor vehicles and shall be a combined driveway.

In section 2.4 of the Traffic Assessment Report it is stated that the existing crossing at the eastern side of the site is to be used by staff and visitors. In section 3.3.1 of the Traffic Assessment signage at the entrances is recommended.

d) The demand for car parking shall be determined by a car parking survey of a comparable facility in order to provide on-site parking.

A Parking Utilisation Survey was conducted on *2/6* and *3/6/2016* at the Suez Resource Co. (a comparable facility) where there are a total of 36 staff employed, 45 off-street staff parking spaces, 6 visitor spaces and 2 spaces for persons with a disability.

The survey results are reproduced below.

2 June 2016

Car spaces utilised	7-9 am	9-11 am	11am - 1pm	1-3 pm	3-5 pm
Staff	25	25	26	34	16
Visitors	0	1	6	0	0

3 June 2016

Car spaces utilised	7-9 am	9-11 am	11am - 1pm	1-3 pm	3-5 pm
Staff	27	27	39	21	16
Visitors	4	5	4	2	0

The peak usage occurred between **11:00am – 1:00pm** on **3/6/16** when **39** staff spaces (changeover period) and **4** visitor spaces were occupied.

In **Section 3.6** of Traffic Assessment Report, it is stated that **42** off-street spaces are provided. This satisfies the peak parking demand for **22** day shift car drivers and **19** night shift car drivers during the **2:00pm** to **3:00pm** changeover period. There are in addition **8** kerbside spaces along the Frank Street site frontage.

It is considered that the proposed off-street parking provision at Frank Street is adequate.

e) That manoeuvring on the site, particularly in the vicinity of car parking space No.2 shall be re-evaluated to ensure compliance.

Car space 2 is 2.6 metres wide and the aisle width is 7.2 metres, hence, space 2 exceeds the minimum standards for User Class 1 in AS/NZ 2890.0 - 2004 which is width 2.4 metres and aisle width of 6.2 metres.

f) That the applicant shall liaise with Council's Subdivision Branch in regard to replacing the drainage pit grate located within the western vehicular crossing.

It is envisaged that a condition of any consent would be included to ensure that this requirement fo the Council is met.

g) That car parking areas shall be designed in accordance with AS 2890.1:2004.

Section 3.1 of the Traffic Assessment Report states that minor amendments have been made to the car parking layout for safety reasons and compliance with AS/NZ 2890.1 - 2004. It is envisaged that a condition of consent would ensure that all car parking on the site meets the standards contained in AS/NZ 2890.1 - 2004.

h) That a Traffic Management Plan shall be submitted for the demolition/construction activities, detailing routes, number of trucks, hours of operation, access arrangements and traffic control measures.

Section 3 of the Traffic Assessment Report contains all information required to prepare a Traffic Management Plan. It is envisaged that a condition of consent would ensure that a formal Traffic Management Plan would be submitted as part of the Construction Certificate application.

i) That and Incident Management Strategy shall, be submitted for crashes involving toxic and flammable loads transported on arterial roads.

No toxic and flammable loads are to be transported to the site by road.

2.3.3 Environment Protection

The Council submission states:

> *.... provided the recommendations made within the EIS are implemented, the proposed development should not result in a significant impact on the environment or surrounding area.*

Response

All commitments and recommendations made in the EIS will be implemented by the applicant and would form the basis for conditions of any consent issued by the Minister.

2.4 NSW Roads and Maritime Services

The NSW Roads and Maritime Services made the following submission:

> *Roads and Maritime Services has reviewed the submitted documentation and raise no objection to the proposed development.*

2.5 Fire and Rescue NSW

Fire and Rescue NSW raises the following issues:

Issue 1

> *Table 1 of Appendix 8 of the EIS states that it is proposed to develop an alternative solution to address EP2.2 of the BCA. The proposed alternative solution is described as rationalising the required automatic smoke hazard management system to a smoke clearance system (presumably a system activated manually by FRNSW personnel). It is unclear whether the smoke exhaust rate is also intended to be reduced.*
>
> *FRNSW consider PEF to be a material that is a special hazard as detailed in Clause E2.3(c) of Volume One of the Building Code of Australia (BCA).*
>
> *In the event of the development proposal being approved, and due to the potential high fire load nature of the development, FRNSW recommends that any conditions of consent include a requirement that the development comply with Clause E2.3 of the BCA. In addition, that the smoke hazard management system be automatically activated and have a smoke exhaust capacity that is determined by first principal assessment rather than reference to Figure 2 of Clause 3 of Specification E2.2b of the BCA.*

Response

Olsson Fire & Risk has provided the following response to Issue 1:

> *FRNSW have recommended that a condition be placed on any consent requiring compliance with a specific Clause of the Building Code of Australia (BCA).*
>
> *Having regard to the Department of Planning and Environment (formerly Planning NSW) practice note for Development Consents it is noted that "The Environmental Planning and Assessment Regulation (EPAR) 2000, in Part 6 (clause 98), lists a condition relating to BCA compliance that is prescribed (and therefore mandatory) for all development consents.*
>
> *As a result compliance with the BCA is mandatory for the construction works and the comments of FRNSW would be achieved by the prescribed condition.*
>
> *Subsequently, determination of compliance with the BCA (and the applicable BCA Clauses that are or are not applicable) should be determined by the Authority Having Jurisdiction at the time of issuance of the building permit.*
>
> *Addressing the specific matters raised by FRNSW, it appears that their concerns appear to be related to the calorific value of the fuel. Whilst these matters shall be addressed through the referral process required by Clause 144 of the EPAR, the following*

background information is provided for the Consent Authority.

The calorific value may be defined as the quantity of heat liberated by the complete burning of a unit mass of the fuel. It is noted that the Process Engineered Fuel (PEF) has a Net Calorific Value (NCV) of 16 GJ/tonne.

To put this in perspective, the NCV of a number of common fuel products are detailed in Figure 1.

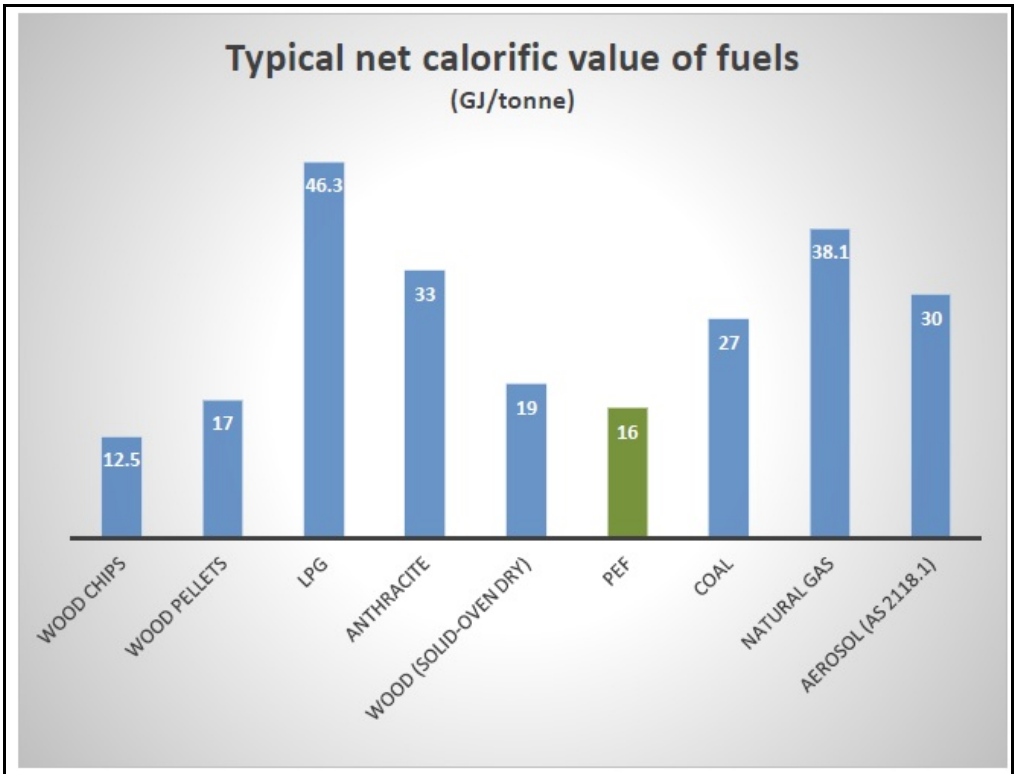


Figure 1: Calorific value of common fuels (Biomass Energy Centre 2016)

From the figure it can be seen that the NCV of the PEF is not otherwise unusual from that which would be expected of general cellulosic fuels and is within the lower limits of common fuels that are readily stored in distribution and warehouse buildings. The heat of combustion is also within the limits of that for which controls are referenced in the current version of Australian Standard (AS) 2118.1 Automatic Fire Sprinkler Systems. Subsequently there does not appear to be a marked difference in the NCV of the PEF and that of a typical warehouse development.

Issue 2

Section 6.1 of the Building Code of Australia Report (appendix 20) states that a fire hydrant system is required to be provided to the requirements of Clause E1.3 of the BCA and Australian Standard (AS) 2419.1—2005.

FRNSW consider PEF to be a material that is a special hazard as detailed in Clause E1.10(a) of Volume One of the Building Code of Australia (BCA).
In the event of the development proposal being approved, and due to the potential high fire load nature of the development, FRNSW recommends that any conditions of consent include a requirement that the development comply with Clause E1.10 of the BCA. In particular, that the fire hydrant system's performance, with respect to minimum flow rates, should be specifically addressed. FRNSW would not consider that Table 2.1 of AS 2419.1—2005 to be an appropriate methodology to determine the fire hydrant

system's minimum flow rates.

Response

Olsson Fire & Risk has provided the following response to Issue 2:

FRNSW have recommended that a condition be placed on any consent requiring compliance with a specific Clause of the Building Code of Australia (BCA).

Having regard to the Department of Planning and Environment (formerly Planning NSW) practice note for Development Consents it is noted that The Environmental Planning and Assessment Regulation (EPAR) 2000, in Part 6 (clause 98), lists a condition relating to BCA compliance that is prescribed (and therefore mandatory) for all development consents.

As a result compliance with the BCA is mandatory for the construction works and the comments of FRNSW would be achieved by the prescribed condition. Subsequently, determination of compliance with the BCA (and the applicable BCA Clauses that are or are not applicable) should be determined by the Authority Having Jurisdiction at the time of issuance of the building permit.

Addressing the specific matters raised by FRNSW, reference is made to our response above and the calorific value of the fuel compared to other fuels. Review of this data indicates that the heat of combustion is not expected to be markedly different or noteworthy when compared to other facilities that are designed in accordance with AS 2419.1.

Issue 3

As discussed earlier, the nature of this particular development will require FRNSW personnel to pro-actively manage the containment of polluted fire water runoff during a fire incident.

FRNSW recommends that the site's surface water and storm water management systems be designed to provide FRNSW with an ability to contain contaminated fire water runoff. The design of the systems' capacities is recommended to take into account the concurrent operation of the sprinkler and fire hydrant systems.

Response

Olsson Fire & Risk has provided the following response to Issue 3:

Fire water run off in the subject design is not expected to be more hazardous than that of other facilities with sediment and pollutants being commensurate with the quantum of non-combustible, cellulosic and polymer (plastic) based materials held onsite. Further contamination of the process materials is restricted by access control at the entry point to the site and staff monitoring and therefore not expected to be evidenced on the site.

In any event the civil design will consider the recommendations made by FRNSW.

2.6 NSW Department of Primary Industries

The Department of Primary Industry submission states:

The SEARs require the EIS to assess potential impacts on groundwater. The EIS notes the site would be fully sealed and would therefore have no impact on any groundwater underlying the site (see Section 9.6, page 9.8). It also indicates significant earthworks would be required to achieve a level site and the site works would include cut and fill (see Section 13.4.2, page 13.5). It is unclear if the proposed cut is likely to intercept groundwater.

Should excavation intercept groundwater and there is a requirement to extract groundwater or to dewater, including any ongoing take of groundwater, then DPI Water needs to be advised and a licence may be required.

Response

The cut and fill diagrams submitted as part of the EIS show that it is unlikely that any groundwater would be intercepted as part of the site preparation works.

- the bulk earthworks layout plan (drawing MMD-364729-C-DR-DA01-108) shows that the volume of cut would be 3,000 m^3 over an area of about 9,000 m^2 (an average depth of around 0.3 m);
- the maximum depth of cut shown on the cross section drawings (drawing MMD-364729-C-DR-DA01-106 and 7) is 0.55 m.

Notwithstanding, the comments from DPI Water relating to licencing are noted and DPI Water will be advised if groundwater is intercepted.

It is expected that a suitable condition of consent would be placed on any approval which would ensue that, if groundwater is intercepted, site works would cease until such time as DPI Water has undertaken an assessment and appropriate measures taken if it is determined that a licence is required.

2.7 Southern Sydney Regional Organisation of Councils

The SSROC submission states:

SSROC notes that the facility does not process municipal solid waste, but will enhance the capacity of the industry to process other waste streams. The site was previously used by as a metal recycling facility by SIMS metal and so appears to be an appropriate location. We recognise the need for resource recovery facilities within the Sydney basin so that increasing quantities of waste generated by a growing population can be sustainably managed. We further note that the proponent claims a 90% recovery rate thereby supporting the NSW Government targets. SSROC is therefore supportive of this development.

Whilst Process Engineered Fuel (PEF) is most commonly used in energy intensive industries such as cement-making, the documentation was not clear on the market for the PEF that is to be produced here. It would have been helpful for the proponent to clarify if the PEF is for export or for use within Australia.

Response

The primary market for the PEF will be a specific cement kiln where the PEF will be used as an energy source to displace fossil fuel. The PEF will be transported in loose form in covered semi-trailers and unloaded into a purpose built PEF handling facility at the cement kiln site.

There may be occasions where the PEF from the facility is consumed at other cement kilns in South East Asia as fuel to displace the use of fossil fuels. These cement kiln facilities comply with local government laws and are owned by the largest cement companies in the world. All of these companies have significant experience in consuming PEF in a safe and environmentally responsible manner. Where the PEF is exported, it would be baled and wrapped in plastic film at the ResourceCo plant at Wetherill Park, then loaded into sea containers and exported through Port Botany.

Attachment 1

Copy of submissions received

29 April 2016

Attn: Director - Industry Assessments
NSW Department of Planning and Environment,

Online submission at: www.majorprojects.planning.nsw.gov.au

Re: SSD 15_7256: Environmental Impact Statement ResourceCo Resource Recovery Facility Wetherill Park

Thank you for the opportunity to comment on the EIS for this waste recycling facility. The Southern Sydney Regional Organisation of Councils (SSROC) is an association of sixteen municipal and city councils. SSROC provides a forum for the collaboration between our member councils, and an interface between governments, other councils and key bodies on issues of common interest. Together, our member Councils cover a population of over 1.6 million, (one third of the population of Sydney), and an area of 680 square kilometres.

SSROC notes that the facility does not process municipal solid waste, but will enhance the capacity of the industry to process other waste streams. The site was previously used by as a metal recycling facility by SIMS metal and so appears to be an appropriate location. We recognise the need for resource recovery facilities within the Sydney basin so that increasing quantities of waste generated by a growing population can be sustainably managed. We further note that the proponent claims a 90% recovery rate thereby supporting the NSW Government targets. SSROC is therefore supportive of this development.

Whilst Process Engineered Fuel (PEF) is most commonly used in energy intensive industries such as cement-making, the documentation was not clear on the market for the PEF that is to be produced here. It would have been helpful for the proponent to clarify if the PEF is for export or for use within Australia.

Please note that, due to the timing of this submission, it has been drafted by the SSROC Secretariat, and has not been endorsed by the SSROC Delegates. Should any issues arise as a result I will contact you. For any enquiries regarding this submission, please feel free to contact me or Helen Sloan, Program Manager SSROC on 02 8396 3800 or email ssroc@ssroc.nsw.gov.au

Yours sincerely,

Namoi Dougall
General Manager
Southern Sydney Regional Organisation of Councils

Southern Sydney Regional Organisation of Councils (SSROC) Inc.
ABN 54 485 603 535

Level 7, 1 Lawson Square
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Transport
Roads & Maritime
Services

19 April 2016

Our Reference: SYD15/01138 (A12572510)
Department Ref: SSD 7256

DA Coordinator
Priority Projects, Key Sites and Industry
Department of Planning & Environment
GPO Box 39 SYDNEY NSW 2001

Attention: Leanne Grove

Dear Sir/Madam,

RESOURCE RECOVERY FACILITY
35 FRANK STREET, WETHERILL PARK

Reference is made to your email dated 15 March 2016, regarding the abovementioned Application which was referred to Roads and Maritime Services (Roads and Maritime) for comment in accordance in accordance with the State Environmental Planning Policy (Infrastructure) 2007.

Roads and Maritime has reviewed the submitted documentation and raise no objection to the proposed development.

Should you have any further inquiries in relation to this matter, please do not hesitate to contact Hans Pilly Mootanah on telephone 8849 2076 or by email at development.sydney@rms.nsw.gov.au

Yours sincerely,

Pahee Rathan
Senior Land Use Planner
Network and Safety Section

Fire & Rescue NSW

File Ref. No: BFS16/465 (10043)
TRIM Doc. No: D16/24267
Contact: Mark Castelli

22 March 2016

The Department of Planning & Environment
C/- Emma Barnet
GPO Box 39
SYDNEY NSW 2001

Email: emma.barnet@planning.nsw.gov.au

Dear Ms Barnett

Proposed ResourceCo Resource Recovery Facility
35 Frank Street, Wetherill Park (SSD 15_7256)

I refer to the above development proposal's Environmental Impact Statement (EIS) which is currently on public exhibition (from the 17 March 2016 to the 2 May 2016).

Fire & Rescue NSW (FRNSW) have reviewed Part 12 of the EIS (Hazard & Risk Assessment) and various appendices. FRNSW note that the primary purpose of the facility is to receive waste and process it into process engineered fuel (PEF). As detailed in the exhibited documents, PEF possesses a high calorific value and therefore has significant potential to be a high fire load with associated risks.

In addition, due to the nature of materials processed, there is significant potential for contaminated fire water runoff to pollute off-site storm water management systems and water courses (e.g. Prospect Creek). Due to the significant potential there is an increased likelihood that Fire & Rescue NSW (FRNSW) personnel would need to actively manage the containment of polluted fire water runoff during a fire incident (N.b. a specific function imposed upon the Commissioner of FRNSW by virtue of Section 10A of the Fire Brigades Act 1989).

Based on our review, the following comments and recommendations are submitted to the Department of Planning & Environment (DPE) for consideration:

1. Table 1 of Appendix 8 of the EIS states that it is proposed to develop an alternative solution to address EP2.2 of the BCA. The proposed alternative solution is described as rationalising the required automatic smoke hazard management system to a smoke clearance system (presumably a system activated manually by FRNSW personnel). It is unclear whether the smoke exhaust rate is also intended to be reduced.

FRNSW considers PEF to be a material that is a special hazard as detailed in Clause E2.3 (c) of Volume One of the Building Code of Australia (BCA).

In the event of the development proposal being approved, and due to the potential high fire load nature of the development, FRNSW recommends that any conditions of consent include a requirement that the development comply with Clause E2.3 of the BCA. In addition, that the smoke hazard management system be automatically activated and have a smoke exhaust capacity that is determined by first principal assessment rather than reference to Figure 2 of Clause 3 of Specification E2.2b of the BCA.

2. Section 6.1 of the Building Code of Australia Report (Appendix 20) states that a fire hydrant system is required to be provided to the requirements of Clause E1.3 of the BCA and Australian Standard (AS) 2419.1 – 2005.

   FRNSW considers PEF to be a material that is a special hazard as detailed in Clause E1.10 (a) of Volume One of the Building Code of Australia (BCA).

   In the event of the development proposal being approved, and due to the potential high fire load nature of the development, FRNSW recommends that any conditions of consent include a requirement that the development comply with Clause E1.10 of the BCA. In particular, the fire hydrant system's performance, with respect to minimum flow rates, should be specifically addressed. FRNSW would not consider Table 2.1 of AS2419.1 – 2005 to be an appropriate methodology to determine the fire hydrant system's minimum flow rates.

3. As discussed earlier, the nature of this particular development will require FRNSW personnel to pro-actively manage the containment of polluted fire water runoff during a fire incident.

   FRNSW recommends that the site's surface and storm water management systems be designed to provide FRNSW with an ability to contain contaminated fire water runoff. The design of the systems' capacities is recommended to take into account the concurrent operation of the sprinkler and fire hydrant systems.

For further information please contact Mark Castelli of the Fire Safety Assessment Unit, referencing FRNSW file number BFS16/465 (10043). Please ensure that all correspondence in relation to this matter is submitted electronically to bfs@fire.nsw.gov.au.

Yours Sincerely

Superintendent Mark Reilly AFSM, CMIFireE
Manager
Fire safety Assessment Unit
FRNSW

Fairfield City Council, Administration Centre, 86 Avoca Road, Wakeley 2176
Tel: (02) 9725 0222 Fax: (02) 9725 4249 ABN: 83 140 439 239
All communications to:
Fairfield City Council, PO Box 21, Fairfield NSW 1860
Email address: mail@fairfieldcity.nsw.gov.au

In reply please quote:16/04398 – A1868355
Your Ref: SSD 15_7256

Contact: Edward Saulig on 9725 0229

4 May 2016

Emma Barnet
Major Project Assessments
Department of Planning and Environment
GPO Box 39
Sydney NSW 2001

Attention: emma.barnet@planning.nsw.gov.au

Dear Ms Barnet

SSD 15_7256 - SUBMISSION - PROPOSED WASTE AND RESOURCE MANAGEMENT FACILITY AT 35-37 FRANK STREET, WETHERILL PARK

Submission summary

Council raises no objection to the proposal subject to issues being addressed as identified in this submission and the inclusion of conditions as recommended in the proposal's determination.

Overview

Council has received notification from the NSW Department of Planning and Environment of a proposed Waste and Resource Management Facility (State Significant DA) at 35-37 Frank Street (site area 2.1 ha) in the Wetherill Park Industrial Area. The project has a Capital Investment value (CIV) of approximately $30.8 million (making the DP&E the relevant consent authority) and involves:

- Demolition of existing structures and buildings associated with a scrap metal facility previously operating on the site since the early 1980s.

- Earthworks and construction of new office/processing buildings, storage, vehicular parking and weighbridge areas for the purpose of a waste and resource management facility.

- Capability to convert up to 250,000 tonnes of raw material per annum into approximately 150,000 tonnes of processed engineering fuel (an alternative fuel used for industrial purposes including cement manufacturing) and over

75,000 tonnes of reusable commodities such as metal, wood, concrete, bricks, rubble and soil.

- Creation of 40 permanent employee positions.

The Environmental Impact Statement (EIS) prepared for the proposal indicates benefits stemming from the proposal include:

- Diversion of waste from landfill through recycling of 90% of material to be delivered on the site.
- Conversion of fossil fuel by replacing it with sustainable 'green fuel'.
- Achieving carbon emission reduction in the cement manufacturing process.
- Cost savings for industry through replacement of fossil fuel with 'green fuel'.
- Employment generation both during construction and once the facility is operating.

Issues for Fairfield City

A. Land Use, Proposed Development and Local Impact

Under Fairfield LEP 2013, the land use category is Zone IN1 - General Industrial and the proposed use is permissible with development consent.

Under Fairfield City Wide DCP 2013, the proposal is generally consistent with the provisions of Chapter 9 – Industrial Development. The proposed built form, site layout and design features of the development are compatible with the character of existing industrial development in the surrounding area.

The site is located centrally in the Wetherill Park Industrial, approximately 700-800m from the nearest residential properties to the east and south in Smithfield and Wetherill Park. In this regard the potential for the operations on the site to directly impact on the amenity of the residential areas of the City is considered negligible.

B. Traffic and Parking

The proposal has been reviewed by Council's Traffic and Transport Branch, noting, in part:

- On weekdays at full capacity the site will generate up to 400 truck movements a day; the facility will also receive material from the general public delivered by car/trailer.

- Principle truck movements to the site are proposed to be via the existing road network servicing the Wetherill Park Industrial Area including the main arterial roads of Elizabeth Drive, Victoria Street and The Horsley Drive.

- Traffic generated by the proposal has limited potential to impact on the residential road network of the City.

Council raises no objection to the proposal subject to the following being satisfactorily addressed prior to determination:

a) That the proposal shall be referred to the Roads and Maritime Services for comment.

b) That the existing vehicular crossings in Frank Street shall be retained. All trucks shall enter and exit using the western vehicular crossing, to be widened to 13.5 metres and separated by a raised concrete median 1 metre wide in order to accommodate B-Double and articulated vehicles.

c) That the existing crossing on the eastern side of the site shall be used by staff and visitor vehicles and shall be a combined driveway.

d) That demand for car parking shall be determined by a car parking survey of a comparable facility in order to provide on-site parking.

e) That manoeuvring on site, particularly in the vicinity of car parking space No.2 shall be re-evaluated to ensure compliance.

f) That the applicant shall liaise with Council's Subdivision Branch in regard to replacing the drainage pit grate located within the western vehicular crossing.

g) That the car parking areas shall be designed in accordance with AS 2890.1:2004.

h) That a Traffic Management Plan shall be submitted for the demolition/construction activities, detailing vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures.

i) That an Incident Management Strategy shall be submitted for crashes involving toxic and flammable loads transported on arterial and local roads.

C. Environmental Protection

The proposal has been reviewed by Council's Environmental Management Branch including an assessment of safeguards included in the proposal with relevant industry standards for this form of development.

The proposal involves the establishment of a Waste and Resource Management Facility to process waste material to produce *Processed Engineering Fuel* (PEF) and other reusable commodities including aggregates, metal, timber and soil. The source material is comprised of dry mixed light loads which usually contain a mix of timber,

metals, plastics, cardboard and paper. The material stream may also include small amounts of concrete, bricks and rubble.

The proposal is listed as a scheduled activity under the NSW Protection of the Environment and Operations Act (POEO Act) and will require licensing from the NSW Environment Protection Authority. The proposed facility would operate in accordance with an Environment Protection Licence.

In the review of the EIS, the PEF is derived from commercial/industrial waste streams and provides an alternative fuel source to industries to replace fossil fuels (eg. coal). The benefits of recycling combustible waste into PEF include:

a) Diversion of waste from landfill
b) Conservation of natural fossil fuel by replacing it with sustainable green fuel
c) Achieving carbon emission reduction in the cement manufacturing process
d) Cost saving for industry through replacement of fossil fuel with PEF

The majority of materials (90%) are predicted to be recycled with 10% waste being disposed of to landfill.

The EIS (Part 15.2) contains a Draft Statement of Commitments (SoC) which details the management and mitigation measures proposed for the Waste and Resource Management Facility. One aspect of the SoC is the development of an Environmental Management Plan (EMP) for the construction and operation stages of the development. Sub sections of the EMP shall consist of:

a) Induction and training
b) Erosion and Sediment Control Plan
c) Air Quality Management Plan
d) Waste Management Plan
e) Stormwater Management Plan
f) Traffic Management Plan
g) Complaints Register
h) Hazard Reduction Plan

In addition to the above, environmental monitoring and reporting during construction and operational stages is proposed. Reporting shall include compliance reports, remedial actions taken in response to incidents, auditing and monitoring (air quality, acoustic and water quality).

In view of above, provided the recommendations made within the EIS are implemented, the proposed development should not result in a significant impact on the environment or surrounding community.

Although air quality assessment criteria are predicted to be complied with at residential sensitive receptor locations, other sensitive receptors such as workers within neighbouring industrial areas have not been identified as potentially affected.

Council recommends that the Air Quality Assessment be amended to include other sensitive receptors including locations where people work. Should air quality assessment criteria be exceeded, appropriate mitigation measures shall be recommended.

Subsequent to the above amendment, Council raises no objection to the proposal subject to the following conditions:

Erosion and Sedimentation Control - Prior to the commencement of any construction works on site, controls in accordance with Chapter 3.11 of the Fairfield City Wide DCP 2013 shall be implemented prior to clearing of any site vegetation, to ensure the maintenance of the environment and to contain soil erosion and sediment on the property. Erosion and sediment controls shall be maintained until all construction works are completed and all disturbed areas are restored by turfing, paving and revegetation.

The documented erosion and sediment control plan shall be available on-site for inspection by Council Officers and all contractors undertaking works on the site.

Note: On the spot penalties up to $1,500 will be issued for any non-compliance with this requirement without any further notification or warning.

During Construction or Demolition - During the construction or demolition period, the applicant must ensure that:

a) There is provision of a trade waste service to ensure that all debris and waste material is removed from the site for the period of construction or demolition;

b) All plant equipment, fencing or materials of any kind is not placed or stored upon any public footpath or roadway; and

c) Any building work is to be carried out within the following hours.

1. Monday – Friday between the hours of 7:00am to 6:00pm and Saturday between 8:00am and 1:00pm in all zones. No work may be carried out on Sundays or public holidays.

Except that,

Building works in a IN1 zone may be carried out within the following hours:

2. Monday – Friday between the hours of 7:00am to 6:00pm and Saturday between 8:00am and 5:00pm. No work may be carried out on Sundays or public holidays.

   Note: On the spot penalties up to $1,500 will be issued for any non-compliance with this requirement

Maintenance of Construction Site - During the construction and any dormant period, the applicant must ensure that the construction and/or development site is adequately maintained, as not to be prejudicial to the surrounding neighbourhood. In the event that the construction/development site remains dormant for a period in excess of three (3) months, permanent security fencing, hoarding or scaffolding, as defined in the relevant Australian Standard and incorporating visual shielding shall be provided and maintained to the satisfaction of Council until the completion of the development or as applicable.

Signage alerting to the presence of danger and prohibiting unauthorised entry to the site and any other signage, as required by a Development Consent, shall be displayed in a prominent position.

Note: On the spot penalties up to $600 will be issued and/or legal action in the form of Notices/Orders for non-compliance with this requirement will be instigated.

Wheel Wash Facility - All trucks leaving the site, having had access to unpaved or contaminated areas, shall depart via a wheel wash facility in order to prevent mud, dust or debris from being deposited on Council roads. In order to achieve this, a wheel wash facility shall be constructed prior to any truck movements occurring. A plan and operational guidelines for the wheel wash facility shall be submitted for approval prior to the commencement of the removal of fill material from the site. Any direction of Council with regard to cleansing trucks or the clean up of road pavements adjoining the site shall be complied with immediately.

Monitoring of State of Roadways - The applicant shall monitor the state of roadways leading to and from the site and shall take all necessary steps to clean up any adversely impacted road pavements as directed by Council.

Unreasonable Noise and Vibration - The industry, including operation of vehicles, shall be conducted so as to avoid unreasonable noise or vibration and cause no interference to adjoining or nearby occupations. Special precautions must be taken to avoid nuisance in neighbouring residential areas, particularly from machinery, vehicles, warning sirens, public address systems and the like. In the event of a noise or vibration problem arising at the time, the person in charge of the premises shall when instructed by Council, cause to be carried out, an acoustic investigation by an appropriate acoustical consultant and submit the results to Council. If required by Council, the person in charge of

the premises shall implement any or all of the recommendations of the consultant and any additional requirements of Council to Council's satisfaction.

Lighting - Illumination of the site is to be arranged in accordance with the requirements of Australian Standard 4282 1997 so as not to impact upon the amenity of the occupants of adjoining and nearby residential premises.

Public Address System - No public address system or sound amplifying equipment shall be installed so as to permit the emission of offensive noise, as defined by the Protection of the Environment Operations Act 1997, onto any private premises or public place.

Bund Wall - A bund wall shall be constructed around all work and liquid storage areas to prevent any spillage entering into the stormwater system. The bunded area shall provide a volume equal to 110% of the largest container stored and graded to a blind sump so as to facilitate emptying and cleansing.

Storage of Flammable and Combustible Liquids - Flammable and combustible liquids shall be stored in accordance with AS 1940-2004 – The Storage and Handling of Flammable and Combustible Liquids.

Storage of Dangerous Goods - Should any 'dangerous goods' proposed to be stored on the premises exceed the manifest quantity as prescribed by WorkCover, a Notification of Dangerous Goods on Premises (form FDG01 or FDG02) is required to be submitted to WorkCover for assessment.

Wheel Wash Facility - All trucks leaving the site, having had access to unpaved or contaminated areas, shall depart via a wheel wash facility in order to prevent mud, dust or debris from being deposited on Council roads. In order to achieve this, a wheel wash facility shall be constructed prior to any truck movements occurring. A plan and operational guidelines for the wheel wash facility shall be submitted for approval prior to the commencement of the removal of fill material from the site. Any direction of Council with regard to cleansing trucks or the clean up of road pavements adjoining the site shall be complied with immediately.

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out, an acoustic investigation by an appropriate acoustical consultant and submit the results to Council. If required by Council, the person in charge of the premises shall implement any or all of the recommendations of the consultant and any additional requirements of Council to Council's satisfaction.

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Bund Wall - A bund wall shall be constructed around all work and liquid storage areas to prevent any spillage entering into the stormwater system. The bunded area shall provide a volume equal to 110% of the largest container stored and graded to a blind sump so as to facilitate emptying and cleansing.

Drain Stencilling - All stormwater drains/pits on the site shall be provided and maintained with the message; "This pit drains to the Georges River". Lettering shall be 100mm high block bold yellow painted lettering. Paints used shall be of road line marking standard.

Environmental Reports Certification - Within three (3) months from the date of construction of the Waste and Resource Management Facility, written certification from a suitably qualified person(s) shall be submitted to NSW Environment Protection Authority and Fairfield City Council, stating that all works/methods/procedures/control measures/recommendations approved in the following reports have been completed:

a) Environmental Impact Statement, prepared by Nexus Environmental Planning Pty Ltd, dated 8 March 2016.

b) Noise Impact Assessment (Report no. 15278-N Version A, prepared by Wilkinson Murray Pty Ltd, dated 28 January 2016) as contained within the Environmental Impact Statement, prepared by Nexus Environmental Planning Pty Ltd, dated 8 March 2016.

Compliance monitoring - An acoustic report is to be prepared and submitted to the Appropriate Regulatory Authority, for its assessment and approval within three (3) months of occupation/completion of the development. The report shall include but is not limited to the following information:

a) Noise measurements taken at the nearing noise sensitive locations as indicated in the Noise Impact Assessment, Report no. 15278-N Version A, prepared by Wilkinson Murray Pty Ltd, dated 28 January 2016.

b) Verification that noise levels at the nearest potentially affected receiver/s comply with all relevant assessment criteria detailed in the abovementioned report;

c) All complaints received from local residents in relation to the operation of the premises/development.

d) Where noise measurements required under point a) above indicate that the relevant assessment criteria are exceeded, recommendations shall be provided in relation to how noise emissions can be satisfactorily reduced to comply with the assessment criteria.

Following written approval from the Appropriate Regulatory Authority, any recommendations provided under point d) above shall be implemented fully.

Waste classification - Prior to the exportation of waste (including fill or soil) from the site, the material shall be classified in accordance with the provisions of the *Protection of the Environment Operations Act 1997* and NSW Environmental Protection Authority (formerly known as Department of Environment and Climate Change) "Waste Classification Guidelines Part 1: Classifying Waste". The classification of the material is essential to determine where the waste may be legally taken.

Importation of fill material - Any fill imported into the site must meet the criteria of "Virgin Excavated Natural Material" as defined in EPA Environmental Guidelines – Assessment Classification and Management of Liquid and Non-Liquid Wastes 1999.

'Chain of Custody' documentation shall be kept for the transport of the validated fill material from the source site. A record of 'Chain of Custody shall be submitted to Council within seven (7) days of the fill material being moved to or from the subject site.

Environmental Management Plan - An Environmental Management Plan shall be prepared for the approved facility. The Plan shall be carried out by a suitably qualified environment consultant and shall address means by which the commitment in the EIS, subsequent assessment reports, approval or licence conditions will be fully implemented. The EMP shall also provide a framework for managing and mitigating environmental impacts for the life of the proposal and make provisions for auditing the effectiveness of the proposed environmental protection measures and procedures.

Land Contamination - Any new information which comes to light during construction works which has the potential to alter previous conclusions about site contamination and remediation must be notified to the Appropriate Regulatory Authority and Consent Authority immediately after discovery.

Environment Protection Authority (EPA) - The Environment Protection Authority General Terms of Approval shall be complied with at all times.

NB: The EPA General Terms of Approval DO NOT constitute a license under the Protection of the Environment Operations (POEO) Act 1997. The applicant is required to obtain a license from the EPA for the approved development pursuant to the POEO Act 1997, prior to the commencement of any construction works, or any works or processes associated with the proposed development.

D. Section 94A Contributions

The imposition of a Section 94A levy, in accordance with the Fairfield City Council Indirect Development Contributions Plan 2011, on this proposal is considered appropriate having regard to the long term responsibility Council has to manage the local road network. The amount payable will be 1% of the final estimated Capital Investment Value (CIV).

In this regard, Council imposes the following condition where a Section 94A contribution is payable.

Section 94A Levy Development Contributions

Prior to the issue of a Construction Certificate, a receipt for the payment to Fairfield City Council of Section 94A Levy Contributions shall be submitted to the Certifying Authority.

The Section 94A Levy as determined at the date of this consent is $(*).

The contribution amount payable may be adjusted at the date of payment. Any unpaid contributions will be adjusted on a quarterly basis to account for movements in the Australian Bureau of Statistics, Producer Price Index – Building Construction (New South Wales).

E. Building Control and Compliance

Council's Building Control Branch have reviewed the proposal and conducted a partial BCA review. Council raises no objection to the proposal subject to the following conditions.

Waste Management Plan - Prior to the issue of a Construction Certificate, a Waste Management Plan shall be submitted to and approved by the Principal Certifying Authority. The Waste Management Plan shall be prepared in accordance with the requirements of the Fairfield City Council Waste Not

DCP. The Waste Management Plan shall address the type of materials expected from demolition/construction; estimated volumes or tonnes of materials; proposed reuse or recycling methods; the contractors to be used; and the recycling outlet and/or landfill site.

Erosion and Sediment Control Plan - Prior to the issue of a Construction Certificate, an Erosion and Sediment Control Plan shall be submitted to and approved by the Principal Certifying Authority. The Erosion and Sediment Control Plan shall be prepared in accordance with the requirements of the Fairfield City Council's Erosion and Sediment Control Policy. The Erosion and Sediment Control Plan shall clearly show and demonstrate how erosion is to be minimised and how sediments are to be trapped on the site and prevented from escaping, transported, carried or discharged across and outside the boundaries of the site of the development or building activity.

Sydney Water Consent - The plans must be submitted to a Sydney Water Quick Check agent to determine whether the development will affect any Sydney Water asset and if any requirements need to be met. The plans will be appropriately stamped. All amended plans will require restamping.

Please refer to the web site www.sydneywater.com.au for:

- Quick check agents details – see Building and Developing then Quick Check; and
- Guidelines for Building Over/Adjacent to Sydney Water Assets – see Building and developing then Building and renovating

or telephone 13 20 92

Construction Certificate Required - Prior to the commencement of any building and construction works, a Construction Certificate is required to be issued by a Certifying Authority. Enquiries regarding the issue of a Construction Certificate can be made to Council's Customer Service Centre on 9725 0222.

Appointment of a Principal Certifying Authority - Prior to the commencement of any construction works, the person having benefit of a Development Consent, or Complying Development Certificate must:

a. appoint a Principal Certifying Authority; and
b. notify Council of the appointment.

Notify Council of Intention to Commence Works - The applicant must notify Council, in writing of the intention to commence works at least two (2) days prior to the commencement of any construction works on site.

Kerb and Gutter Status Form - Prior to the commencement of any construction works on site, the applicant shall return the attached footpath/kerb and gutter form to Council detailing the existence of, and the

condition of, any foot paving, and/or kerb and gutter provided adjoining the site for checking against Council's records. Damage to footpaths, kerbs, stormwater systems and general streetscape will require restoration at the developer's expense.

Toilet Facility - Prior to the commencement of any construction works on site, a flushing toilet facility is to be provided on site. The toilet must be connected to either a public sewer, or an accredited sewage management facility or to an alternative sewage management facility (chemical closet) approved by Fairfield City Council.

Required Signage - For building, subdivision or demolition work that will affect the external walls of the building, signage shall be installed in a prominent position detailing:

- The name, address and telephone number of the principal certifying authority for the work; and
- The name of the principal contractor (if any) of the building work and a telephone number on which that person may be contacted outside working hours; and
- Stating that unauthorised entry to the work site is prohibited.

This sign shall be maintained while the building, subdivision or demolition work is being carried out and must be removed when the work has been completed.

Interim / Final Occupation Certificate Required - Prior to the commencement of any use and/or occupation of the subject development (whole or part), either an Interim Occupation Certificate or Final Occupation Certificate must be issued.

Prior to the issue of any Occupation Certificate, the Principal Certifying Authority must be satisfied that the development (part or whole) is in accordance with the respective Development Consent, Construction Certificate or Complying Development Certificate.

Interim Fire Safety Certificate - Prior to the issue of a final/interim Occupation Certificate, a final/interim fire safety certificate shall be submitted to and approved by the Principal Certifying Authority.

> **Note**:An Annual Fire Safety Statement for the building premises dealing with essential fire safety measures shall be submitted to Council in accordance with the requirements of Clauses 177 and 181 of the Environmental Planning and Assessment Regulation 2000.

Building in Saline Environments - The whole of the Fairfield Local Government Area is potentially saline affected, and as such appropriate

design features and building materials need to be incorporated into the construction of buildings, to minimise the risk of salt damage.

Prior to the issue of an Occupation Certificate, documentary evidence shall be submitted to the Principal Certifying Authority, certifying that the building has been constructed in accordance with Fairfield City Council's 'Building in Saline Environments Policy'.

Compliance with the Building Code of Australia - All building work must be carried out in accordance with the provisions of the Building Code of Australia. Compliance with the performance requirements can only be achieved by:

a. complying with the deemed-to-satisfy provisions; or
b. formulating an alternative solution which:
    i. complies with the performance requirements; or
    ii. is shown to be at least equivalent to the deemed-to-satisfy provisions; or
c. a combination of (a) and (b).

Administration Fee for the Lodgement of Certificates - Where a Principal Certifying Authority has been appointed other than Council, an administration fee is charged by Council for the lodgement of Construction Certificates, Interim Occupation Certificates, Occupation Certificates and Complying Development Certificates.

Thank you for the opportunity to comment.

For more information, please call 9725 0229.

Yours faithfully,

Edward Saulig
STRATEGIC LAND USE PLANNER

DOC16/192801

Ms Leanne Grove
DA Coordinator
Priority Projects, Key Sites & Industry
GPO Box 39
SYDNEY NSW 2001

EMAIL

2 May 2016

Dear Ms Grove,

ResourceCo Resource Recovery Facility Wetherill Park SSD 7256

I am writing in response to the Department of Planning and Environment's ("DoPE") request for the Environment Protection Authority ("EPA") to review State Significant Development ("SSD") Application No.7256.

I understand that ResourceCo RRF Pty Ltd ("the Proponent") is seeking development consent to establish a waste and resource management facility at No.35-37 Frank Street, Wetherill Park ("the Premises"). The facility proposes to process waste material to produce Processed Engineering Fuel (PEF) and other reusable commodities including aggregates, metal, timber and soil.

After reviewing the EIS and technical reports, the EPA has determined that the application does not meet the Secretary's Environmental Assessment Requirements and the EPA is unable to recommend approval of this proposal in its current form.

The EPA requires additional information to be included in the EIS for the EPA to be able to properly assess impacts of the project. Please refer to Attachment A for details of the issues identified in the application provided.

The EPA has reviewed the following documents:

- *Volume 1 Environmental Impact Statement Waste And Resource Management Facility SSD 15-7256 ResourceCo Pty Ltd 35-37 Frank Street Wetherill Park*, prepared by Nexus Environmental Planning Pty Ltd, dated 8 March 2016
- *Waste And Resource Management Facility Air Quality Impact Assessment Report* No. 15278-AQ Version A, prepared by Wilkinson Murray Pty Limited, dated 28 January 2016
- *Frank Street, Wetherill Park Waste & Resource Management Facility Noise Impact Assessment Report,* No. 15278-N Version A, prepared by Wilkinson Murray Pty Limited, dated 28 January 2016
- Waste and Resource Management Facility Surface Water Assessment, prepared by Advisian, dated 27 January 2016
- Architectural Plans prepared by Bell Architecture dated 27 January 2016.

If you have any questions regarding this matter, please contact Melissa Ward on 9995 5747.

Yours sincerely

DEANNE PITTS
A/Unit Head Waste Compliance
Environment Protection Authority

Contact officer: MELISSA WARD
(02) 9995 5747

Attachment A

State Significant Development ("SSD") 15_7256 has been submitted to the Department of Planning & Environment's ("DoPE"), seeking development consent to establish a waste and resource management facility at No.35-37 Frank Street, Wetherill Park ("the Premises"). The EPA has reviewed the Environmental Impact Statement provided. We have determined that the Environmental Impact Statement ("EIS") does not contain sufficient information for the EPA to adequately assess the impacts of the proposed development. The EPA requires the following additional information.

1. Energy from Waste

The application provides limited information to demonstrate compliance with elements of the *NSW Energy from Waste Policy* ("the Policy") that apply to Processed Engineered Fuel ("PEF") proposals. EPA requires the following additional information to allow an assessment of the proposal under the Policy:

i. Additional information on each waste stream to be received at facility including:
   a. quantities - maximum volume of each waste type to be stored onsite at any one time and the maximum throughput of each waste type;
   b. specifications;
   c. suppliers;
   d. upstream management procedures (to support waste specifications and controls for non-conforming wastes as well as PVC and hazardous materials); and
   e. current destination for each waste stream.

ii. Demonstrated compliance with resource recovery criteria in Table 1 of the Policy for each waste stream.

iii. More information on contaminated material management of waste inputs including:
   a. detailed information on procedures for hazardous material identification and removal;
   b. controls and management for the removal of halogenated substances (including PVC materials); and
   c. quarantine and management protocols for identified hazardous materials.

iv. Additional information on the halogenated substances contained in the PEF including laboratory test results of current residual waste to landfill and expected PEF material post processing. Facilities in NSW using the PEF will be required to demonstrate the content of halogenated substances in waste fuels and Group 6 emissions standards within the *Protection of the Environment Operations (Clean Air) Regulation 2010*, as outlined in the Technical Criteria of the Policy.

v. PEF is not being used on site and no information on the destination for this material is provided. More information is required to detail contingency management plans for the PEF material. For example, failure of pickup and transport, resulting in stockpiling of PEF.

vi. Specific export requirements apply to the export and transport of waste materials. The Proponent must ensure that they comply with all relevant requirements.

vii. More information to describe how the development is consistent with the aims and objectives in the NSW *Waste Avoidance and Resource Recovery Strategy 2014-2021*.

2. Noise

The EPA has reviewed the Noise Impact Assessment ("NIA") and requires the following additional information:

viii. The proposed site is to operate mainly during daytime and evening hours, however some activities will occur during the early morning and night-time periods. As such we require the

Proponent assess any potential sleep disturbance impacts. There may be a potential for short-term noise events from activities such as dumping onto the tipping floor, shredding, and metal-on-metal impacts. There may also be some potential for explosive events from gas bottles in the incoming waste stream. The sleep disturbance assessment must also detail how short noise events term and the potential for gas bottle explosions will be managed and, if necessary, mitigated.

ix. Noise monitoring has only been carried out at Res 1 – Maugham Crescent. It is possible that the background noise levels at Res 2 – Hassel Street and Res 3 – Chifley Street will be lower than those at Res 1 as they are further removed from the traffic noise influence of The Horsley Drive. Background noise levels at Res 2 and 3 should be considered.

x. It is unclear how the criteria for evening and night-time periods at receiver Res 1 were derived in Table 4-3 of the NIA. The Proponent must provide an explanation for the derivation process in the text accompanying the table.

xi. The NIA identified prevailing westerly winds in Section 5.1, however Section 4 states that a highest tenth percentile modelling approach was used in the assessment. The report must clarify which method was used to predict noise emission levels under adverse meteorological conditions.

xii. Table 7-2 of the NIA states that the daytime construction noise management level is 58 dBA for receivers Res 1 to Res 4. As the daytime rating background level for Res 1 is 47 dBA, this value must be revised to 57 dBA.

3. Air

The EPA has undertaken a review of the Air Quality Impact Assessment (AQIA) and requires that the AQIA and notes that the assessment is incomplete. There is no estimation of impacts to the air environment from construction (being earthworks and building) of the proposal. The Proponent must include construction impacts in their assessment.

4. Water

The EPA has reviewed the EIS and determined that additional information is required to ensure that all water pollution risks are identified and appropriately managed.

Stormwater / wastewater / leachate management systems

It is unclear how wastewater from material processing or leachate from waste stockpiles will be managed. The EIS indicates that water will be used for waste processing, namely dust suppression, however the fate of this process water is unclear.

The EIS includes a proposed treatment train but it is unclear if this only applies to stormwater. As there will be a range of materials stored and processed at the Site there is potential for a range of non-trivial pollutants to be potentially present in process water. The proposed stormwater pollution control system would be unlikely to adequately treat pollutants other than those typically found in stormwater.

Further information is required to demonstrate how contaminated run off will be managed and appropriately disposed of. If a discharge is proposed further information is required regarding how contaminated runoff will be treated to an appropriate level prior to discharge. The Proponent must clearly demonstrate:

xiii. how stormwater and contaminated runoff will be managed, including:

   a. areas that discharge direct to stormwater (e.g. carpark; roofs); and

   b. areas that receive contaminated runoff;

xiv. how leachate and process water will be managed, including detail of the fate and treatment of any contaminated water and the practical measures that will be taken to ensure it does not enter stormwater infrastructure.

Potential impacts on watercourses and groundwater

The EPA understands that discharges will potentially occur from the sediment basin and a stormwater drain at the southern boundary of the Premises. However it is unclear if the sediment basin will only receive stormwater. If the sediment basin is to receive wastewater from the premises the Proponent will need to consider all pollutants potentially present that pose a risk of non-trivial harm to human health or the environment and assess the potential impacts on receiving waters.

In addition the proponent has not considered the environmental values of Prospect Creek or the practical measures that could be taken to restore or maintain those values.

The EPA requires the EIS includes an assessment of the impact of any proposed discharge from the Premises including:

xv. characterisation of the water, identifying all pollutants that pose a risk of non-trivial harm to human health or the environment, including their concentrations and loads;

xvi. an assessment of the expected frequency and volume of discharges;

xvii. an appraisal of the practical measures that can be taken to prevent, control, abate or mitigate the pollution and protect the environment from harm;

xviii. a description of the receiving environment, including the environmental values of the receiving waters affected by any discharge and the practical measures that could be taken to restore or maintain those environmental values; and

xix. an assessment of the nature and degree of impact that any proposed discharge will have on the receiving environment. This must include consideration of the indicators and associated trigger values or criteria for the identified environmental values with reference to ANZECC (2000) Guidelines.

Site Water Balance

The water balance detailed in the EIS focusses on the water demands of the proposed facility rather than water outputs. In addition, there appears to be no analysis or statement regarding the volume and frequency of overflow discharges. The EPA requires that the EIS includes:

xx. a comprehensive water balance which quantifies all water inputs and outputs including, but not limited to, the water used in processing the waste.

NSW GOVERNMENT | Department of Primary Industries

OUT16/17750

Ms Emma Barnet
Industry Assessments
NSW Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Emma.barnet@planning.nsw.gov.au

Dear Ms Barnet

ResourceGo Resource Recovery Facility Wetherill Park (*SSD 7256*)
Comment on the Environmental Impact Statement

I refer to your letter/email dated 16 March 2016 to the Department of Primary Industries in respect to the above matter. Comment has been sought from DPI Water and DPI Fisheries. DPI Fisheries advise no further issues. DPI Water comments are as follows. Any further referrals to DPI can be sent by email to landuse.enquiries@dpi.nsw.gov.au.

Comment by DPI Water

DPI Water has reviewed the Environmental Impact Statement (EIS) and provides the following comments:

The SEARs require the EIS to assess potential impacts on groundwater. The EIS notes the site would be fully sealed and would therefore have no impact on any groundwater underlying the site (see Section 9.6, page 9.8). It also indicates significant earthworks would be required to achieve a level site and the site works would include cut and fill (see Section 13.4.2, page 13.5). It is unclear if the proposed cut is likely to intercept groundwater.

Should excavation intercept groundwater and there is a requirement to extract groundwater or to dewater, including any ongoing take of groundwater, then DPI Water needs to be advised and a licence may be required.

For further information please contact Janne Grose, Water Regulation Officer at DPI Water (Parramatta office) on **t:** (02) 8838 7505; **e:** janne.grose@dpi.nsw.gov.au:

Yours sincerely

Mitchell Isaacs
Director, Planning Policy & Assessment Advice
02/05/2016

Attachment 2

Job Description for a Customer Service Officer

POSITION DESCRIPTION

POSITION :	**CUSTOMER SERVICE OFFICER**
DOCUMENT NUMBER :	**JRD 30**
RESPONSIBLE TO :	**CUSTOMER SERVICE TEAM LEADER**
LOCATION :	**WELSHPOOL, WESTERN AUSTRALIA**
ALTERNATE :	**CUSTOMER SERVICE SUPERVISOR**

JOB PURPOSE

The customer service officer is responsible for the correct docketing and charging of product disposed at the recycling depot, as well as the despatching and ticketing of finished products sold.

Customer Service Officers are also responsible for inspecting loads to check for any non-conforming products, specifically Asbestos and ensuring that the Asbestos Management Plan is enforced.

Most importantly the weighbridge is ResourceCo's frontline with regard to customer service, they have daily interaction with ResourceCo customer base both face to face and over the phone and must ensure that ResourceCo's customer service ethos is part of the weighbridge culture and practice.

Additionally Customer Service Officers are an extension of the sales team and should endeavour to determine what is happening in the marketplace, to provide the sales team with new leads,

Customer Service Officers are responsible for the daily cleaning of the weighbridge office and the removal of build up on the weighbridge.

RESPONSIBILITIES

- Excellent customer service
- Lead generation
- Enforcing AMP
- Ensuring visitors are signed in
- Implementing emergency evacuation procedures
- Ticketing of products sales

- Identifying incoming waste streams and subsequent production of weigh dockets.
- Incoming phone calls including sales and disposal.
- Organising deliveries and transportation
- Other duties as required from time to time by the Customer Service Team Leader/Supervisor, and or Senior Management team
- Cash Handling, EFTPOS transactions & document tracking.

QUALIFICATIONS AND EXPERIENCE

- Previous experience in a weigh bridge operation in a quarry industry
- Computer literate with basic word
- A sound Knowledge of the civil contract or quarry industry would be well regarded
- Cash handling and basic cash balancing
- The incumbent will require strong verbal communications skills and a good understanding of Adelaide metropolitan area.
- A customer service attitude.
- Possess an excellent telephone manner.

Weighbridge Hours of work:

Mon to Fri	5.00 am to 5.00 pm
Sat	7.00 am to 4.00pm
Sun	9.00 am to 3.00pm

Casual work hours as required.

AUTHORISER ..... DATE .....

INCUMBENT ..... DATE .....

Attachment 3

Mixed Waste Receival Safe Operating Procedure

SAFE OPERATING PROCEDURE

SOP 9 – RECEIPT OF MIXED WASTE

PURSPOSE AND SCOPE

This procedure is to ensure the correct identification of Mixed Waste received at ResourceCo sites.

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RESPONSIBILITIES

Site Managers, Sales Staff, Weighbridge Staff and Inspection Officers have a direct responsibility to ensure they are familiar with this procedure.

PROCEDURE

RECEIPT OF PROCEDURE
Weighbridge Operators 1. When a customer arrives on the weighbridge, staff are to greet the driver and ask the following questions a. *What type of material he is delivering?* b. *Where has the load come from? (Suburb)* c. *Is it industrial, commercial or residential?*
2. The weighbridge will then perform a visual inspection of the load to determine the type of waste. Operator should assess for inclusions i.e. oversize materials (greater than 100 mm in any direction). Also check for green waste and especially odours, (i.e. solvents gas and fuel). ***If the material is classified as suitable , then:*** • Weighbridge to advise driver the load will be inspected when tipped off. • The driver will be issued with a docket and asked to proceed to the tip off area.

- Weighbridge to radio Inspection Officer of incoming truck.

Inspection Officer

1. Inspection Officer will direct the truck to the correct tip off area.

2. The load will be visually inspected both during and after the tipping off process.

3. The inspection officer will look for any obvious breaches in the material being delivered. This includes evidence of:
   a. Liquids
   b. Medical Waste (Syringes)
   c. Asbestos
   d. Odours (i.e. Solvents, Gas, and Fuel)

4. If any of the above are identified, the Inspection Officer will radio the Site Supervisor or Operations Manager to determine whether the load is to be reloaded, relocated or re charged. Materials containing Asbestos, Medical Waste and Odours will be rejected as they are a listed waste and are not covered in any of our licenses.

5. Weighbridge operator will need to ensure an incident report is completed for any load that is rejected and the offending company contacted

6. Incident Register to be completed for Board reporting purposes

Key Points

- Ensure all fill delivered to site meets the definition of Clean Fill, as set by the Environment Protection Authority.
- Each load delivered to site must be checked for contaminants

RELATED FORMS

FORM 2 - Incident Form – Form 2, Incident Register – REG 2, AMP

RECORD KEEPING

(N:\documents\QA – ResourceCo Management System\Environment, Quality & Safety\4.0SafeOperatingProcedure)

Attachment 4

Waste Receival Inspection Officer

JOB ROLE DESCRIPTION
JRD 37

ROLE TITLE: Waste Receival Inspection Officer **DIVISION:** Welshpool RRF

SITE: WELSHPOOL **DATE:** 04/02/2010

ROLE PURPOSE:	• To ensure the raw feed being delivered to the site and processed through the crushing plant is of acceptable quality.
ROLE DIMENSION: • ***Reports to:*** • ***Area of impact:*** • ***Customer/s relationships:***	 • Supervisor • Integral to final product quality • Customers / Weighbridge / Processing Plant / Machine Operators
KEY ACCOUNTABILITIES • **Product Quality** • **Comply at all times with Resourceco's OHS&E policies and procedures.** • **To be an effective team member.**	**KEY OUTCOMES** • Continually monitor material being delivered to site. Refer to WI19 Waste Receival Feed Inspection Officer • Check each load for contaminants before instructing machine operator to push off. • Ensure a consistent quality feed is being supplied to the crushing plant. • Take action and report any OH&S issues to the OH&S Coordinator. • Ensure an Incident Report is completed each time a load is rejected, stating the name of the customer and the reason it was rejected. • Flexibility to undertake any task within skill range.
EDUCATION/QUALIFICATIONS & EXPERIENCE:	• Asbestos Identification and Awareness training.
Employee **Name:**_____ **Sign:**_____	**Manager / Supervisor** **Name:**_____ **Sign:**_____

Attachment 5

Asbestos related management plan

RESOURCECO
THE SUSTAINABLE RESOURCE COMPANY

ASBESTOS MANAGEMENT PLAN WETHERILL PARK RRF

TABLE OF CONTENTS

1 SCOPE

This asbestos management plan applies for all works conducted by ResourceCo Pty Ltd trading as Wetherill ParkResourceCo Recovery Facility "Wetherill Park RRF" at Frank St. Wetherill Park NSW hereafter referred to as "the site". A Full history of "the site" and detailed site boundaries is available as Appendix item E. The Asbestos Management Plan has been prepared in accordance with relevant statutory guidelines**.** The management plan includes the following information;

- Work Area Boundaries
- Asbestos Management Procedures
- OH&S Policy
- Quality Policy
- Environment Policy

2 PURPOSE

The primary purpose of the Asbestos Management Plan (AMP) is to ensure that, any asbestos containing material (ACM) delivered to ResourceCo for processing, is identified and handled in a safe manner, so as to provide a safe working environment for all employees, visitors and contractors. The secondary purpose of the AMP is to prevent inclusion in manufactured final products.

This Asbestos Management Plan has been developed to ensure ResourceCo Pty Ltd are compliant with the required Western Australian legislative requirements in response to the potential presence of asbestos containing materials (ACMs) being present in the raw waste product that is received on a daily basis at ResourceCo.

Specific legislation referenced is the Code of Practice on Safe Removal of Asbestos [BOHSC: 2002(2005) and the Health (Asbestos) Regulations 1992 (Western Australia)

Additionally the AMP will address the need to develop and maintain an Asbestos Register for all buildings on ResourceCo sites.

Finally the AMP will outline the vocational training for all employees with regard to Asbestos and the processes to be incorporated to ensure both compliance with the plan and continued improvement.

3 INTRODUCTION

Asbestos is a generic term given to several naturally-occurring silicate minerals. The most common forms are; Chrysotile (White), Crocidolite (Blue) and Amosite (Brown). Asbestos-containing materials were used extensively in Australian buildings and structures, plant and equipment and in ships, trains and motor vehicles during the 1950s, 1960s and 1970s, and some uses, including some friction materials and gaskets, were only discontinued on 31 December 2003.

The most commonly found household building materials that contain asbestos are asbestos-cement products (also called 'fibro' and 'AC sheeting'). Appendix B lists other common asbestos containing materials. See Appendix C for a detailed list of Asbestos containing materials.

Asbestos containing material can be both "Friable" and "Non Friable" as defined below;

> 'Friable asbestos-containing material' means: material that contains more than 1% asbestos by weight, and is in the form of powder or can be crumbled, pulverised or reduced to powder by hand pressure when dry.
>
> 'Non-friable asbestos-containing material' means material that contains more than 1% asbestos by weight and in which the asbestos fibres are bonded by cement, vinyl, resin or other similar material.

Notwithstanding the above definitions, ResourceCo will remove all Asbestos Containing Materials when identified. ResourceCo will also err on the side of caution and endeavour to remove Non Asbestos containing concrete sheeting to minimise confusion.

4 REFERENCES

- The Occupational Safety and Health Act 1984
- The Occupational Safety and Health Regulations 1996
- the Code of Practice on safe Removal of Asbestos [BOHSC:2002(2005)]
- The Health (Asbestos) Regulations 1992 (Western Australia).

5 DEFINITIONS

See *Appendix A*

6 RESPONSIBILITIES

Ultimately the directors of ResourceCo acting as the employers have a legal obligation under Section 1.4 of The Occupational Safety and Health Regulations 1996 to; where reasonably expected provide a safe workplace and promote safe systems of work for employees, visitors and contractors.

Conversely all employees, visitors and contractors have a duty of care to themselves and each other coupled with a legal obligation to adhere to the lawful command and instruction of their employer and or person in control of the site.

Customers have a legal obligation to accurately declare what they are disposing and are made aware of the substances that ResourceCo do not accept by;

- Notification during initial stage of setting up their account.
- Prominent signage at the entrance to the site that ResourceCo do not accept, liquid, hazardous, radioactive or listed wastes including asbestos.
- Prominent signage at the weighbridge, stating that Resourceco do not accept asbestos materials.
- Dockets issued for each and every load stating Resourceco do not accept, liquid, hazardous, radioactive or listed wastes including asbestos.
- Ensure terms and conditions for incoming loads with regard to asbestos and associated disclosure are accessible from the company's web page

A breakdown of the responsibilities is provided in *Appendix C – Responsibility Matrix*

7 RISK ASSESSMENT

Asbestos can become a hazard to human health when the individual fibres within the material are allowed to escape into the air. This can happen when the material is broken, sawn, drilled or sanded.

The risk from exposure to airborne asbestos fibres in general terms is low unless the material is disturbed or worked upon. The hardness and structure (non friable) of most asbestos materials and the sometimes (in most cases) relatively low asbestos content means that it is less likely to generate airborne asbestos fibres that say friable asbestos pipe lagging.

Waste material brought onto site is brought to the site by Wetherill Park RRF customers. Wetherill Park Management has developed the following procedures to ensure that any material potentially containing asbestos material is dealt with in an appropriate manner:

- A strict policy advertised to all customers, on ResourceCo's web site and price lists prohibits hazardous materials or materials suspected of containing hazardous

materials including asbestos from being tipped at this facility. Signage located at the entrance to the facility also outlines what is not accepted.

- Initial contact for control is as the loads arrive at the yard. The weighbridge controller enquires as to the nature of the loads and what is in it. If any unapproved materials are detected, the load is rejected and recorded in a rejection registry. All loads brought into the yard are recorded and records stored for a period of 5 years. A statement on dockets confirming drivers are aware of the source of the material and confirming that their load is free of contaminant materials including any visible asbestos will be implemented.

- The load is physically checked by the Traffic Warden before allowing further access to the facility. If any unapproved materials are detected, the load is rejected and recorded in a rejection registry.

- Once tipped off, the material is again inspected for any contaminations. If any unapproved materials are detected, the load is rejected, reloaded (with a $100.00 reloading fee) and recorded in a rejection registry. If ACM is detected signage and barriers, indicating the removal of asbestos is in action, shall be set up until the area is deemed free of visible ACM. The tipped load will be thoroughly dampened down with water (not of sufficient force to release dust when it contacts the surface of the ACM) before loading back onto the offending vehicle for disposal at an approved landfill site.

- Once a load has been tipped off and inspected, the material is then raked/spread and again checked for any contaminations. If any unapproved materials are detected, the load is rejected, reloaded (with a $100.00 reloading fee) and recorded in a rejection registry. If reloading is not an immediately available option and any ACM is detected, signage and barriers, indicating the removal of asbestos is in action, shall be set up until the area is deemed free of visible Asbestos Containing Material (ACM). The tipped load will be thoroughly dampened down with water (not of sufficient force to release dust when it contacts the surface of the ACM) before loading onto a truck for disposal at an approved landfill site with details being recorded in the rejected loads register.

- While the stockpiled material is being sorted and the removal of material not suitable for PEF manufacture is conducted, ACM is again being assessed by the loader operator, the processing operator and the other site personnel. If any ACM is detected, stockpiling for sorting is halted immediately.

- Staff are expected to alert the site supervisor and isolate the load until a risk assessment can be conducted. If ACM is identified during the risk assessment, Asbestos Removal Procedures will be engaged and removal will be in accordance with:

8 IDENTIFICATION

Figure 1 **Asbestos Identification & Control Flow Chart** shows the steps that Resourceco employ, to identify Asbestos Containing Material, throughout the processing stages.

SALES

- All Large and Commercial loads are to be inspected in situ as part of the quotation process
- All new accounts are to read and sign our Asbestos Manage Plan in acknowledgement of our trading terms and conditions

WEIGHBRIDGE

- All medium and higher risk loads are inspected in detail using CCTV and an inspection platform.
- If any material suspected of containing asbestos is sighted then the load is rejected and documentation completed.
- If no suspect material is identified then the load is directed to the processing stockpile.
- The weighbridge operator notifies the traffic warden on the processing stockpile of incoming medium and higher risk loads for a more detailed inspection.

PROCESSING STOCKPILE

- The traffic warden inspects all loads delivered to the processing stockpile when they are unloaded.
- Loads that are medium to higher risk are unloaded in an area to ensure materials are not mixed with other loads and a thorough inspection takes place.
- High risk loads are spread out to allow a detailed inspection.
- If any material is identified or suspected of containing asbestos – the traffic warden will immediately notify the weighbridge clerk with the offending vehicles registration number and the name of the company.
- The Safe Operating Procedure - Asbestos Control (Appendix D) shall be implemented.

EXCAVATOR/

- The excavator operators task is to sort the raw product (by means of rotating grapple) and prepares the waste materials and removing any bulky plastics and materials prior to putting the materials into the raw feed stockpile ready for processing.
- During the above process the operator looks for any suspected asbestos containing materials.
- If any material is identified or suspected of containing asbestos – the operator will immediately notify the weighbridge clerk with as much detail as possible to help identify the offending customer.
- The Safe Operating Procedure - Asbestos Control (Appendix D) shall be implemented.

PLANT OPERATOR

- This person controls the material feed into the plant. All materials pass through an inspection point at this stage.
- If any material is identified or suspected of containing asbestos, the Safe Operating Procedure - Asbestos Control (Appendix D) shall be implemented.

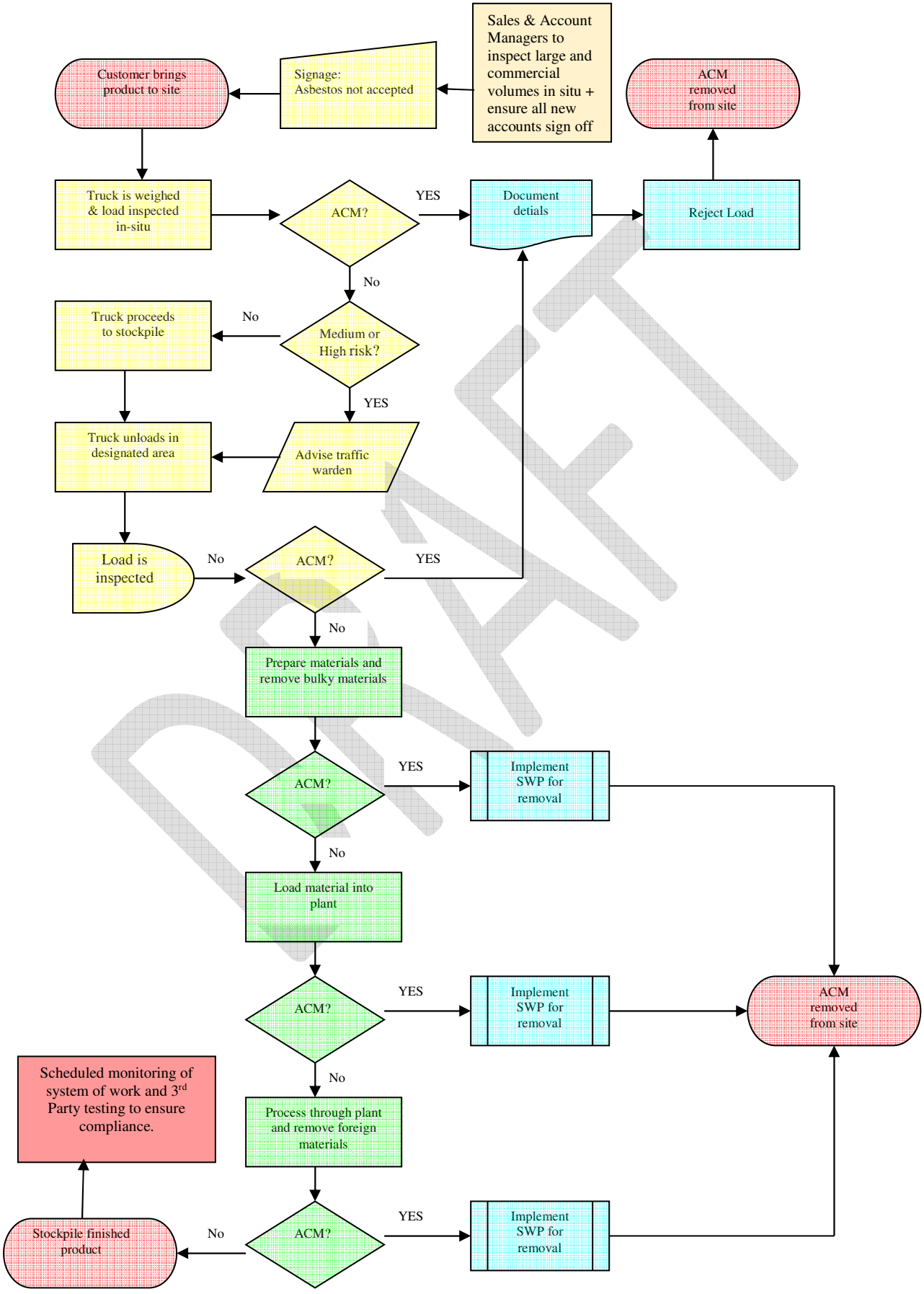
PICKING STATIONS

- As part of the process associated with the crushing plant, there are picking stations where staff visually scan and remove unwanted waste materials on the transfer belt.
- If any material is identified or suspected of containing asbestos, Safe Operating Procedure - Asbestos Control (Appendix D) shall be implemented
-

ENVIRONMENT MANAGER

- Scheduled spot checks of end product to confirm processes are working and end product meats specifications

Figure 1 Asbestos Identification & Control Flow Chart



9 HANDLING & REMOVAL

Any detected asbestos containing materials shall be handled, removed, stored and transported in accordance with the Safe Work Procedure – Asbestos Control (Appendix D). Only competent and trained personnel shall be involved in this process.

Smaller volumes will be managed by ResourceCo Wetherill Park employees in accordance with the Safe Work Procedure – Asbestos Control (Appendix D) and specialised vocational training in low level asbestos handling.

In the extremely unlikely event that volumes of this nature are detected, then the Site Manager will contact specialised removalists to undertake the removal.

For volumes smaller than this, competent and trained site personnel shall remove and store suspected asbestos containing materials in accordance with the Safe Operating Procedure 1 – Asbestos Control – Appendix D

10 TRAINING

ResourceCo as a strong culture of training and developing it's employee population and will train personal to fulfil the requirements in accordance with its Staff Training & Development Policy (Pol 26) (Appendix F) and the specific requirements of this Asbestos Management Plan. This training will include;

- Asbestos Product Identification
- Health aspects of Asbestos
- Inspecting Loads
- Safe Work Procedures for removing asbestos
- Notification Procedures
- Record keeping

All training shall be recorded and kept in relevant staff files with licenses and other training initiatives.

Employees will be assessed as either competent or not competent for the position and or role they have been chosen to undertake and only competent employees will be permitted to work.

Third party labour employees will be required to be assessed for (Appendix H) competency prior to commencement and will required to work the first 2 hours of their shift with a competent and permanent employee (buddy system).

Key Competencies by Role

	Visually Inspect Load	Recognise types of material that may contain Asbestos	Understand Material Risk Classification Matrix	Communicating with other employees – Inc. 2 –way radio	Process for Rejecting loads	Completing an Incident report	Load Assessment (High v Low Risk)	Removal Protocols – Segregate, Soak, Sequentially numbered and sealed bag	Temporary Storage of Asbestos + Asbestos Log Book	PPE (Disposable Overalls, P2 Respirator, Gloves & Safety Glasses	Safe Operating procedure – Asbestos Control	Asbestos Management Plan & Quiz
Sales	X	X	X	X	X	X	X	X	X	X	X	X
Weighbridge	X	X	X	X	X	X	X	X	X	X	X	X
Traffic	X	X	X	X	X	X	X	X	X	X	X	X
Presort	X	X		X		X		X	X	X	X	X
Plant Operator		X		X		X		X	X	X	X	X
Picker		X		X		X		X	X	X	X	X
Supervisor	X	X	X	X	X	X	X	X	X	X	X	X

Figure 2 Competency by Role Matrix

11 Monitoring & Compliance

ResourceCo will carry out periodic (no less than 6 times per year) air monitoring of dust which shall include monitoring for Airborne Asbestos Fibres. This monitoring will measure Resparable Asbestos fibres and the results assessed against the National Exposure Standard of 0.1 fibres per millilitre of air.

Tests will be sent to the DEC at the same time as they are sent to our Local Government Council – The City of Fairfield.

In accordance with ResourceCo's Risk Assessment protocols a quarterly review or compliance and performance audit (Site Inspection – Form 11.1) will be conducted by management. This will include a review of all systems and protocols for prevention of ACM entering the site as well as the reporting systems related to this AMP are functioning and compliant with the DEC Guidelines A summary of improvements will be noted in our general improvement reporting.

If an incident occurs where ACM is tipped at our facility, the incident and action arising must be recorded. Procedures for detailing accidents, incidents and or emergencies are outlined in The Incident Investigation Procedure – PROC 12 (Appendix K).

A compliance and performance audit will be conducted quarterly by senior management to ensure all systems for prevention of ACM entering the site as well as the reporting systems related to this AMP are functioning and compliant with the DEC Guidelines.

The schedule for auditing and monitoring will be incorporated into the ResourceCo EQ&S schedule as part of its accredited Integrated QA System

12 APPENDICIES

Appendix A – Definitions

Accredited Laboratory	a testing laboratory accredited by the National Association of Testing Authorities, Australia (NATA) or a similar accreditation authority, or otherwise granted recognition by NATA, either solely or in conjunction with one or more other persons.
Airborne Asbestos Fibres	any fibres of asbestos small enough to be made airborne. For the purposes of monitoring airborne asbestos fibres, only respirable asbestos fibres (those fibres less than 3 µm wide, more than 5 µm long and with a length to width ratio of more than 3 to 1) are counted. Note: Airborne asbestos fibres are generated by the mechanical disintegration of Asbestos-Containing Materials (ACM) and subsequent dispersion of the fibres into the air from activities such as mining and the use, removal and disposal of asbestos and ACM. Airborne dust has the potential to contain respirable asbestos fibres.
Air Monitoring	airborne asbestos fibre sampling to assist in assessing exposures and the effectiveness of control measures.
Asbestos	the fibrous form of mineral silicates belonging to the serpentine and amphibole groups of rock-forming minerals, including actinolite, amosite (brown asbestos), anthophyllite, chrysotile (white asbestos), crocidolite (blue asbestos), tremolite, or any mixture containing one or more of the mineral silicates belonging to the serpentine and amphibole groups.
Asbestos-Cement (AC) products	consisting of sand aggregate and cement reinforced with asbestos fibres (e.g. asbestos cement pipes and flat or corrugated asbestos cement sheets).
Asbestos-Containing Material (ACM)	any material, object, product or debris that contains asbestos
Asbestos Management Plan (AMP)	a documented approach to promoting a safe and compliant system of work and associated work practices when dealing with asbestos
Clean Brick	brick free of any other C&D material.
Clean Concrete	concrete that is free of any other C&D material.

Clean Bitumen	Waste bitumen free of other C&D material.
Competent Person	a person possessing adequate qualifications, such as suitable training and sufficient knowledge, experience and skill, for the safe performance of the specific work.
Construction and Demolition Waste – Inert	Waste arising from commercial or industrial premises, refurbishments and demolition and construction work and includes bricks, concrete, masonry, soil, tiles, gyprock, paper, ferrous and non-ferrous metals, timbers and organic waste.
Construction and Demolition Waste - Mixed	Waste arising from commercial or industrial premises, refurbishments and demolition and construction work and is relatively free of bricks, concrete, & masonry.
Contaminated Loads Register	a record of the date and registration details of vehicles delivering C&D material that were rejected because asbestos was identified in the load.
Exposure Monitoring	air monitoring to determine a person's likely exposure to a hazardous substance. Exposure monitoring is designed to reliably estimate the person's exposure, so that it may be compared with the NES. Note: Exposure monitoring includes airborne asbestos fibre sampling, analysis, estimation of time-weighted average exposure and interpretation. Samples are taken within the breathing zone and are usually obtained by fastening the filter holder to the worker's jacket lapel.
Friable Asbestos	asbestos-containing material which, when dry, is or may become crumbled, pulverised or reduced to powder by hand pressure.
Load	the quantity of waste material delivered to the stockpile by truck, bin or trailer
Manufactured Products	Materials that have gone through the production process producing sand, aggregates and rubbles of various sizes.
Mixed Waste Dry	Commercial quantities of dry waste largely containing combustible materials relatively free of putrescible waste and suitable for sorting and processing into processed Engineered Fuel.
Personal Protective	equipment and clothing that is used or worn by an

Equipment (PPE)	individual person to protect themselves against, or minimise their exposure to, workplace risks. It includes items such as facemasks and respirators, coveralls, goggles, helmets, gloves and footwear
National Exposure Standard (NES)	an airborne concentration of a particular substance, within the worker's breathing zone, which according to current knowledge, should not cause adverse health effects or undue discomfort to nearly all workers.
Non Friable Asbestos Containing Material	material that contains more than 1% asbestos by weight and in which the asbestos fibres are bonded by cement, vinyl, resin or other similar materials.
Processing	the complete recycling process, including inspection of incoming loads, removal of extraneous material, crushing and blending of different materials to create a recycled product.
raw waste product	Dry mixed waste delivered to ResourceCo for processing.
Respirable Asbestos Fibre	a fibre of Asbestos small enough to penetrate into the gas exchange regions of the lungs. Respirable asbestos fibres are technically defined as fibres that are less than 3 µm wide, more than 5 µm in length and have a length to width ratio of more than 3 to 1.
Unclean Concrete	Waste concrete containing up to 5% of foreign materials including green waste, plastics, wiring, timber, paper, insulation, tin and packaging.
Unclean Brick	Waste brick containing up to 5% of foreign materials including green waste, plastics, wiring, timber, paper, insulation, tin and packaging.
Unclean Bitumen	Waste bitumen containing up to 5% of foreign materials including green waste, plastics, wiring, timber, paper, insulation, tin and packaging.
waste containing friable asbestos	waste consisting of non-bonded asbestos fabric or waste material that contains more than 1% asbestos by weight and is in the form of powder or can be crumbed, pulverised or reduced to powder by hand pressure when dry
waste containing non-friable asbestos	waste material that contains more than 1% asbestos by weight and in which the asbestos fibres are bonded by cement, vinyl, resin or other similar materials

Appendix B - Common Examples of ACM

(This is not an exhaustive list)

A

Air-conditioning ducts: exterior or interior acoustic and thermal insulation

Arc shields in lift motor rooms or large electrical cabinets

Asbestos-based plastics products - as electrical insulates and acid-resistant compositions or aircraft seat

Asbestos ceiling tiles

Asbestos-cement conduit

Asbestos-cement electrical fuse boards

Asbestos-cement external roofs and walls

Asbestos-cement in the use of form work when pouring concrete

Asbestos-cement internal flues and downpipes

Asbestos-cement moulded products such as gutters, ridge cappings, gas meter covers, cable troughs and covers

Asbestos-cement pieces for packing spaces between floor joists and piers

Asbestos-cement (underground) pits, as used for traffic control wiring, telecommunications cabling, etc

Asbestos-cement render, plaster, mortar and coursework

Asbestos-cement sheet

Asbestos-cement sheet behind ceramic tiles

Asbestos-cement sheet internal over exhaust canopies such as ovens, fume cupboards, etc.

Asbestos-cement sheet internal walls and ceilings

Asbestos-cement sheet underlays for vinyl

Asbestos-cement storm drain pipes

Asbestos-cement water pipes (usually underground)

Asbestos-containing laminates (e.g. formica) used where heat resistance is required, e.g. ships

Asbestos-containing pegboard

Asbestos felts

Asbestos marine board, e.g. marinate

Asbestos mattresses used for covering hot equipment in power stations

Asbestos paper used variously for insulation, filtering and production of fire resistant laminates

Asbestos roof tiles

Asbestos textiles

Asbestos textile gussets in air-conditioning ducting systems

Asbestos yarn

Autoclave / steriliser insulation

B

Bitumen-based water proofing such as malthoid, typically on roofs and floors but also in brickwork

Bituminous adhesives and sealants

Boiler gaskets

Boiler insulation, slabs and wet mix

Brake disc pads

Brake linings

C

Cable penetration insulation bags (typically Telecom)

Calorifier insulation

Car body filters (not common)

Caulking compounds, sealant and adhesives

Cement render

Chrysotile wicks in kerosene heaters

Clutch faces

Compressed asbestos-cement panels for flooring, typically verandas, bathrooms and steps for demountable buildings

Compressed asbestos fibres (CAF) used in brakes and gaskets for plant and automobiles

D

Door seals on ovens

E

Electric heat banks - block insulation

Electric hot water services - normally not asbestos but some millboard could be present

Electric light fittings, high wattage, insulation around fitting (and bituminised)

Electrical switchboards – see Pitch-based

Exhausts on vehicles

F

Filler in acetylene gas cylinders

Filters - beverage; wine filtration

Fire blankets

Fire curtains

Fire door insulation

Fire-rated wall rendering containing asbestos with mortar

Fire-resistant plaster board, typically on ships

Fire-retardant material on steel work supporting reactors on columns in refineries in the chemical industry

Flexible hoses

Floor vinyl sheets

Floor vinyl tiles

Fuse blankets and ceramic fuses in switchboards

G

Galbestos™ roofing materials (decorative coating on metal roof for sound proofing)

Gaskets - chemicals, refineries

Gaskets - general

Gauze mats in laboratories / chemical refineries

Gloves - asbestos

H

Hairdryers - insulation around heating elements

Header (manifold) insulation

I

Insulation blocks

Insulation in electric reheat units for air-conditioner systems

L

Laboratory bench tops

Laboratory fume cupboard panels

Laboratory ovens - wall insulation

Lagged exhaust pipes on emergency power generators

Lagging in penetrations in fireproof walls

Lifts shafts - asbestos-cement panels lining the shaft at the opening of each floor, and asbestos packing around penetrations

Limpet asbestos spray insulation

Locomotives - steam; lagging on boilers, steam lines, steam dome and gaskets

M

Mastics

Millboard between heating unit and wall

Millboard lining of switchboxes

Mortar

P

Packing materials for gauges, valves, etc., can be square packing, rope or loose fibre

Packing material on window anchorage points in high rise buildings

Paint, typically industrial epoxy paints

Penetrations through concrete slabs in high rise buildings

Pipe insulation including moulded sections, water-mix type, rope braid and sheet

Pitch-based (e.g. zelemite, ausbestos, lebah) electrical switchboard

Plaster and plaster cornice adhesives

R

Refractory linings

Refractory tiles

Rubber articles - extent of usage unknown

S

Sealant between floor slab and wall, usually in boiler rooms, risers or lift shafts

Sealant or mastik on windows

Sealants and mastics in air-conditioning ducting joints

Spackle or plasterboard wall jointing compounds

Sprayed insulation - acoustic wall and ceiling

Sprayed insulation - beams and ceiling slabs

Sprayed insulation - fire retardant sprayed on nut internally, for bolts holding external building wall panels

Stoves - old domestic type; wall insulation

T

Tape and rope - lagging and jointing

Tapered ends of pipe lagging, where lagging is not necessarily asbestos

Tilux sheeting in place of ceramic tiles in bathrooms

Trailing cable under lift cabins

Trains - country - guards vans - millboard between heater and wall

Trains - Harris cars - sprayed asbestos between steel shell and laminex

V

Valve, pump, etc. insulation

W

Welding rods

Woven asbestos cable sheath

Appendix C Responsibility Matrix

Concrete Waste Processing Steps	Control Process	Responsibility	How
Trading Account Application	Customer aware of types of waste not accepted	Account Manager	Customer communication
Customer vehicle enters site	Signage of type of waste not accepted	Customer	Visual
Customer vehicle weighed on weighbridge	Signage of type of waste not accepted	Customer	Visual
	Customer given docket with type of waste not accepted printed on reverse	Weighbridge Operator	Document
	Load inspected for suspect material	Weighbridge Operator	Visual inspection by CCTV or via inspection platform
Customer vehicle unloads	Load inspected for suspect material	Traffic Warden	Visual inspection
Material is sized by excavator	Stockpile inspected for suspect material	Pulveriser operator	Visual inspection
Material is loaded into crushing plant	Inspected for suspect material	Crusher Operator	Visual inspection
Material is processed through plant	Inspected for suspect material	Pickers x 3	Visual inspection

Appendix D

SAFE OPERATING PROCEDURE
SOP 1.1 – ASBESTOS CONTROL - UNDECLARED

PURPOSE AND SCOPE
In conjunction with the Asbestos management Plan (AMP) this procedure is to be implemented upon the identification of asbestos in delivered material to site.

RESPONSIBILITIES
Account Managers, Production / Site Managers, Supervisors, Weighbridge Clerks, Plant Operators, Traffic Wardens/Inspection Officers & Pickers all have a direct responsibility to ensure they are familiar with this procedure.

KEY HAZARDS

	○ Asbestos is a dangerous product. ○ Do not inhale asbestos fibers. Do not disturb the material. Use water to wet the material down to ensure particles are not disturbed.

PPE REQUIREMENTS

- Disposable white overalls
- P2 Filtered Respirator
- Protective Gloves
- In addition to any site PPE Requirements

PROCEDURE

ABESTOS CONTROL
1. Suspected asbestos is identified.
2. Traffic warden and or Site Supervisor to assess whether volume of suspected Asbestos is (a) greater than 10m2 and or (b) “actively mixed” throughout the load to the extent that the entire load warrants rejection and or (c) not “actively mixed” throughout the load and able to be removed and stored in accordance with ResourceCo’s AMP by trained ResourceCo personnel 3. Traffic warden and or Site Supervisor to notify weighbridge clerk with the Registration No. and company of the offending vehicle. If possible, the weighbridge will call the truck back to reload the material after it has been watered down.
4. Isolate load and communicate to all staff working in the location.
5. Call water cart to spray load with water to contain dust emissions.
6. Do not disturb the material and wait on instructions from management on disposal strategy if unable to nominate source for collection (if significant number of pieces and or 10m2) then must be removed by a qualified asbestos revivalist.
7. In the amount of asbestos is determined by the Site Supervisor and or the traffic warden to be manageable by ResourceCo employees then trained ResourceCo employee adhere to the following; 1. -Wear protective overalls. 2. -Wear P2 respirator.

3. -Wear protective gloves.
4. Ensure asbestos is wet
5. Spray inside plastic bags
6. -Carefully place asbestos pieces in the bag(s), gooseneck the bags opening and seal using cloth tape. Bags to be sequentially numbered and number to be recorded on Incident Report.

8. If a picker picks a piece of asbestos from the line then they should complete the following;

1. spray the individual piece of asbestos with water
2. spray inside of plastic bag
3. place it in a small plastic bag
4. place the bag in short term storage container,
5. remove their gloves and place them in short term storage container
6. The short term storage container should them be emptied on at least a weekly basis as per step 7.4

9. Trained employees to deposit bagged asbestos into the storage containers, or arrange removal from site.

10. Site Manager to contact McMahon Services when storage containers are full so they can be disposed of.

11. Traffic Warden and or Site Supervisor and or Picker to complete incident report ASAP stating the name of the customer and the outcome (load removed from site, material bagged and stored, etc.)

12. Incident Report to be documented on Incident Register for Board Reporting

RELATED FORMS

FORM 2 – Incident Report – Form 2, Asbestos Register, AMP, Incident Register – Reg. 5

RECORD KEEPING

(N:\documents\QA – ResourceCo Management System\Environment, Quality & Safety\4.0SafeOperatingProcedure)

Appendix E – Historical Site Background

Site History & Background

Site Address: 35 – 37 Frank Street Wetherill Park NSW 2164 .

Common Name of Site: Former Sims Site, Wetherill Park.

Land Title Details: Lot 31 DP589097

Site Land Area: 20,600 square metres

Local Government: Fairfield City Council.

Zoning: 4(a) General Industrial Local Government Area

Sims ceased operations at the Site in December 2013 consolidating operations at their scrap metal facility at St Marys with the intention to divest the Site.

Site Description

The Site is within a large industrial area with heavy industry, light industry and commercial enterprises. The properties directly adjacent to the Site are sealed with concrete hardstand and warehouses that are used by transport logistics companies.

Directly adjacent to the northern Site boundary is a small strip of vegetation and trees located on the grounds of a large logistics complex. The Site is located approximately 250 m east of a large concrete-lined canal (formerly a creek line), which trends across Wetherill Park.

The Site itself occupies a rectangular block that slopes gently at the northern end. The Site perimeter is marked by a 1.8 m high chain wire fence (north and south), a 2m high brick wall with colorbond fencing on top (east) and a colorbond fence (west).

The following describes the Site's operational layout under its use as a scrap metal yard prior to its closure in December 2013. The southern (front) section of the Site was predominantly covered with concrete slabs.

A large building complex comprised of a brick front office, metal clad shed, two-storey amenities and office building, an open sided workshop and storeroom and an enclosed warehouse space was located adjacent to the southern boundary. Located between this building and the main work area was a weighbridge and associated demountable office and a covered washbay.

The main scrap processing area encompassed the centre of the Site consisting of a scrap metal shear and associated tower mounted grapple crane surrounded by numerous stockpiles of scrap metal. A concrete sealed ring road ran along the eastern and western boundary as well as cutting through the centre of the Site at both the southern and northern end of the shear.

The main stockpile areas to the west and south of the shear were partially sealed and scrap metal stockpiled on both unsealed and sealed sections. A transformer substation was located on the eastern boundary at the northern end of the road. Stormwater was directed towards the western boundary and into the stormwater retention pond located at the northern boundary.

The stormwater retention pond was setup as a 'first flush' system to receive surface water runoff from the entire Site which was passed through an oily water separator prior to discharge to stormwater. The northern (rear) section of the Site was unsealed and contained several stockpiles of material (scrap metal and non-metallic refuse). Cutting of heavy gauge scrap using oxy-acetylene was undertaken on the north eastern section of the Site. Surface run-off in the northern part of the Site was directed towards the stormwater retention pond.

Following its closure as a scrap metal yard the weighbridge and associated demountable office, wash bay building, shear and all stockpiled scrap metal were removed. No new activities have been conducted on the Site since its closure as a scrap metal yard. The physical layout remained the same up until the commencement of remedial works in October 2014.

Appendix F – Staff Training & Development Policy + Record

POL 26 - STAFF TRAINING & DEVELOPMENT POLICY

Introduction

This policy sets out ResourceCo's commitment to the current and future development of employee skills, expertise and ability to support ResourceCo in the delivery and execution of its business strategies. ResourceCo recognizes that an integral component of sustained organizational success is the continued engagement of its employees through the provision of learning opportunities and skills development that eventuate in career advancement and promotion. Additionally ResourceCo recognize its legal obligation to ensure that its employees are trained and competent congruent with their job descriptions, and associated duties that is assigned to them as per the relevant SWI's & SOP's.

Scope

The Staff Training & Development Policy applies to all staff groups irrespective of differences in terms and conditions of service, seniority, tenure, location or any other irrelevant distinctions. The implementation of this policy will work alongside the company's Occupational Health & Safety Policy (POL 1), Behavioral Policy (POL 4) & Quality Policy (POL 8).

The identification of training opportunities will be sourced from the following initiatives; mandatory statutory requirements as listed on the company's EQ&S schedule, operational gaps as identified through a training needs analysis and documented on the Skills Register (REG 15) and or staff development planning identified through performance appraisals and performance management objectives.

Training may be both formal and or informal and may include initial training, retraining, and or refresher training, all training should be documented and employee files updated accordingly.

Responsibilities

Staff training is the responsibility of all employees, including the employee themselves, specifically;

- **Senior Managers** – in accordance with the overarching organizational goals of promoting a dynamic and learning organization; senior manager must provide the resources including time for employees to continue to learn and grown with and within the organization
- **Middle/Line Managers –** must champion ResourceCo's Staff Training & Development Policy ensuring that the training being subscribed is both relevant and purposeful for the
- respective employee. Moreover middle managers must ensure the immediacy of operational demands and productivity KPI's is balanced with the equally important commitment to long term learning and development agendas.
- **Individual Employees** – must identify areas that they believe they can be developed in and apply and conduct themselves in a professional manner when the chance to realize these opportunities through training arises.
- **Training Providers –** only accredited training organizations and trainers are to be employed to provide training to ResourceCo employees.

Policy

The QA committee will ensure as per Procedure 13, Legal & Other Requirements Policy and the corresponding Legal & Other Requirements Register REG 14 that all statutory required training will be allocated onto ResourceCo's EQ&S Schedule.

Additional training and development initiatives will be identified through ResourceCo's performance management and appraisal system (FORM's 24.1, 24.2 & 24.3), in conjunction with the Skill Register (REG 16) and ResourceCo's forward planning strategies.

ResourceCo will look to build relationships with third party suppliers who are recognized and established brands with documented credentials and testimonials. Moreover these relationships will favor suppliers who are familiar with our business and have a capacity to provide training that is customized to ResourceCo's business objectives and specific operational requirements.

These suppliers include;

- CITC
- Red Earth Training
- ATEC
- St Johns

The final tier of ResourceCo's Staff Training and Development Policy involves the mentoring of potential leaders and supervisors, whereby senior managers should look to personally encourage, mentor and develop both through external training but also internal training initiatives the next generation of ResourceCo supervisors and management. Where management will be measured on their success at developing their subordinates as part of their own appraisal(s).

Appendix – G FORM 4.2 Contractor Induction Form

Date: _____ Site: _____	
Full Name: _____ Contact Phone Number: _____	
Company: ABN/ACN:	
Reporting to on site: Expected duration: (day/week/month/year)	
Task to be performed:	

1. General:

Introduced to the Responsible Supervisor		
Given an overview of the designated work areas		
Given directions on the entry/exist procedures	(Induction Book)	
Advised of road rules and speed limits on site	(Induction Book)	
Advised of sign in/out procedures	(Induction Book)	
Advised of any temporary or specific hazards for their task or working area		

2. Shown the Location of:

Emergency Exits & Muster Points		
First Aid Kits and Emergency Information	(Induction Book)	
Safety Equipment – eye wash station, emergency shower etc	(Induction Book)	
Parking arrangements for work and private vehicles	(Induction Book)	
Toilets/Amenities	(Induction Book)	

3. Made Aware of:

ResourceCo Policies, SWI's & SOP's	(Induction Book)	
Incident/Accident Reporting requirements	(Induction Book)	
Hazard Reporting requirements	(Induction Book)	
Emergency Response Procedures	(Induction Book)	
Presence of operating heavy vehicles	(Induction Book)	
Hot Works permit requirements	(Induction Book)	
Lock Out Procedure	(Induction Book)	
Asbestos	(Asbestos Management Plan)	
Personal Protective Equipment (PPE) Requirements	(Induction Book)	

Quality Policy Contractors who are responsible for International Standards ISO 9001 (QA), ISO 14001 (Envt) and ISO 18001 (OH&S)

4. Contractor MUST Provide the following Information before commencing work:

Completed and Signed Contractor Agreement (if not on file)	
JSEA/Risk Assessment Completed or Provided (if not on file)	

I acknowledge that I have received an induction as per this checklist

Contractor's Signature: _____ Date: _____

Name of Person Providing Induction: _____

Licences/Qualifications:

Record Details of Driver's Licence, Trade Certificates etc below or attach copies

Licence/Certificate Details			
Type & Authority	Number	Expiry Date	Name on Lic/Cert

Insurance

Type	Policy Number	Expiry	Copy Attached
Third Party			
Work Cover			
Goods in Transit			

Licence/Certificates Checked by:

Name: _____ Date: _____

Signature: _____

System Records

Name of Record	Responsible Person	Location
Contractor Induction Record	Department Manager	Enter in site induction register

Appendix H POL 1- OCCUPATIONAL HEALTH & SAFETY POLICY

ResourceCo considers the occupational health and safety of its employees to be of primary importance. ResourceCo accepts the challenges of its operating environment and believes that the creation of a responsible health and safety culture in all its operations is integral to long term success.

It is the ResourceCo policy to strive to minimise occupational health and safety risks in all its activities and take an active role in raising the health and safety awareness and responsibility of employees, visitors, suppliers, contractors and customers.

For this Policy to be implemented ResourceCo will:

- Conform to all relevant legislation and any other requirements.
- Provide a safe work environment for all staff, contractors and visitors.
- Recognize the required commitment to communicate and consult with all employees.
- Ensure that all its establishments have appropriate policies, procedures and facilities so that such standards can be achieved.
- Integrate health and safety into all ResourceCo management and reporting systems to ensure safety is at the forefront of our operations.
- Apply the principles of continuous improvement and best practice to health and safety performance through measurable objectives and targets aimed at the elimination of work related injury and illness, as detailed in the ResourceCo OH&S Issues Resolution Policy (POL 25).
- Promote health and safety awareness and responsibility among all employees, suppliers and customers.
- Co-operate with all relevant health and safety agencies.
- Conduct regular reviews of conformance to requirements and achievement of objectives at Board level.
- In the event of a work related injury, conform to all areas of the ResourceCo Rehabilitation & Return to Work Policy.
- Be available to interested parties.

Compliance with this Policy is a responsibility of all ResourceCo's employees, visitors, suppliers, contractors and customers.

Simon Brown

Managing Director

Appendix I POL 3 - ENVIRONMENT POLICY

ResourceCo considers its impact on the environment to be of primary importance. ResourceCo aims to protect, conserve, and where possible, enhance the natural environment in which we operate, recognizing that this is integral to long term business success.

For this policy to be implemented ResourceCo will:

- Conform to all relevant legislation, standards, practices and any other requirements.
- Provide the resources and expertise to meet our environmental obligations.
- Take all reasonable and practicable measures to minimize pollution and impacts associated with site activities to air, land, water, amenity, flora and fauna.
- Respond promptly and appropriately to any adverse environmental impacts that may result from our activities.
- Ensure that all its sites have appropriate policies, procedures and practices so that such quality standards and objectives can be achieved;
- Promote environmental responsibility among all employees, suppliers, contractors and customers
- Strive for continuous improvement of our environment management system and environmental performance
- Co-operate and work collaboratively with all relevant environment agencies;
- Monitor and review environmental performance and report conformance findings with company objectives at Board level
- Work with the public sector, industry groups and customers to encourage sustainable environmental practice.

Compliance with this Policy is a responsibility of all ResourceCo's employees and contractors.

Simon Brown

Managing Director

ERROR: undefined
OFFENDING COMMAND: F2S52YF

STACK:

Attachment 6

Cement kiln process and their emission impacts

The use of alternative fuels in the cement industry and their emission impacts

Brian McGrath OLM Technical Services Pty Ltd Australia

Alternative fuels are a well-established aspect of cement kiln operation worldwide. On the available figures, the replacement of traditional fossil fuels with alternative fuels has reached on average 14% fuel replacement. This outcome has been achieved with no adverse impacts upon the cement kiln emissions and is a consequence of the unique characteristics of the cement manufacturing process.

Concrete is cited as the most consumed product on earth after water. Concrete comprises around 15% by weight of cement. Cement is the vital ingredient. It is the glue that holds together the sand and aggregate that forms concrete.

Cement production consumes large quantities of raw materials and fuels and produces significant quantities of carbon dioxide. The production of 1 tonne of cement consumes around 1.6 tonnes of raw materials and 0.1 tonne of coal and produces 0.8 tonne of carbon dioxide. As a consequence carbon dioxide emissions from cement kilns comprise approximately 5% of global emissions. Under the auspices of the World Business Council the Cement Sustainability Initiative (CSI) was developed which is a global effort by 25 major cement producers with operations in more than 100 countries who believe there is a strong business case for the pursuit of sustainable development in the cement sector. Collectively these companies account for around 30% of the world's cement production and 60% of cement production outside China. The cornerstones of this initiative is the development and promotion of the use of Alternative Raw Materials and Fuels derived from waste. The expressed aim is to convert waste that has significant calorific value into a cement kiln fuel or reuse waste streams that have a suitable chemistry as raw material replacements.

Data available from the CSI for 2012 shows the replacement of traditional fossil fuels with alternative fuels had reached around 14% amongst the member companies. This outcome represents around 14 million tonnes per annum of waste. The principal components of the alternative fuel stream were biomass and solid shredded waste each comprising around 25% of the alternative fuel consumption. The biomass comprises timber waste, rice husk and a range of other materials such as grape marc, olive pips etc. The solid shredded waste also known as RDF/SRF/PEF is largely derived from Commercial and Industrial waste, Municipal Solid waste and Construction and Demolition waste.

The use of solid shredded waste has grown to the point that the classification, sampling and testing of the material in Europe is now the subject of a European Standard EN 15359 2011 and is freely traded within the European Union. The export of solid shredded waste from the UK has grown from nothing in 2010 to over 2 million tonnes in 2014. This growth in trade has been driven by changes in the UK regulatory environment a lack of capacity to absorb additional volumes within the UK and the capacity of cement kilns and waste to energy plants in mainly northern Europe to accept additional material.

In Australia, ResourceCo supplies a proportion of the fuel requirements of Adelaide Brighton Cement at Birkenhead in South Australia with solid shredded waste derived from Commercial and Industrial Waste and Construction and Demolition waste. ResourceCo also has a processing operation in Malaysia that supplies a proportion of the fuel requirements of a large multi-national owned cement kiln. The feed material to this kiln is solid shredded waste derived from Municipal Solid waste and

Commercial and Industrial waste. Approximately 80% of the fuel is sourced from Australia and 20% is sourced locally.

It has been a feature of the Adelaide Brighton operation and the Malaysian operation that the change in fuel has had no adverse impacts upon the emissions to the environment and this finding is consistent with cement kilns around the world using alternative fuels. In the case of the Malaysian cement kiln the use of solid shredded waste also known as PEF has resulted in a reduction in Nitrous Oxide emissions of around 20% and a reduction in Carbon Dioxide emissions of approximately 20, 000 tpa.

This outcome is not surprising given the inherent nature of the cement manufacturing process. The species that are emitted from a cement kiln and that are of interest to a regulator can be broadly divided into the classifications of Dust, Nitrous oxides, Organics, Acid gases and Metals.

Dust: The particulate emissions from a cement kiln bear no relationship to the fuel being used but are purely a consequence of the type of dust collector that is used and the standard to which it is maintained and operated. Given the fact the process is counter current ie the gas flow is the opposite to the material flow the dust that leaves in the cement kiln stack is the fine component of the raw material input comprising typically limestone and clay.

Nitrous oxides: While NOx can be formed in a cement kiln from atmospheric nitrogen and the nitrogen in the fuel, it can also be destroyed depending upon the combustion conditions. The formation of NOx in a cement kiln is largely driven by the peak flame temperature in the main burner. The production of NOx by this mechanism can be offset by a phenomenon known as reburn in the kiln calciner where combustion of the fuel can produce conditions that destroy a portion of the NOx. It has been found in many kilns that the burning of a secondary alternative fuel can produce these conditions and this phenomenon has been observed with the burning of PEF in the Malaysian kiln.

Organics: The major concern with organic emissions is typically dioxins and furans (PCCD, PCCF) and Volatile Organic Compounds (VOC, TOC). The presence of additional chlorine in the system in the plastics component of PEF raises the question of whether there will be an increased risk of emissions of dioxins and furans. In the cement kiln system the principal determinant of the dioxin and furan emission is the cooling rate of the gas from the preheater exhaust temperature of 360 degrees C to under 200 degrees C and not the chlorine concentration in the gas stream. It is the time the gas spends in this temperature window that determines the dioxin and furan emission. The cement process raw milling system provides the ideal quenching system to avoid dioxin and furan formation, with limestone at ambient temperature being contacted with the hot preheater gases. Volatile Organic Compounds present in the kiln stack emissions are exclusively a consequence of the incomplete combustion of the organic components in the raw materials burning at relatively low temperatures (350-450 degC) and, as a consequence, forming a range of organic compounds. The fuels burn at such high temperatures with enough oxygen and for sufficient time that combustion is complete.

Acid gases: The components that can potentially form acid gases are chlorine, sulpher and fluorine. Although there is additional chlorine entering the system with PEF and there is the potential to form HCl from hydrogen radicals from the fuel combustion, the chlorine has a greater affinity to form compounds with potassium and sodium which remain trapped in the system until they reach an equilibrium and exit with the cement clinker. Similarly, any sulpher in the system preferentially reacts with potassium and sodium and then calcium and exits the system with the clinker. Fluorine

behaves in a similar fashion. These effects can be likened to the process that takes place in a lime scrubber

Metals: The major impact on metals emissions from a cement kiln is the dust release from the emission control device. This dust comprises the raw material and the metal component of the raw material is essentially what comprises the metal emissions. The research arm of VDZ, the German Cement Industry Association has estimated the contribution the metals in fuels make to the stack emissions. For the eight refractory or non-volatile metals (Sb to V) the contribution is 0.0005%. For the semi-volatile metals (Cd and Pb) the contribution is 0.002%. For the volatile metals mercury and thallium the outcome can be unpredictable but is estimated at 0.02% for thallium and up to 100% for mercury. Thallium is an extremely rare metal. Mercury must be managed to low levels but for all the other metals present in fuels the impact upon emissions is so low as to be immaterial

While the preceding discussion deconstructs the emissions profile of a cement kiln and examines the conditions within the process that reinforce the observation that changes in fuel type have no adverse impact upon emissions there are also references available in the scientific literature that support this conclusion.

One of the best documented studies was conducted by the University of Lisbon on the cement kilns operated by Secil a Portuguese cement company [1a,b]. The work noted that *"One important conclusion is that the use of different alternative fuels has no impact upon the level of emissions and as the whole process was carried out within the control of the community, it was a consensual deduction."*

The use of alternative fuels by the cement industry is a means of improving the sustainability of that industry by reducing its impact upon virgin resources in the form of fuels and raw materials, reducing carbon dioxide emissions as well as providing a better solution for waste management. The overwhelming evidence is that these outcomes can be achieved without any additional adverse impact upon environmental emissions.

References

1a Botelho M, Secil and Palma Oliveira J, University of Lisbon/Secil, Portugal
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International Cement Review Cement Plant Environmental Handbook Second Edition November 2014

1b Zemba S, Ames M, Green L, Botelho M, Gossman D, Linkov D and Palma-Oliveira J
Emissions of metals and polychlorinated dibenzo(p)dioxins and furans (PCDD/Fs) from Portland Cement Manufacturing Plants: Interkiln variability and Dependence on Fuel types
Science of the Total Environment, 18, 2011

More than meets the eye: emissions (bio-)monitoring, dispersion and risk analysis as innovative tools

by Maria João Botelho, Secil, and José Manuel Palma-Oliveira, University of Lisbon/Secil, Portugal

The conspicuous nature of the cement industry, the need for the use of alternative fuels and a strict regulatory context usually drives definite attitudes from the community and from society at large. The integration of all these aspects is undoubtedly the major challenge to the cement industry worldwide. Secil's emissions control and innovative monitoring methods have become a tool to sustain fuel diversification and community goodwill, besides providing in-depth knowledge about every impact.

The relationship between industry and local communities has been marked in recent decades by an accentuation of perceived risk, despite the absence of significant emergencies or disasters. This is a direct consequence of a diverse set of factors, including the run-down of industrial activity and a greater social concern about pollution. There are some regional factors that can exacerbate this issue as a result of specific environmental and social contexts (eg, a facility situated in a natural park).

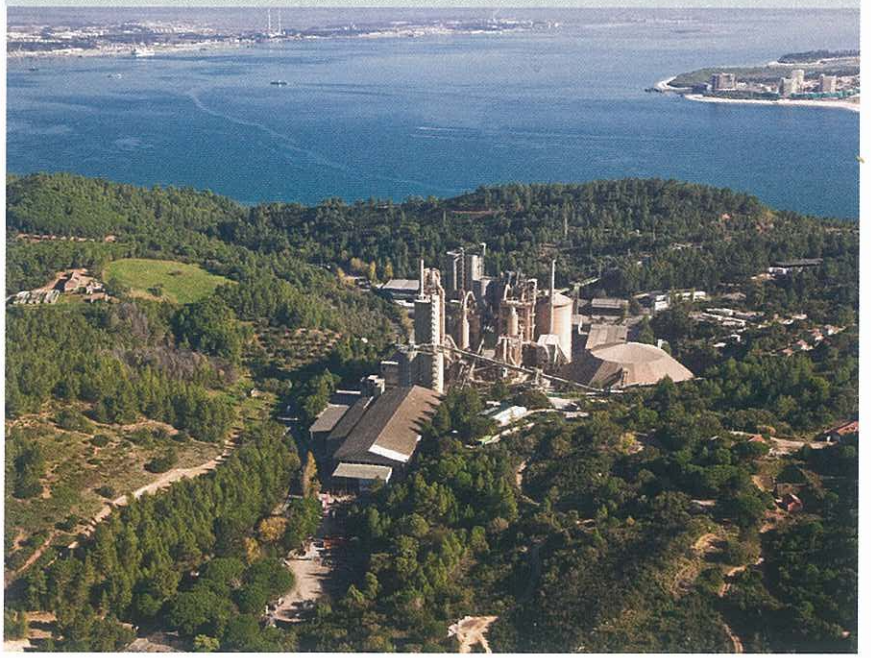
Due to current risk perception and control it is easily understood that the community (and sometimes even the authorities) will point to the destruction caused by quarries, while the company will stress the recovery undertaken .[1,2] Similarly, society views industrial processes as high risk, while companies 'know' that their operations are low risk. More importantly, society 'evaluates' pollutants as highly damaging, while companies recognise that they can be controlled, as evidenced by the fact that levels are consistently lower than the legal limits.

Information provided to stakeholders when engaging with them in consultations does not usually take into account these fundamentally-different perspectives. Even when grounded in solid risk communication principles, these consultations employ top-down approaches based on international data (eg, current dioxin data from international sources), that are limited in scope (ie, responding only to what is considered important), defensive rather than proactive, and largely unable to adapt to new, unexpected problems and crises. Given these factors, an industrial facility such as a cement plant may not appreciate the nature of its impact and is therefore vulnerable to false or misguided attacks.

Programmes like the Cement Sustainability Initiative and organisations like CEMBUREAU, the European cement association, are incredibly good sources of global information, but local communities find it hard to accept this, and always stress the specific context involved. Well, they are right, since the differences between facilities, contexts and so on, need to be included in the analysis when the 'here and now' is what really matters to our communities. To obtain good-quality data about the specific context, why not integrate the community in that endeavour and jointly decide what to do, and thereby address issues that are considered important?

The need to use alternative fuels for cement production has raised this set of issues to a new level. While coal is a 'known and old risk', alternative fuels and hazardous waste are perceived as new. That has huge psychological and social consequences that can be disastrous to the strategy of the industry.[3]

Secil's research programme investigated the environmental impacts of alternative fuel use on the communities and other stakeholders of three cement works



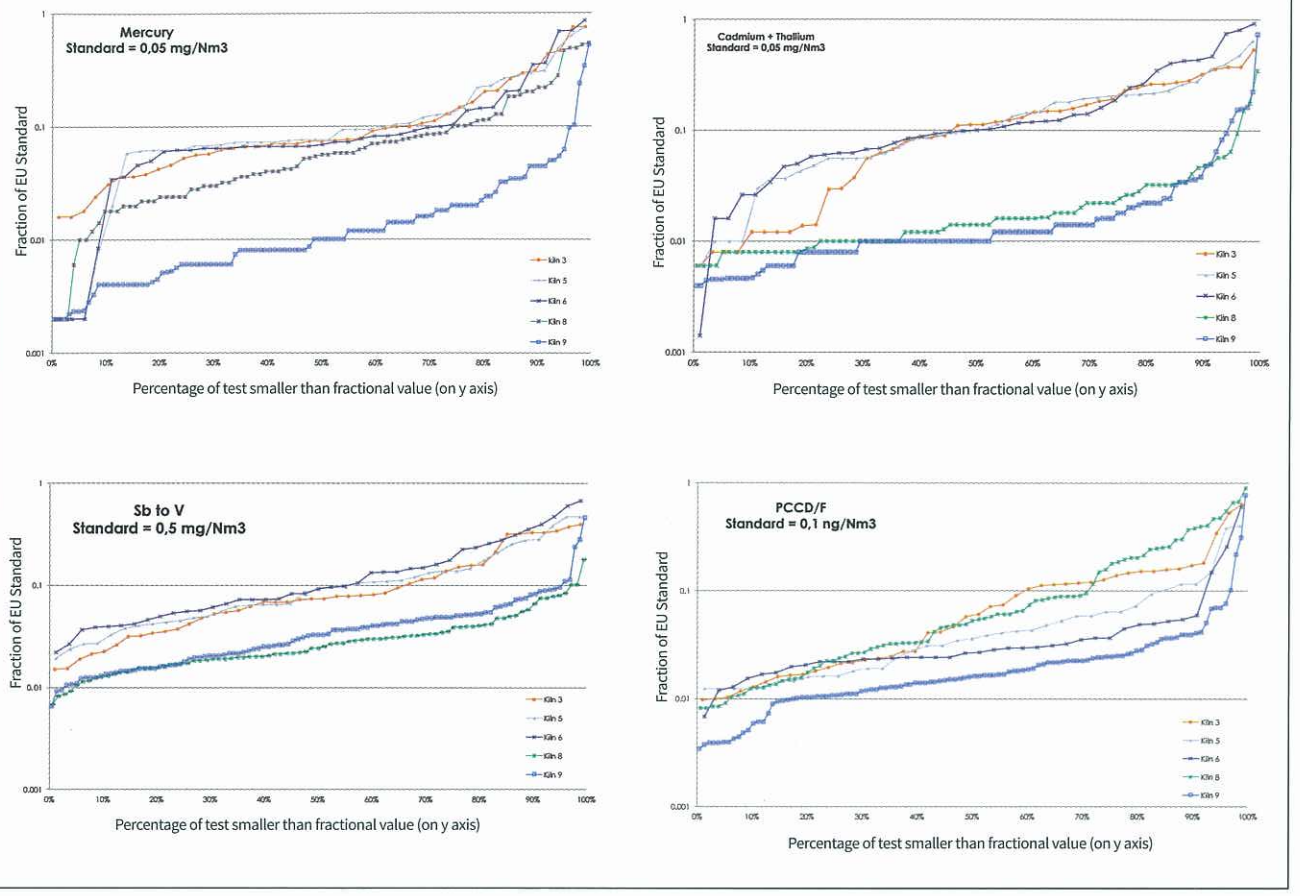
Environmental Stakeholders Committee (ESC)

Since 2003 Secil has maintained a series of environmental stakeholder committees to serve three different facilities in Portugal. The committees bring together environmental NGOs, health authorities (environmental medicine and sanitary experts), universities, the Association of Environmental Engineers, nature management areas, neighbours (such as the hospital) and a tourist operator (for the beaches in front of the facilities).

Trust is always considered essential, but how to achieve it is less clear. Based on the science of risk communication and control, we have to work on the trust dimension, ie:

- the company's willingness to change
- safety and consistency
- the company's honesty in reporting its actions
- credibility and equitability
- concern for the environment and competence in handling the environmental aspect of any operations.

Figure 1: ratios of measured stack-gas concentrations to EU Directive 2010/75/EU limits. Distributions of test results for all five kilns. Non-detects plotted at detection limits



Some basic rules have to be in place to obtain this trust, such as giving full access to all relevant environmental reports and allowing all committee members to have full access to the facilities, as well as the possibility of hiring experts to help the committee to have an independent view of the plant proposals and reports.[4] With all that in place, Secil has started a process of scientific research that the community has defined, checked and confirmed in its conclusions.

The action research programme

One can summarise the key questions facing the industry with respect to emissions and pollutants as: what are the emissions, from which fuels, what are the environmental and health impacts? Despite the amount of global information about these different issues, there is still a need for tailored, specific and integrated knowledge that can address these questions with a research methodology that can – and this is the crux of the matter – bring the community on board by jointly defining the research programme.

What are the emissions? From which fuels?

Secil, like the huge majority of players in the industry, follows Best Available Techniques (BAT) from the EU Cement and Lime BAT Reference Document (BREF-CLM) and thus monitors online 'criteria pollutants' (ie, the US class comprising those that cause smog, acid rain and other health hazards) as well as heavy metals and PCDD/Fs. But these activities are not sufficient to address the concerns of either the regulatory system and of the community with regard to the impact of emissions on population health and the environment. Addressing this question adequately is vital for the future of the industry.

Secil, therefore, set out to carry out a comprehensive study to address all of these issues. To obtain comparable data, Secil controlled the type of fuel mixture, and more importantly, agreed with the environmental committees of various facilities that the new fuels should be systematically tested before being put into regular use. As a result, the company shifted the discussion from an exclusive focus on emissions per se (ie, "RDF produces dioxins") to the existence of significant differences between the 'business as usual' fuel mix – coal and petcoke – and the new profile of fuels (including hazardous waste).

The results provided the company with the most complete set of data known to a cement company worldwide. As a result, Secil could inspect the data by kiln or by facilities, making it possible to draw specific and general conclusions with a high degree of certainty.

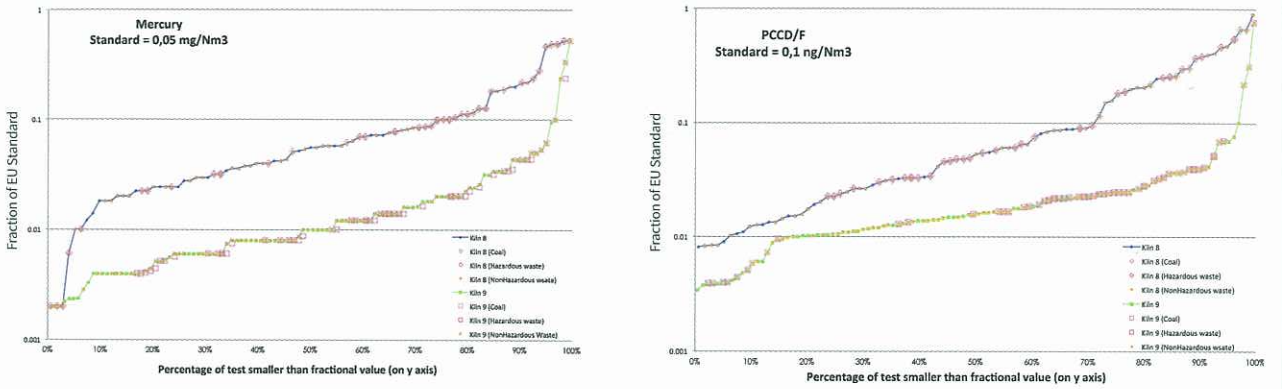
Elsewhere the results comparing two kilns using hazardous waste and other fuels were analysed.[5,6] In this text the authors extended that analysis to the five kilns in Secil's three facilities in Portugal. The EU Industrial Emissions Directive (2010/75/EU) sets limits on the exhaust gas concentrations of:

- mercury (Hg, 0.05mg/Nm^3)
- cadmium and thallium (Cd+Tl, 0.05mg/Nm^3 combined)
- antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel and vanadium (Sb-to-V, 0.5mg/Nm^3 combined)
- PCDD/Fs (0.1ng/Nm^3 combined toxic equivalents to 2,3,7,8-tetrachlorodibenzo(p)dioxin) at standard temperature (273K) and pressure (101.3kPa) and 10 per cent oxygen (dry gas basis).

Figure 1 shows the overall results of the stack-gas sampling programme (more than 300 measurements), normalised by the applicable EU limits. The limits were not exceeded in any of the tests. Moreover, the bulk of the test results were far below the limits. Many of the pollutants have low detection frequencies.

About 83 per cent of PCDD/F, 80 per cent of Hg, 77 per cent of Cd+Tl and 82 per cent of Sb-to-V stack test results are lower than their respective limits by a factor of more than 10 when all five kilns are considered. From Figure 1 one

Figure 2: ratios of measured stack-gas concentrations to EU Directive 2010/75/EU limits. Distributions of test results for two kilns using a more complete set of alternative fuels including hazardous waste. Non-detects plotted at detection limits



can conclude that the bulk of the test results are way below the emission limits in all the kilns. Furthermore, the differences between kilns are more marked than the differences between fuels.

This point is clearer in a more profound analysis using kilns 8 and 9, where hazardous waste was used in combination with a complete array of different fuels like tyres, meat and bone meal, fluff and normal RDF. All conditions were compared between the test units and the control situations, ie only coke or coal.[6] It was difficult to detect the influence of the fuel feedstock, with the exception of coal, since the differences in the emissions from the two kilns are clear, despite the fact that they are well below the limits. Figure 2 presents the data from those kilns using dioxins/furans and mercury emissions. One important conclusion is that the use of different alternative fuels has no impact on the level of emissions and as the whole process was carried within the control of the community, it was a consensual deduction.

Environmental and health impact

However, the impact of emissions is not completely dependent on their concentration and legal limits but also on contextual factors, including the sheer quantity of exhaust gas, the surrounding landscape and land use, and the density of human population. To fully understand this impact, Secil carried out several pollution dispersion studies based on various climatological years (eg wetter and drier) and based either on the actual data or on estimates based on the EU limits. The results showed a lower impact in every case, and were used to fine-tune the location of air quality monitoring stations.

But that was not enough. Dispersion studies are based on hourly or annual concentrations. A cement facility normally works 24 hours a day, for years (Secil's oldest facility in Portugal started in 1904 and the newest in 1946). The cumulative impact can only be determined through an environmental and health risk analysis carried out using the most conservative scenarios defined with the community.[7] The conclusions were straightforward and the risk was considered minimal. Again, all these processes were jointly developed with the community committees and supported by independent bodies.

Environmental biomonitoring

Besides the air quality monitoring stations that only track the so-called criteria pollutants, all of this depends very much on scientific and technical reasoning, heavily based on mathematical models that, despite being validated and conservative cannot disguise their characteristics. Therefore, it was essential to find a way to analyse the real concentration of pollutants in the environment. Since 2000, and more systematically since 2008, Secil has been using biomonitors, ie, using living organisms to monitor pollutant levels in the environment. In this case, the company used lichens, the most studied biomonitors of air pollution, to analyse heavy metals and PCDD/F concentrations. The concentrations of given pollutants, measured within the organism, are used to reconstruct the spatial and temporal deposition patterns of the pollutants at a given location.

Some of the results are presented in Figure 3. It is clear that not only has the concentration been diminishing, by approximately 30 per cent in the last 10 years, but also that the concentrations of those pollutants are very low and the facilities' contribution is around two per cent of the baseline levels.[5,8]

Conclusion

This very technical and integrative procedure was able to provide the company with the following conclusions:

Figure 3: temporal variations of mean concentrations in PCDD/F measured in the two chosen lichen species between 2000 and 2011

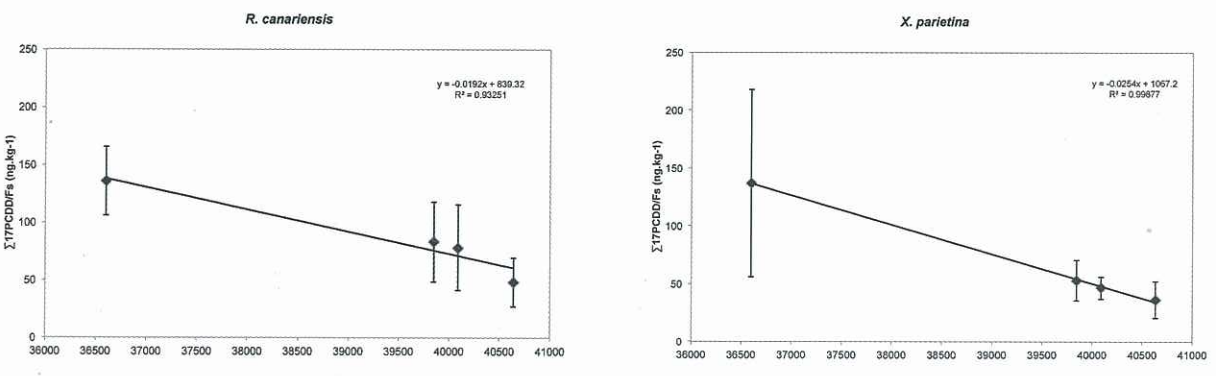
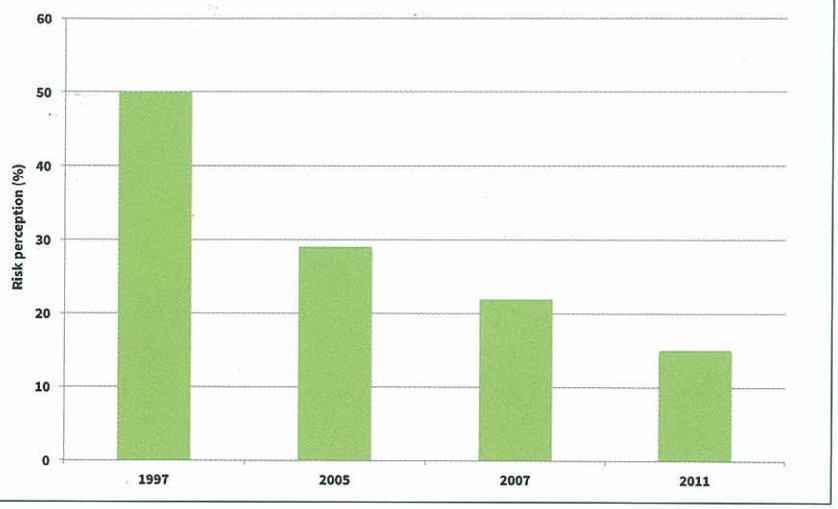


Figure 4: communities' risk perception, 1997-2011



- The concentration levels of pollutants from Secil's facilities in the environment are currently below the background levels.
- The health and ecological risks are minimal.
- The concentration of pollutants in the environment is now significantly lower when compared with the recent past, thus obtaining a clear measurement of the impact of technical improvements in abatement techniques.
- The use of different alternative fuels has no impact on emission levels.

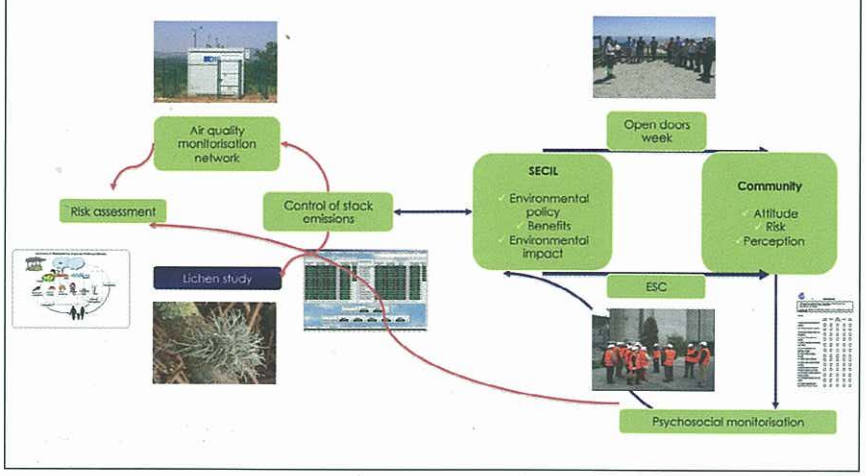
This whole process has been defined in partnership with the community, providing a considerable amount of goodwill. This can be measured in a series of psychosocial studies (1997, 2005, 2007 and 2011) to access the attitudes and risk perception. The percentage of people assessing the operation as risky has decreased by 36 per cent (see Figure 4) and in 2011 more than 70 per cent of the people in the nearby communities recognised the degree of positive change in Secil's activity.[9]

The company's partnership with universities and researchers has produced a diverse set of papers that have been published in peer-reviewed scientific journals.

The main tenet of this perspective is to reject 'common sense' approaches, while assuming that, despite the fact that communities are wary of technical conclusions, they are able to understand the scientific reasoning or the importance of measurements and experimental comparisons. Secil always focusses more on the process of obtaining data rather than providing the conclusions up-front.

This whole process follows a theoretical and practical framework that is summarised in Figure 5 on the basis of the most modern theories of risk assessment and management, which try to deal objectively with the perceptions of risk and integrate them into a risk management process that is able to add goodwill and contributes to value creation. ■

Figure 5: Secil's integrative risk management framework



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[2] PALMA-OLIVEIRA, J (1992) 'Stress Ambiental: Um Selectivo Ponto da Situação e Modelo Explicativo [Environmental Stress: A Selective Point of View and Explanatory Model]' in: *Revista da Sociedade Portuguesa da Psicologia*, 28, p13-77.

[3] LINKOV, I AND PALMA-OLIVEIRA, J (EDS) (2001) *Assessment and Management of Environmental Risks: Methods and Applications in Eastern European and Developing Countries.* Dordrecht, The Netherlands: Kluwer Academic Publishers.

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[6] ZEMBA, S, AMES, M, GREEN, L, BOTELHO, M, GOSSMAN, D, LINKOV, I AND PALMA-OLIVEIRA, J (2011) 'Emissions of metals and polychlorinated dibenzo(p)dioxins and furans (PCDD/Fs) from Portland Cement Manufacturing Plants: Inter-kiln Variability and Dependence on Fuel-types' in: *Science of the Total Environment*, 409, p4198-4205.

[7] PALMA-OLIVEIRA, J, ZEMBA, S, AMES, M R, GREEN, L AND LINKOV I (2012) 'Uncertainty in Multi-Pathway Risk Assessment for Combustion Facilities' in: *Science of the Total Environment*, 18, p501-516.

[8] BRANQUINHO, C, AUGUSTO, S, PINHO, P, SANTOS, BOTELHO, M J, PALMA-OLIVEIRA, J (in press) 'Declining trends of PCDD/Fs in lichens over a decade in a Mediterranean area with multiple pollution sources' in: *Science of the Total Environment*.

[9] PALMA-OLIVEIRA, J (2012) 'Risk Communication without 'Risk Communication' or a scientific risk communication: the case of Secil Cement production in Portugal and Tunisia' [Paper M3-I.2] in: *Proceedings Society of Risk Analysis Annual Meeting*, San Francisco, USA, 9-12 December.

> More Information

www.secil.pt

University of Lisbon - www.ulisboa.pt

Attachment 7

PEF specification for the cement kiln use

PEF Specification and Test Methods

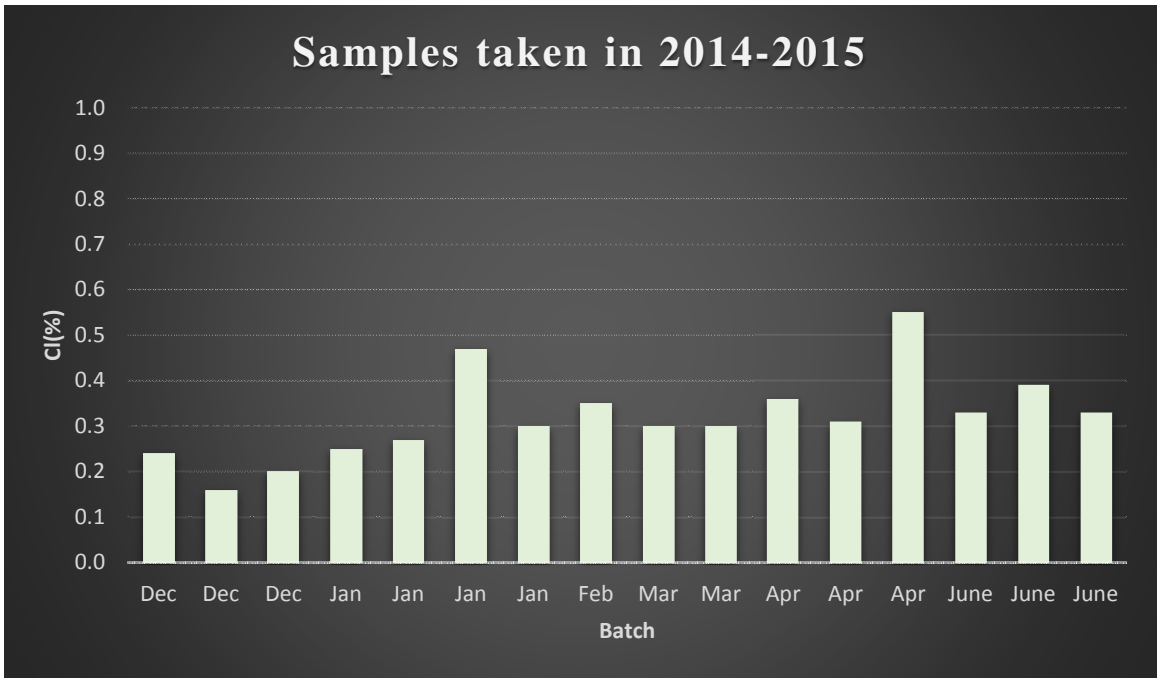
Parameter	Specification
Gross Calorific Value (MJ/kg)	≥15.0
Ash	≤15.0% m/m
Moisture (as H2O)	≤15.0% m/m
Chlorine (as Cl)	≤0.2% m/m
Total Fluorine, Bromine, Iodine (as F, Br, I)	≤0.2% m/m
Sulphur (as S)	≤1.0% m/m
Particle size	≤ 50 mm in any direction
Bulk density (kg/m3) bailed	≥ 700
K2O (%)	1.0
Na2O (%)	0.5
Mercury (Hg) (mg/kg)	≤1.2
Cadmium (Cd) (mg/kg)	≤20
Thallium (Tl) (mg/kg)	≤20
Total Group II metals (mg/kg) Cadmium (Cd) + Thallium (Tl)	≤30
Copper (mg/kg)	≤500
Lead (mg/kg)	≤1000
Total Group III metals (mg/kg) Antimony (Sb) + Arsenic (As) + Cobalt (Co) + Copper (Cu) + Chromium (Cr) + Lead (Pb) + Manganese (Mn) + Nickel (Ni) + Vanadium (V)	≤3000

Parameter	Test Method
Gross and Net Calorific Value	EN 15400:2011
Moisture content	EN 15414:2011
Chlorine	EN 15408:2010
Sulphur	EN 15408:2011
Nitrogen	EN 15407:2011
Carbon Content	EN 15407:2011
Biomass	EN 15440:2011
Ash	EN15403:2011
K2O, Na2O	EN 15410:2011
Particle Size	EN 15412-1:2011
Metals – Mercury, cadmium, thallium, copper, lead, Total Group II metals, Total Group III metals	EN 15411:2011

Attachment 8

Chlorine content in typical waste

Samples of typical waste materials taken from Sydney PEF feedstock in 2014-2015 and tested in ResourceCo's laboratory



Attachment 9

Letter from the Australian Department of Environment

Australian Government
Department of the Environment

Mr Ben Sawley
ResourceCo Asia (Australia) Pty Ltd
PO Box 542
ENFIELD PLAZA SA 5085

Dear Mr Sawley

Re: Classification of Process Engineered Fuels

Thank you for your enquiry about the categorisation of Process Engineered Fuels (PEF) by this Department, and if it would be considered "hazardous waste".

The *Hazardous Waste (Regulation of Exports and Imports) Act 1989* (the Act) regulates the export, import and transit of hazardous waste. The Act was developed to enable Australia to comply with specific obligations under the *"Basel Convention on the Control of the Transboundary Movements of Hazardous Wastes and their Disposal"*.

We understand that PEF is produced by ResourceCo Asia Pty Ltd (ResourceCo) for export to South East Asia.

On the basis of the information which you have provided to us, in particular, the levels of lead, cadmium and mercury, the Department would not consider the PEF produced by ResourceCo to be hazardous, as long as the material does not contain any other substances that would result in the material exhibiting Basel Convention Annex III characteristics. This means that under the Act, you are not required to obtain a permit to export the material. We strongly urge you to obtain advice from the country of import and any transit countries to ensure you are in compliance with international laws and regulations.

If you have any queries in relation to this matter please contact the Hazardous Waste Section by phone on 02 6274 1111 or by email at hwa@environment.gov.au.

Yours sincerely

Paul Kesby
Director
Hazardous Waste Section
22 March 2016

Attachment 10

Malaysian kiln confirmation

OLM TECHNICAL SERVICES PTY LTD
ABN 34 759 617 924 ACN 167 119 440
15 Police Lane
Geelong Vic 3220 Australia
PO Box 7058 Geelong West Vic 3228
Phone +61488902465
Email brian@olmtechservices.com.au

Mr Ben Sawley
Chief executive Officer
ResourceCo Asia
PO Box 542
Enfield Plaza
SA 5085

15/12/2014

Subject: Kiln emissions performance at Malaysia

Dear Ben,

I am writing to confirm the kiln emissions performance at Kiln following the introduction of Process Engineered Fuel (PEF) as a part replacement for coal in the cement manufacturing process.

has reported no adverse impact upon emissions from the kiln when using PEF and have advised that in fact there has been a decrease in Nitrous oxide emissions.

A declaration of compliance with the Malaysian Department of Environment emission requirements when using PEF has been provided by is included as an attachment to this letter.

This outcome is entirely consistent with the experience of hundreds of cement plants around the world following the introduction of an alternative fuel to replace coal or natural gas.
The overwhelming observations at these plants has been that the emissions from the cement kiln are not negatively impacted with a fuel change but such a change can have, in certain circumstances, a positive impact upon Nitrous oxide emissions and Carbon dioxide emissions. The extent of this impact depends upon the fuel injection location and fuel combustion characteristics in the case of Nitrous oxide emissions and the biogenic component of the fuel in the case of Carbon dioxide emissions

There are sound technical reasons for these observations that relate to the inherent characteristics of the cement manufacturing process. The emissions profile cited in the compliance declaration can be grouped into five emission categories to provide greater understanding of their impacts: Dust, Nitrous oxides, Organics, Acid gases and Metals. The parameters included in each of the groupings is given in the following table.

Grouping	Parameters
Dust	Dust
Nitrous oxides	NOx
Organics	Dioxin &Furan, Opacity
Acid gases	SOx, HCl
Metals	Mercury, Antimony, Arsenic, Cadmium, Copper. Lead, Zinc

Dust: The particulate emissions from a cement kiln bear no relationship to the fuel being used but are purely a consequence of the type of dust collector that is used and the standard to which it is maintained and operated.

Nitrous oxides: The experience has seen a 20% reduction in NOx emissions with PEF. The formation of NOx in a cement kiln is largely driven by the peak flame temperature in the main burner which can be offset by a phenomenon known as reburn in the kiln calciner where staged combustion of the fuel can produce reducing conditions that destroys a portion of the NOx.

Organics: The presence of additional chlorine in the system in the plastics component of PEF raises the question of whether there will be an increased risk of emissions of dioxins and furans. In the cement kiln system the principal determinant of the dioxin and furan emission is the cooling rate of the gas from the preheater exhaust temperature of 360 degrees C to under 200 degrees C and not the chlorine concentration in the gas stream. It is the time the gas spends in this temperature window that determines the dioxin and furan emission. The raw milling system provides the ideal quenching system to avoid dioxin and furan formation, with limestone at ambient temperature being contacted with the hot preheater gases. The exhaust of a cement kiln stack has a characteristically low dioxin and furan number as a consequence. The opacity is used to measure smoke in the emissions. The temperatures at which the kiln operates and the oxidising atmosphere mean that visible smoke can never be produced in the exhaust stack.

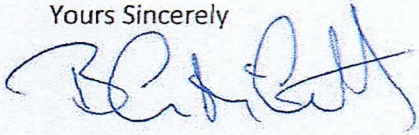
Acid gases: Although there is additional chlorine entering the system with PEF and there is the potential to form HCl from hydrogen radicals from the fuel combustion, the chlorine has a greater affinity to form compounds with potassium and sodium which remain trapped in the system However in the event that HCl did form, the scrubbing action of the limestone in the preheater will ensure no impact upon emissions of acid gases. Similarly, any sulpher in the system preferentially reacts with potassium and sodium and calcium and exits the system with the clinker.

Metals: The major impact on metals emissions from a cement kiln is the metal component in the limestone. Effectively, by reducing the dust emissions the metal emissions are reduced. The impact of any change in metal components in the fuels is immaterial.

ResourceCo supplies PEF to under a specification where the major parameters that are controlled are calorific value, ash, moisture and chloride content. Chloride is included in the specification not because of any concerns regarding higher chlorine based emissions arising from PEF but to control process impacts. Chlorine concentrates in the cement kiln system and at high levels of addition can lead to blockages that require the kiln to be shutdown for cleaning. There are numerous examples of kilns that suffer high chlorine inputs having to install a chloride bypass to remove the chlorine from the system.

are satisfied that the introduction of PEF has had no adverse impacts upon the process, the product quality or the emissions to the environment, With the recent commissioning of the new PEF storage and feed system the plant is looking to capitalise on the initial success and to increase the thermal substitution rate of coal with PEF.

Yours Sincerely



Brian McGrath
Principal OLM Technical Services

Attachment 11

Revised Acoustic Impact Assessment

ACOUSTICS AND AIR

FRANK STREET, WETHERILL PARK
WASTE & RESOURCE MANAGEMENT FACILITY

NOISE IMPACT ASSESSMENT

REPORT NO. 15278-N
VERSION B

MAY 2016

PREPARED FOR

RESOURCECO
PO BOX 212
CONCORD NSW 2137

WILKINSON MURRAY

DOCUMENT CONTROL

Version	Status	Date	Prepared By	Reviewed By
A	Draft	21 January 2016	Neil Gross	Nic Hall
A	Final	28 January 2016	Neil Gross	Nic Hall
B	Final	24 May 2016	Neil Gross	-

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AAAC
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Celebrating 50 Years in 2012
Wilkinson Murray is an independent firm established in 1962, originally as Carr & Wilkinson. In 1976 Barry Murray joined founding partner Roger Wilkinson and the firm adopted the name which remains today. From a successful operation in Australia, Wilkinson Murray expanded its reach into Asia by opening a Hong Kong office early in 2006. 2010 saw the introduction of our Queensland office and 2011 the introduction of our Orange office to service a growing client base in these regions. From these offices, Wilkinson Murray services the entire Asia-Pacific region.

TABLE OF CONTENTS

GLOSSARY OF ACOUSTIC TERMS

Most environments are affected by environmental noise which continuously varies, largely as a result of road traffic. To describe the overall noise environment, a number of noise descriptors have been developed and these involve statistical and other analysis of the varying noise over sampling periods, typically taken as 15 minutes. These descriptors, which are demonstrated in the graph below, are here defined.

Maximum Noise Level (L_{Amax}) – The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.

L_{A1} – The L_{A1} level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the L_{A1} level for 99% of the time.

L_{A10} – The L_{A10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the L_{A10} level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise.

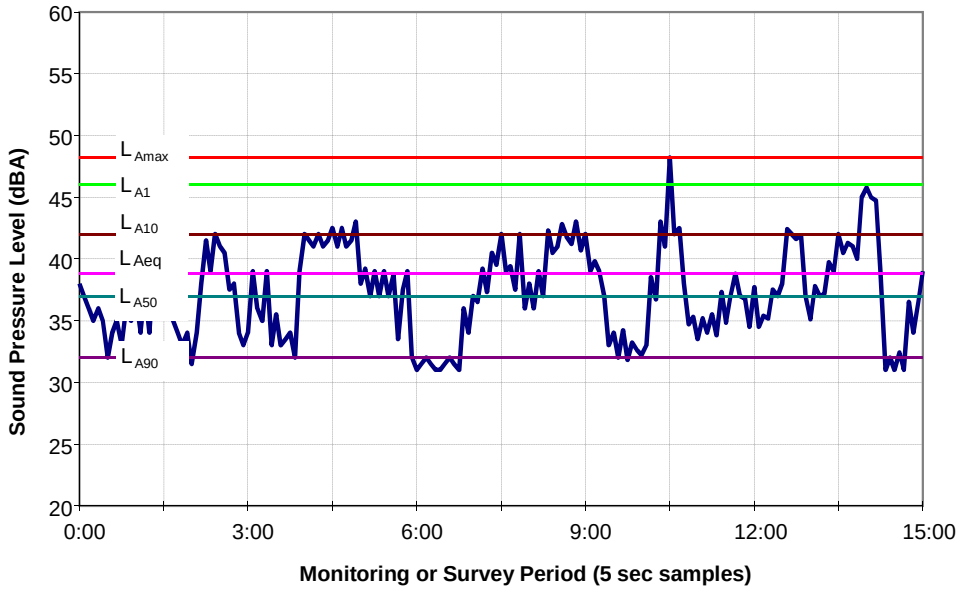
L_{A90} – The L_{A90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level.

L_{Aeq} – The equivalent continuous sound level (L_{Aeq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

ABL – The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level (L_{A90}) for each period.

RBL – The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.

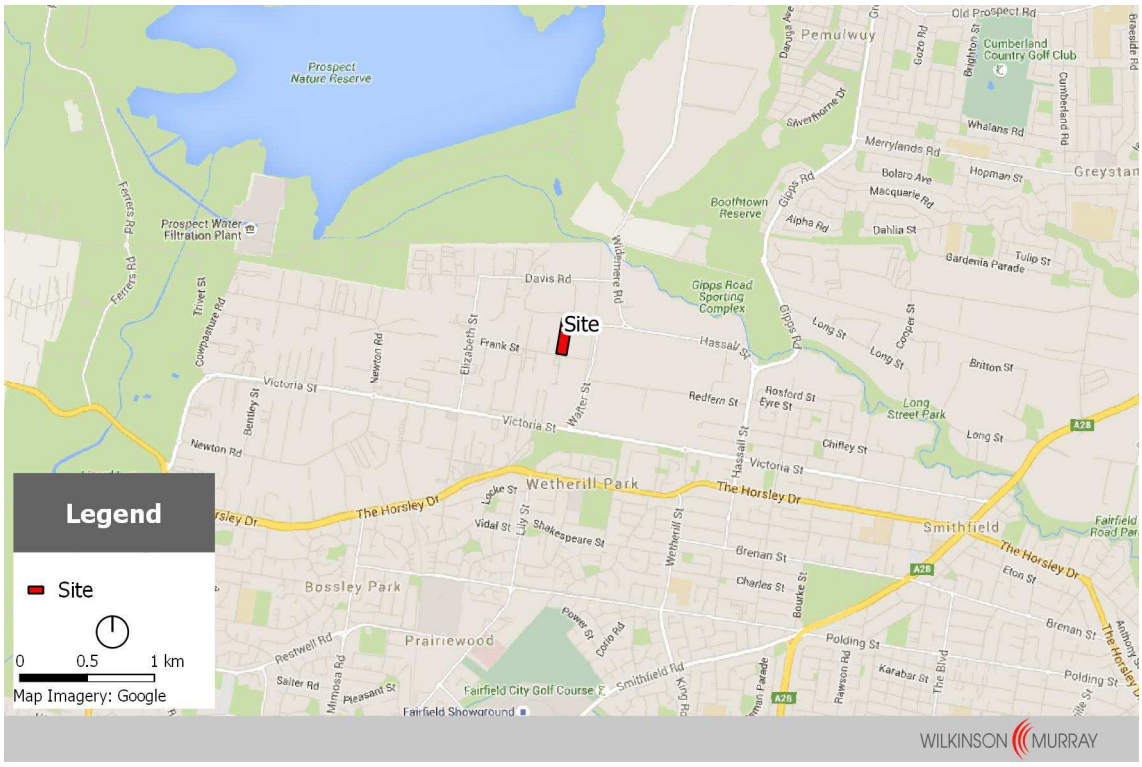
Typical Graph of Sound Pressure Level vs Time



1 INTRODUCTION

ResourceCo RRF Pty Ltd (ResourceCo) is seeking approval under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the construction and operation of a Waste and Resource Management Facility (the Project) at 35-37 Frank Street, Wetherill Park (the Site). The location of the Site is shown in Figure 1-1.

Figure 1-1 Site Location



The Project was declared to be a State Significant Development (SSD). Assessment and approval is being pursued in accordance with the EP&A Act. The Secretary's Environmental Assessment Requirements (SEARs) for the project have been issued and set out the environmental assessment requirements for the project.

This Noise and Vibration Impact Assessment (NVIA) has been prepared to address the relevant SEARs in relation to the preparation of the Environmental Impact Statement (EIS) for the project, and was conducted in general accordance with the following NSW Government guidelines:

- NSW *Industrial Noise Policy* (EPA, 2000);
- *Noise Guide for Local Government* (EPA, 2013);
- NSW *Road Noise Policy* (DECCW, 2011); and,
- *Interim Construction Noise Guideline* (DECC, 2009).

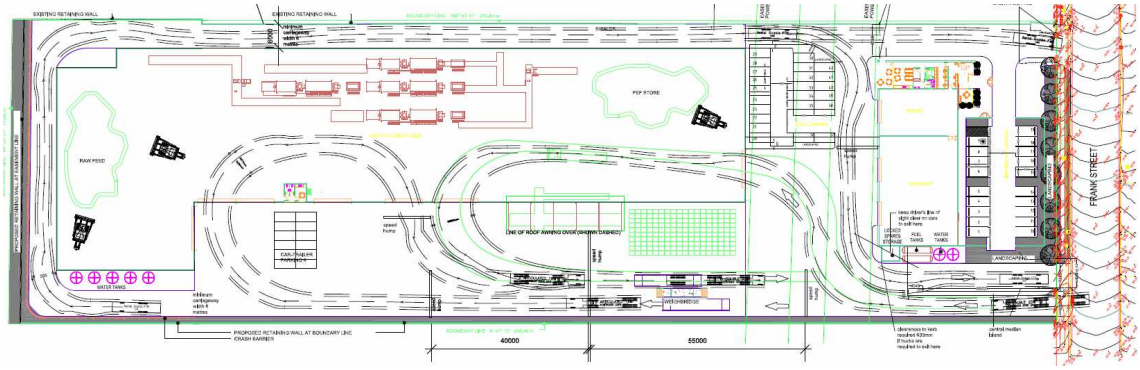
Given the substantial setback distances to nearby receivers, it is considered that a vibration assessment is not warranted and therefore not considered further in this assessment.

2 AREA DESCRIPTION & PROPOSED OPERATION

2.1 The Site

The Site is located on the northern side of Frank Street, to the west of the intersection with Redfern Street. The Site has an area of approximately 2.1 hectares. The site plan, as presented in Figure 2-1, shows car parking, office and workshop facilities at the southern end of the Site, near Frank Street, and a large building covering the rear two thirds of the Site.

Figure 2-1 Site Plan



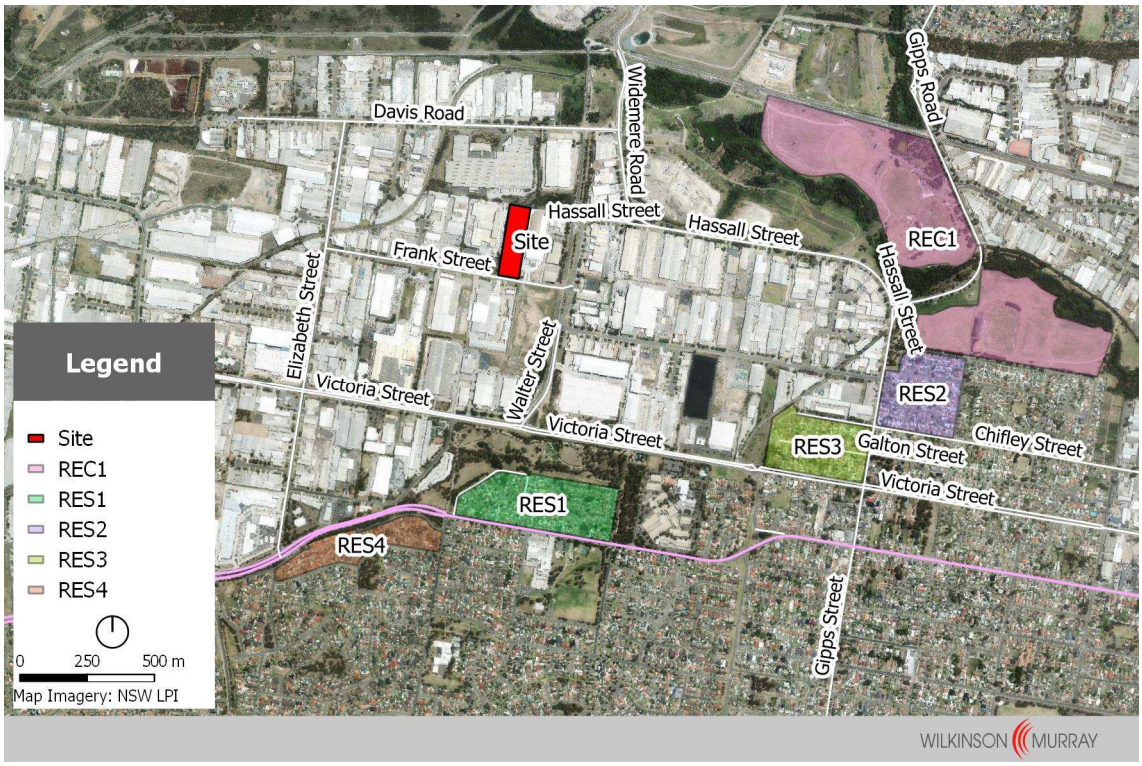
2.2 Surrounding Land Use & Sensitive Receivers

The immediate surrounding land use is industrial. Figure 2-2 shows the location of noise sensitive receivers.

The nearest residential receivers are located to the south in Maugham Crescent, Wetherill Park, approximately 840m away (RES1). There are residences to the east on Hassel Street (1,450m RES 2), to the south-east (Chifley Street and Galton Street near Victoria Street RES 3) and to the south-west along The Horsley Drive (1,250m RES 4).

The Gipps Road Sporting Complex is located to the north-east with the nearest oval at a distance of approximately 1,150m (REC1).

Figure 2-2 Sensitive Receivers



2.3 The Project

2.3.1 Overview

It is proposed to establish a Waste and Resource Management Facility on the Site which will process waste material to produce *Processed Engineering Fuel* (PEF) and other reusable commodities including aggregates, metal, timber and soil.

PEF is primarily a plastic-based material with high calorific value, derived from waste streams such as Construction and Demolition (C&D) waste, Commercial and Industrial (C&I) waste, and pre-processed Municipal Solid Waste (MSW). The proposed development would process dry, non-putrescible C&I and mixed C&D waste.

PEF is an alternative fuel used in energy intensive industrial to replace fossil fuels, such as coal and petcoke and is most commonly used in the cement manufacturing industry.

Recycling combustible waste into PEF provides the following benefits:

- Diverting waste from landfill;
- Conserving natural fossil fuels by replacement with sustainable green fuel;
- Reducing carbon emissions in cement manufacturing processes; and,
- Cost savings for industry through replacing fossil fuels with PEF.

The proposed facility has the capability to convert up to 250,000 tonnes of raw material per annum into approximately 100,000 tonnes of PEF and over 100,000 tonnes of other reusable commodities. All raw materials are separated during processing and over 90% of the material is recycled.

2.3.2 Site Operations & Processes

C&D and C&I waste would be delivered to the site by customers, typically in medium rigid tip trucks. The average load size would be approximately 6 tonnes and up to 150 trucks would deliver to the site per day (300 movements). As shown in Figure 2-1, these will enter through one of the two northern doors on the eastern façade and leave through the centre doors.

Materials dumped onto the tipping floor of the processing building and inspected. If the load is found to contain any prohibited materials, such as batteries or putrescible waste, it would immediately be loaded back into the delivering vehicle and rejected from the site. The approved waste materials are then moved to a stockpile. Prior to processing this material is pre-sorted through using an excavator where large metal items such as gas bottles are removed.

The waste is then loaded into the processing plant using an excavator and/or a front end loader. Based on the size and weight of the waste high calorific value products, such as plastics, paper, timber and textiles are separated from non-combustible products such as bricks, sand, concrete and glass.

The non-combustible products are quickly removed from the waste stream and are temporarily stockpiled in the building prior to being taken to other facilities for recycling into other products, such as road base.

The high calorific value products are then run through shredders to size the PEF to the specification of the end user. The sized material is then passed beneath another magnet to extract any ferrous metal liberated by the shredding process. This material is then stockpiled for loading on to outgoing trucks.

Approximately 25 semi-trailer loads of PEF would be shipped from the site per day. These will arrive through the door on the southern façade and leave through a centre door as shown in Figure 2-1. Additionally, approximately 31 large tip truck loads of other materials, including aggregates and waste to landfill, would leave the site per day. These will enter through one of the two northern doors on the eastern façade and leave through the centre doors. This results in a total of 112 movements.

Rapid roller doors are proposed in all locations where regular access is required. For other doors, which only require access for maintenance, conventional doors are proposed however these will remain closed during normal operations. Based on the proposed number of truck movements any one of the roller doors used for access are likely to be open up to a total of ⅓ of the time during the day.

In addition to the heavy vehicle movements on the site, a number of mobile plant items would be operated within the processing building, as presented in Table 2-1.

Table 2-1 Mobile Plant

Item	Quantity
Bobcat	1
Excavator	3
Front End Loader	2
Sweeper	1
Forklift	1

The sweeper and the forklift would also be operated outside the building. The processing building would feature a dust suppression sprinkler system, fitted to the ceiling, and would not have any form of mechanical ventilation.

A workshop and service area are proposed in the northern part of the building which fronts Frank Street. This will operate during core hours and also when maintenance work is undertaken. Typical power tools such as rattle guns and angle grinders as well as welding equipment would be used.

A 1.8m Colorbond fence is proposed along the top of the retaining wall along the western boundary, north of the weighbridge and along the northern boundary.

2.3.3 Operating Hours

The processing plant would primarily operate in 2 shifts; from 5.00am to 10.30pm Monday to Friday, 6.00am to 5.00pm Saturday, and 8.00am to 6.00pm Sunday as required.

Waste would be accepted between 5.00am and 5.00pm Monday to Saturday, and between 7.00am and 4.00pm Sunday.

In addition, maintenance activities would occur as required outside these core hours, and it is possible some deliveries from the site may occasionally occur.

3 EXISTING NOISE ENVIRONMENT

3.1 Unattended Noise Monitoring

Ambient noise levels were monitored at 15 Maugham Crescent, Wetherill Park between Friday, 21 and Saturday, 29 August 2015 at monitoring location L1 which is considered representative of the most affected residential receivers in the vicinity of the Project and is shown in Figure 3-1. The unattended noise monitoring equipment used consisted of environmental noise loggers set to A-weighted, fast response, continuously monitoring over 15-minute sampling periods. This equipment is capable of remotely monitoring and storing noise level descriptors for later detailed analysis. The equipment calibration was checked before and after the survey and no significant drift occurred.

The logger determines L_{A1}, L_{A10}, L_{A90} and L_{Aeq} levels of the ambient noise. L_{A1}, L_{A10} and L_{A90} are the levels exceeded for 1%, 10% and 90% of the sample time respectively. L_{Aeq} represents the average noise energy during a measurement period.

Times when there was rainfall or wind speeds above 5m/s were excluded in accordance with the *INP*. Detailed results of the noise monitoring from both monitoring periods are shown graphically in Appendix A.

Background noise levels may be expressed in terms of the Rating Background Level (RBL), a standard measure of background noise which is used in the *INP*.

Figure 3-1 Noise Monitoring Location

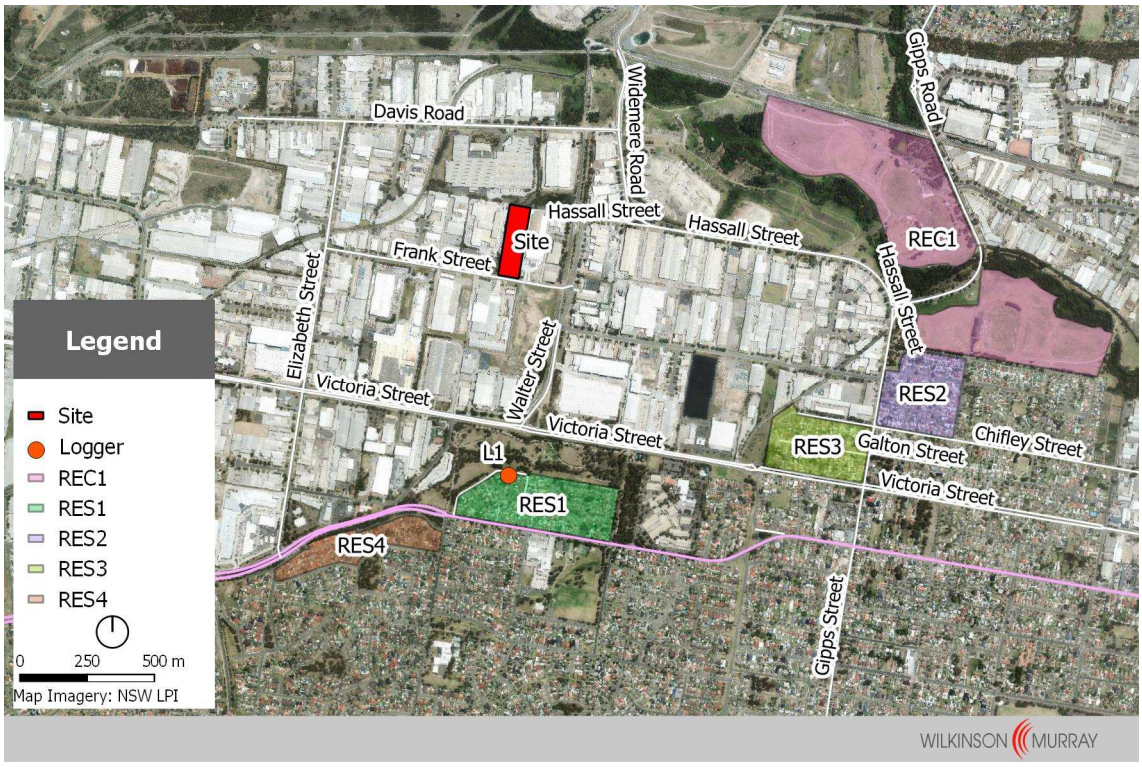


Table 3-1 shows calculated RBL and $L_{Aeq,period}$ levels. L_{Aeq} noise was dominated by traffic and suburban noise rather than industrial noise.

Table 3-1 Measured RBL & $L_{Aeq,period}$ Values

Location	RBL (dBA)			$L_{Aeq,period}$ (dBA)		
	Day	Evening	Night	Day	Evening	Night
RES1 – 15 Maugham Cr	47	44	40	55	55	49

Note: 1. Daytime 7.00am-6.00pm, Evening 6.00pm-10.00pm, Night 10.00pm-7.00am.

4 OPERATIONAL NOISE CRITERIA

The NSW EPA have released a draft Industrial Noise Guideline aimed at superseding the *Industrial Noise Policy (INP)*. However, in relation to the proposed development, we consider the proposed changes to the guideline would not have a material effect on the assessment outcomes. For this reason our assessment has followed the procedures of the *INP*. The *INP* seeks to control noise from newly introduced industrial noise sources by means of its "intrusiveness" and "amenity" noise criteria.

The "intrusiveness" criterion requires that the $L_{Aeq,15min}$ noise level from any new source should not exceed the existing Rating Background Level (RBL) for that period by more than 5dBA. Intrusiveness criterion values for potentially-affected residences follow directly from the RBL values in Table 4-1.

These criteria apply to $L_{Aeq,15min}$ noise levels measured under specific meteorological conditions which are included in the assessment if they occur for more than 30% of the time in any period in any season as outlined in the *INP*. Table 4-1 summarises the intrusive noise criteria. Meteorological data is summarised in Section 5.1.

Table 4-1 Intrusive Noise Criteria (dBA)

Location	Intrusive Criterion		
	Day (dBA)	Evening	Night
RES1 – Maugham Cr	52	49	45

The "amenity" criterion applies to the $L_{Aeq,period}$ noise level due to all industrial sources affecting a location. It sets an upper limit to the total noise level ($L_{Aeq,period}$) in an area from all industrial noise (existing and future). The criterion depends on the time of the day, area classifications and the relationship of the total measured L_{Aeq} (and contribution from existing industrial noise) to determine the Acceptable Noise Level (ANL) for the development.

The potentially-affected areas are classified as *"Suburban"* by the *INP*. Given this, the Acceptable and Maximum Amenity levels ($L_{Aeq,period}$) which apply over the whole day, evening and night period are as follows:

Table 4-2 Amenity Noise Criteria (dBA)

Location	Amenity Criterion		
	Day (dBA)	Evening	Night
Suburban	55-60	45-50	40-45
Active Recreation	55-60		
Industrial	70-75		

Allowing for the different time periods for assessing intrusiveness (15 minute) and amenity (period), it is considered achieving the following intrusive noise limits over a typical busy 15-minute period will also ensure compliance with the recommended acceptable amenity noise limits.

This is based on the assumption that the difference between a typical busy $L_{Aeq,15min}$ descriptor used for the assessment of intrusiveness would be at least 3dBA higher than the $L_{Aeq,period}$ used for the assessment of amenity. Hence a limit of 48dBA (45+3) has been used for the evening (as it is 1dB more stringent than the intrusiveness criterion) and 43dBA (40+3) has been used for the night (as it is 2dB more stringent than the intrusiveness criterion).

Table 4-3 Summary of Noise Criteria (dBA)

Location	Assessment Parameter	Criterion (dBA)		
		Day	Evening	Night
RES1 – Maugham Cr	$L_{Aeq,15min}$	52	48	43
Active Recreation	$L_{Aeq,period}$		55-60	
Industrial	$L_{Aeq,period}$		70-75	

For the other residential areas which are all located closer to other busy roads and the industrial areas than Maugham Crescent, the criteria for RES1 are adopted.

Even if background noise levels in other residential areas are marginally lower, this difference is still not sufficient for these residences to be the potentially most affected due to the increased set back and hence lower predicted noise levels.

5 PREDICTION OF OPERATIONAL NOISE LEVELS

5.1 Meteorological Conditions

The *INP* requires that in predicting operational noise levels, wind speed and direction should be taken into account if wind speeds of up to 3m/s in the source to receiver direction occur more than 30% of the time in any season.

Records of wind speed and direction were obtained from the Bureau of Meteorology monitoring station at the Horsley Park Equestrian Centre, approximately 5km south-west of the site, for the 2012 calendar year. This data was analysed to identify any gradient winds.

The EPA's *Noise Enhancement Wind Analysis (NEWA)* software was used to identify instances of seasonal winds blowing from the source to any sensitive receivers for more than 30% of the time during the day, evening or night time assessment periods.

The NEWA software indicated that gradient winds exist during the night time period in winter for receivers to the east of the Site. No gradient winds where identified for receivers to the south or south-east of the site.

5.2 Prediction Methodology

Table 5-1 shows all equipment included in noise modelling, and the assumed Sound Power Levels. For activities which do not occur continuously over a 15-minute period, the L_{Aeq} is adjusted to account for the duration over which it occurs in any 15-minute period.

The dominant noise will be generated internally within the main manufacturing facility by the fixed plant as well as mobile plant including Front End Loaders, excavators and tipping of materials from trucks or activities in the workshop building which will include intermittent grinding, welding and use of rattle guns. The manufacturing facility building will have thermal insulation on the underside of the roof which will control reverberation times.

Externally, noise will be dominated by trucks arriving and departing as well as intermittent fork lift movements to manage the bale stockpile. There will also be noise associated with air-conditioning plant for the office building.

5.2.1 To Residences

Whilst rapid roller doors are proposed and over a whole day a door would be open one third of the time, it is assumed as a worst-case scenario during a busy 15-minute period one door on the western facade will remain open the whole time.

Given the distances to the nearest noise-sensitive receivers are in excess of 800m and there is shielding by surrounding buildings in all directions, then noise levels have been predicted based on geometric spreading and a conservative allowance of 10dB in relation to shielding from buildings. When considering adverse meteorological conditions the effects of shielding is reduced to 5dB.

5.2.2 To Industrial Boundary & Active Recreation Area

For these assessment locations, assessed over the whole day, evening or night period, a roller door on the western façade is assumed to be open ⅓ of the time and all 412 truck movements are assumed to occur in the daytime. Whilst a 1.8m fence is proposed along part of the western boundary, we have not allowed for shielding provided in our calculations to the industrial boundary as it is not required in order to satisfy noise criteria.

Table 5-1 Equipment Sound Power Levels or Internal Sound Pressure Levels

Plant	Nº	SWL $L_{Aeq,15min}$ (dBA)
Manufacturing Facility, including trucks tipping, front end loaders, excavators and fixed plant		SPL 89 internal at openings
Workshop Building, including grinding / welding		SPL 87 internal at openings
Forklift	1	100
10 Trucks per 15 minutes on site (412 per 11 hour day)	Line	78/m
Air-Conditioning Plant	Total	90

Table 5-2 indicates the operational noise levels predicted at potentially-affected residences, for the case where all equipment is working as shown in Figure 5-1 and for acoustically neutral and adverse meteorological conditions. Calculations include the effect of shielding by intervening buildings. Adverse conditions only need to be considered at RES2 for night time, however, the predicted level of 33dBA is still 10dBA below the PSNL of 43dBA.

Table 5-2 Predicted L_{Aeq} Operational Noise Levels, dBA

Receiver No.	Operational Noise Criterion, $L_{Aeq,15min}$ (dBA) Day/Eve/Night	Predicted Daytime Operational Noise Level $L_{Aeq,15min}$ (dBA)	
		Neutral Conditions	Adverse Conditions
RES1 – Maugham Cr	52/48/43	30	35
RES2 – Hassall St	52/48/43	24	29
RES3 – Galton St	52/48/43	28	33
RES4 – The Horsley Dr	52/48/43	27	32
Active Recreation	55-60 $L_{Aeq,period}$	26	31
Industrial Boundary	70-75 $L_{Aeq,period}$	69	-

The predicted noise levels meet the relevant criteria at all assessment locations for both adverse and neutral conditions. This is based on comparing the typical worst case daytime operations with criteria for all periods even though night time operations are likely to generate much lower noise levels.

6 TRAFFIC NOISE ON PUBLIC ROADS

Truck movements would primarily occur during the 6.00am to 6.00pm period; however, 24-hour access to the site is proposed. A typical day would have staff associated with the processing of materials arriving from approximately 5.00am as it is possible some waste will also arrive after 5.00am. The bulk of the waste will arrive between 6.00am and 5.00pm. Product out will also primarily occur between 6.00am and 6.00pm, but some product will be dispatched during the evening up until 10.00pm and it is possible there may be 1 or 2 semi-trailer movements during the night to dispatch PEF, subject to customer needs.

The processing plant will operate on a 2 shift basis, one commencing at 6.00am and finishing approximately 2.00pm and the next until 10.00pm.

Similarly office staff will primarily work normal business hours. (7.00am to 5.00pm). Light vehicle movements associated with these staff are included in the assessment.

6.1 Noise Criteria

For existing residences affected by additional traffic on existing freeways / arterial roads generated by land use developments, the appropriate noise assessment criteria are set in the *RNP*. The appropriate daytime assessment criterion is $L_{Aeq,15hr}$ 60dBA at 1m in front of the façade. The night time criterion is $L_{Aeq,9hr}$ 55dBA. Where existing traffic noise levels already exceed these noise levels, the *RNP* deems an increase of up to 2dB represents a minor impact that is considered barely perceptible to the average person.

Trucks will access via Frank Street from either the east or west and then typically via Redfern Street / Hassall Street or Elizabeth Street and then the Horsley Drive or Gipps Road, dependent on size and RMS requirements. The nearest residences / noise sensitive receivers to the facility, likely to be affected by additional traffic are located on Hassall Street south of Gipps Road or along The Horsley Drive.

In accordance with the definitions outlined in the *Road Noise Policy (RNP)* all these roads would be classified as arterial.

6.2 Prediction of Traffic Noise Levels

A traffic study was prepared by Lyle Marshall & Associates Pty Ltd. This report predicted future traffic generation by the recycling facility based upon processing 250,000 tonnes of raw materials per annum. The assessment was based upon 250 working days Monday to Friday and 52 Saturdays per annum (302 days) for waste deliveries to the site and 250 days for product out and average truck loads as shown in Table 6-1 which presents the estimated number of truck loads / movements daily.

Table 6-1 Summary of Estimated Number of Daily Movements

Activity	Daily Tonnage & Average Load	Truck Loads & Movements
Incoming Waste	878 tonnes per day 6 tonnes per average load	146 Tipper trucks so 300 movements
Outgoing PEF	400 tonnes per day 16 tonnes per average load	25 trucks so 50 movements
Processed Materials	400 tonnes per day 16 tonnes per load	25 trucks so 50 movements
Waste to Landfill Sites	100 tonnes per day 16 tonnes per load	6 trucks so 12 movements
Plant Staff	-	132 movements
Office Staff	-	50 movements
	Total:	**404 Trucks / 182 Cars**

These movements are split into daytime and night time as follows:

Table 6-2 Summary of Estimated Number of Daily Truck Movements

	Direction / Activity	No. of Truck Movements	
		7-10	10-7
Raw Materials	In loaded trucks-(tipper)	141	5
	Out empty trucks	141	5
Finished Product-PEF	In empty to pick up PEF	23 (Semi and BD)	2
	Out for PEF	23 (Semi and BD)	2
Finished Product Processed Materials	In empty trucks (tippers)	20	5
	Out loaded trucks (tippers)	20	5
Waste to Landfill	In empty	6	0
	Out loaded	6	0
Total No. of Typical Daily Movements:		**370**	**24**

The number of additional vehicles based on an annual average is summarised in the Table 6-3 below.

Table 6-3 Summary of Estimated Number of Daily Truck Movements

Location	Day (7am-10pm)		Night (10pm-7am)	
	Cars	Trucks	Cars	Trucks
Frank St (east of site)	46	147	20	9
Frank St (west of site)	35	233	17	15
Hassall St (south of Gipps Rd)	22	107	10	7
The Horsley Dr (east of Hassall St)	22	107	10	7
The Horsley Dr (west of Elizabeth St)	35	233	17	15

Existing traffic volumes on these roads are summarised in Table 6-4.

Table 6-4 Summary of Estimated Number of Daily Truck Movements

Location	Day (7am-10pm)		Night (10pm-7am)	
	Volume	%HV	Volume	%HV
Frank St (east of site)	3623	35.7	830	22.5
Frank St (west of site)	3623	35.7	830	22.5
Hassall St (south of Gipps Rd)	19548	20 est	4467	-
The Horsley Dr (east of Hassall St)	18230	20 est	4165	-
The Horsley Dr (west of Elizabeth St)	18530	20 est	4240	-

Given the existing high traffic volumes on all the roads where residences are located, existing noise levels are likely to exceed the *RNP* base criterion. The increased noise level due to traffic from the proposed recycling facility based on the splits above is calculated to be 0.2dB at daytime and less than 0.1dB at night time. This is significantly below the 2dB increase which is described as noticeable and negligible impact is therefore expected.

7 NOISE FROM CONSTRUCTION ACTIVITIES

7.1 Noise Criteria for Construction Activities

The *NSW Interim Construction Noise Guideline (ICNG)* presents the process to assess construction in NSW. The *ICNG* was developed by the Department of Environment Climate Change & Water (DECCW) taking into consideration that construction is temporary, noisy and difficult to ameliorate. As such, the *ICNG* was developed to focus on applying a range of work practices most suited to minimising construction noise impacts, rather than focusing only on achieving a numeric noise level.

The *ICNG* recommends that standard construction work hours should typically be as follows:

- Monday to Friday 7.00am to 6.00pm
- Saturday 8.00am to 1.00pm
- No work on Sundays or public holiday

Additionally, it recommends quantitative management noise goals at residences as presented in Table 7-1.

Table 7-1 Construction Noise at Residences using Quantitative Assessment

Time of Day	Management Level $L_{Aeq\ (15\ min)}$	How to Apply
Recommended standard hours: Monday to Friday 7am to 6pm Saturday 8am to 1pm No work on Sundays or public holidays	Noise affected RBL + 10dBA	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured $L_{Aeq\ (15\ min)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to minimise noise. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the proponent should consider very carefully if there is any other feasible and reasonable way to reduce noise to below this level. If no quieter work method is feasible and reasonable, and the works proceed, the proponent should communicate with the impacted residents by clearly explaining the duration and noise level of the works, and by describing any respite periods that will be provided.
Outside recommended standard hours	Noise affected RBL + 5dBA	A strong justification would typically be required for works outside the recommended standard hours. The proponent should apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practices have been applied and noise is more than 5dBA above the noise affected level, the proponent should negotiate with the community.

The *ICNG* presents the following Noise Management Levels for non-residential premises:

- Active recreation areas external $L_{Aeq\ (15\ min)}$ 65dBA
- Industrial premises external $L_{Aeq\ (15\ min)}$ 75dBA

The construction noise management levels at all the existing residences are shown in Table 7-2. Table 7-2 also shows the management levels at other receivers.

Table 7-2 Construction Noise Criteria for Daytime Construction

Location	Construction Noise Management Levels, L_{Aeq} (dBA)
Residences RES 1-4	57
Active Recreation	65
Industrial	75

7.2 Predicted Construction Noise Levels

Earthworks will generate the highest noise levels. There will need to be construction of retaining walls (the highest in the north-west corner) import of select material plus the spreading and compaction. This will be followed by drainage works and then paving. The final stage will be the construction of buildings followed by fit out.

Construction plant assumed to be required for these works, and the total L_{Aeq} Sound Power Level for are presented in Table 7-3.

Table 7-3 Construction Plant Total Sound Power Level (SWL)

Activity	Typical Equipment Used	Total $L_{Aeq,15min}$ Sound Power Level (dBA)
Earthworks / Drainage / Pavement	Dozer, Front End Loader, Roller, Excavator & Truck	115
Retaining Walls	Piling Rig / Concrete Trucks	112
Buildings & Fit out	Cranes, Delivery Trucks & Power Tools	110

Table 7-4 shows the predicted construction noise levels for the main phases.

Table 7-4 Predicted Noise Levels from Construction

Receiver No.	Construction Noise Management Level, $L_{Aeq,15min}$ (dBA)	Predicted Construction Noise Level $L_{Aeq,15min}$ (dBA)		
		Site Earthworks	Retaining Walls	Site Buildings
RES1 – Maugham Cr	57	39	39	34
RES2 – Hassall St	57	34	34	29
RES3 – Galton St	57	36	36	31
RES4 – The Horsley Dr	57	35	35	30
Active Recreation	65	34	34	29
Industrial Boundary	75	70-81	70-90	70-76

Predicted noise levels at residences and the active recreation area are expected to comply with the Noise Management Levels. Negligible impact is therefore expected.

There will be exceedance of construction Noise Management Levels at the industrial boundaries from time to time when construction plant is located close to the boundary. In particular, this would relate to the western boundary near the north western corner of the site where the larger retaining walls and extensive fill is required. This is common across many construction sites.

Inspection of the aerial photography indicates the boundary areas of the adjoining sites include some buffer area and are currently used for truck trailer parking or car parking, hence negligible impact is expected during these noisier construction periods.

Figure 7-1 Aerial showing Current Uses near Industrial Boundary

It is recommended a further review of potential impacts on neighbouring properties can be conducted in consultation with the potentially affected neighbours at the time the proposed construction commences.

Beyond standard mitigation practices to use modern well-maintained plant, there are no further mitigation measures which are considered feasible and reasonable for the proposed works.

8 CONCLUSION

The proposed development of a resource recycling facility at Frank Street, Wetherill Park has been assessed against NSW government policies in relation to industrial noise, construction noise and traffic noise on the road network.

Industrial noise has been assessed in accordance with the NSW EPA *Industrial Noise Policy (INP)*. The predicted noise levels indicate compliance with intrusive criteria under neutral and adverse meteorological conditions at both residential receivers and the industrial boundary. At residential receivers activities are predicted to be inaudible at all times.

Potential noise impacts from traffic on the surrounding road network, arising from additional truck and car movements associated with the operation of the recycling facility are predicted to not be noticeable as increases in noise are less than 0.2dB at daytime and 0.1dB at night time.

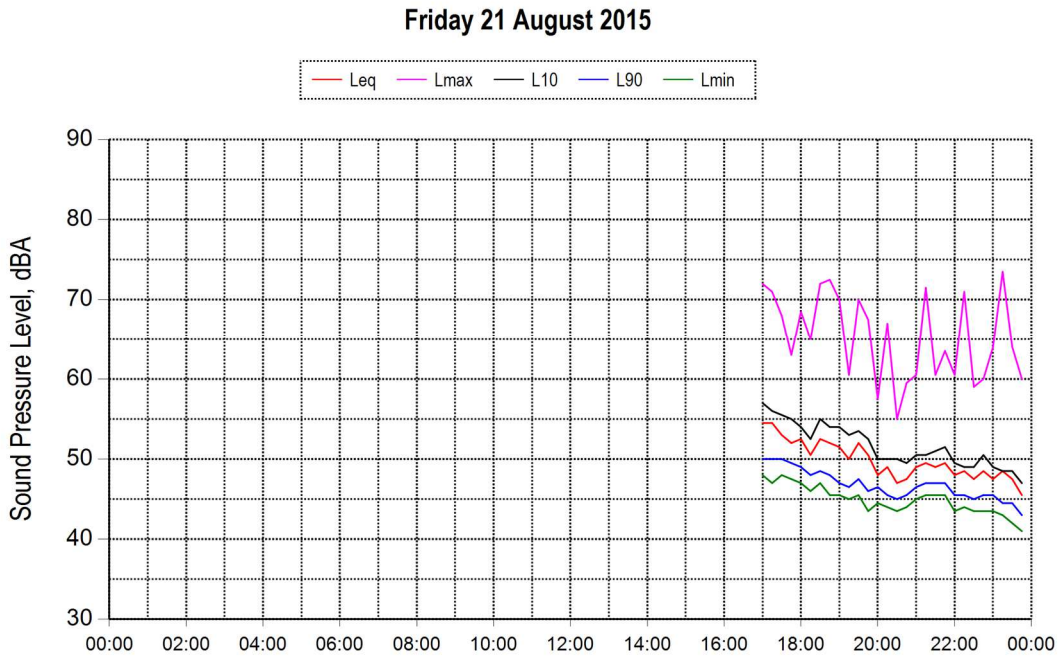
Noise levels associated with the construction of the facility, including the earthworks, are predicted to be within the relevant Noise Management Levels for residences.

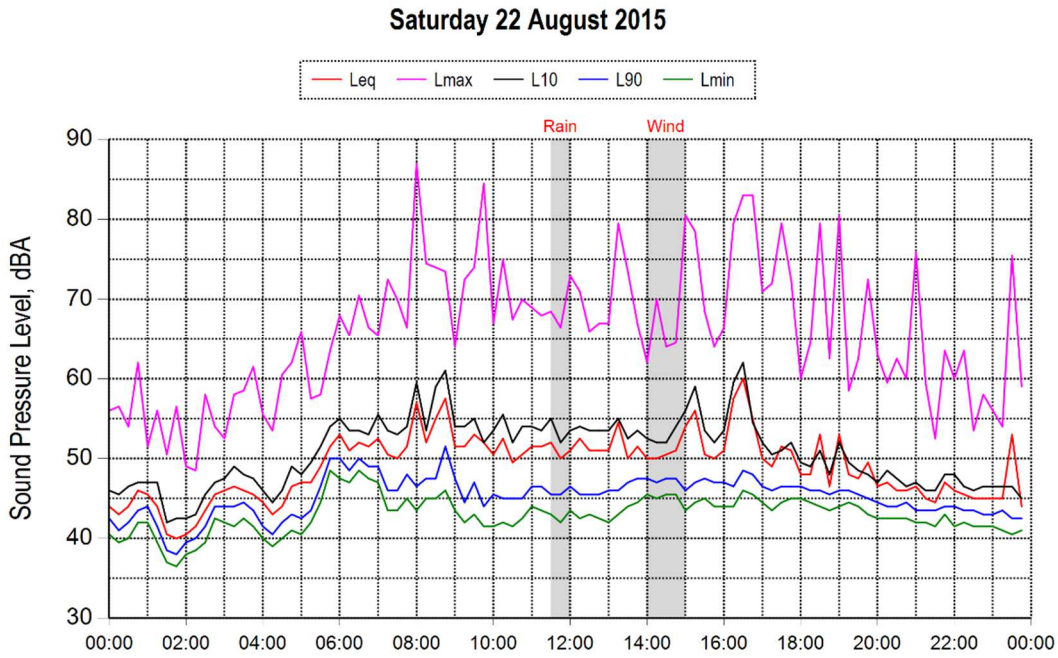
Construction noise from the shorter term retaining walls and earthworks close to the industrial boundary are predicted to exceed Noise Management Levels at times. Since construction is limited to standard daytime hours, these works are short-term, beyond notification of the neighbours at the commencement of construction, no further mitigation measures are considered feasible and reasonable.

APPENDIX A

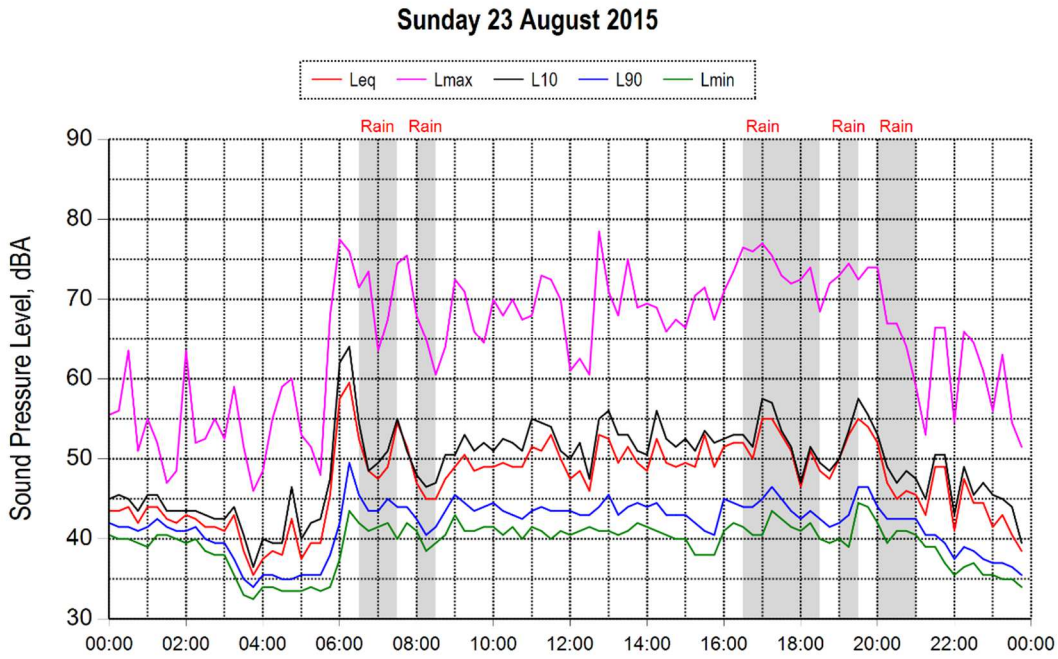
NOISE MEASUREMENT RESULTS

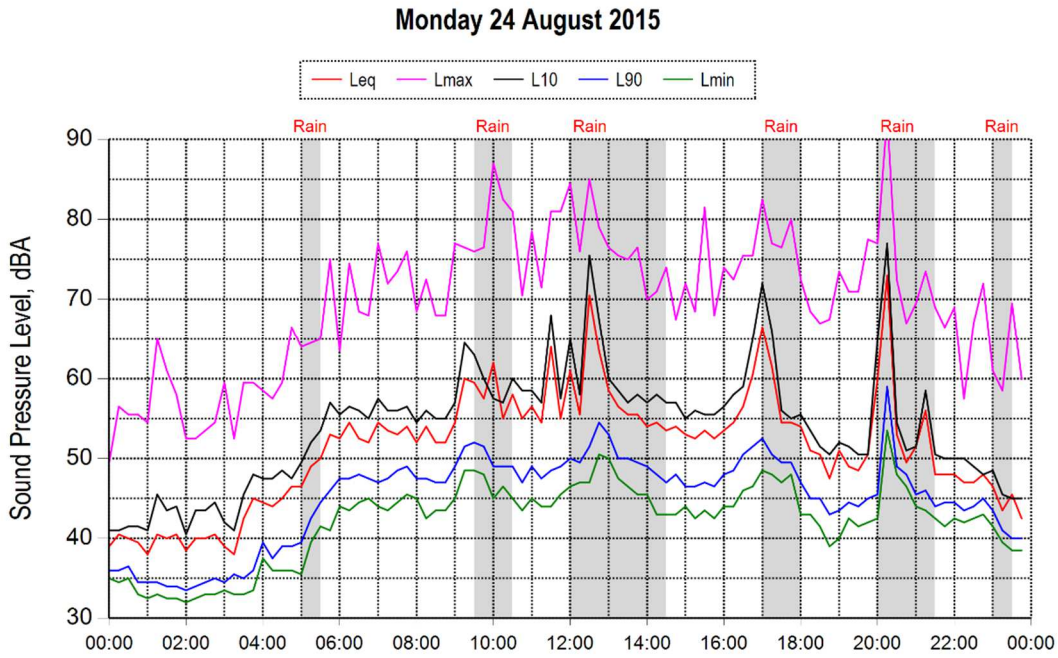
Location: 15 Maugham Crescent, Wetherill Park



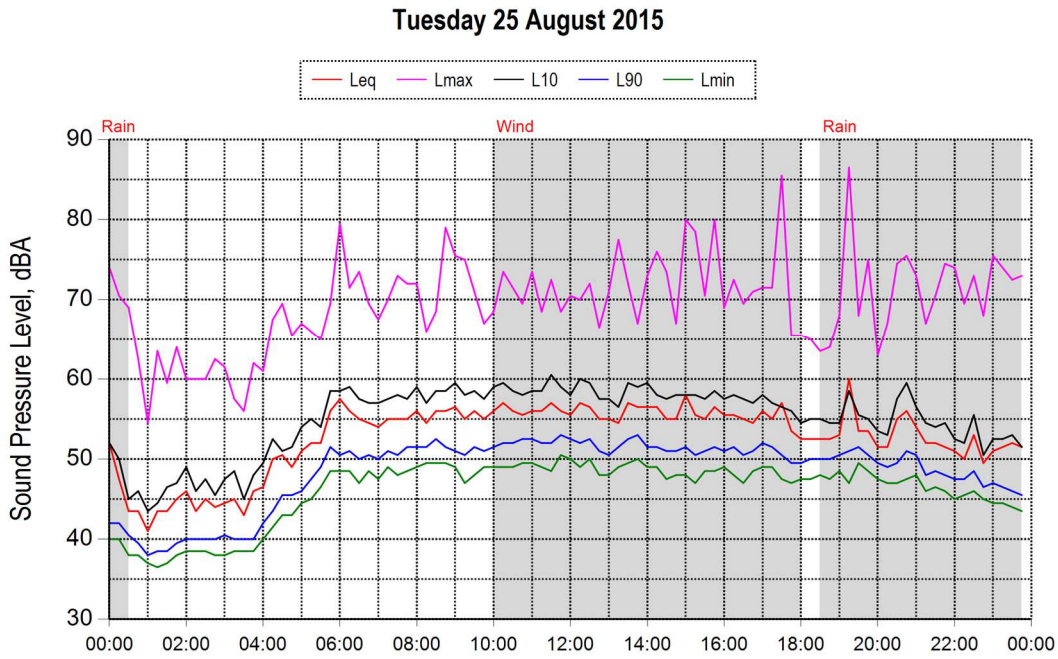


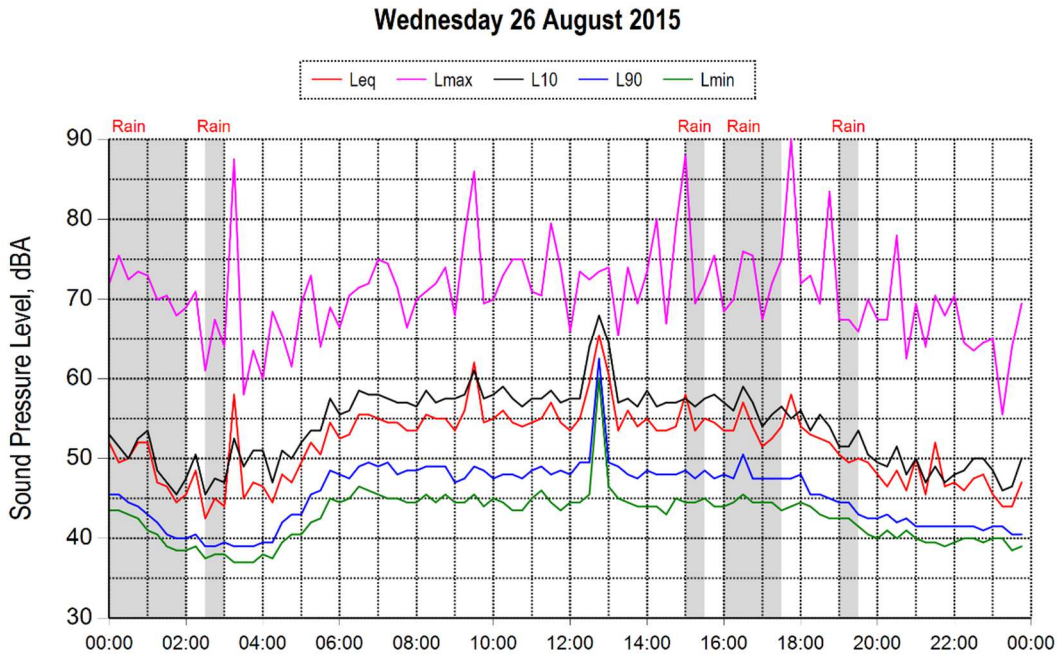
Location: 15 Maugham Crescent, Wetherill Park



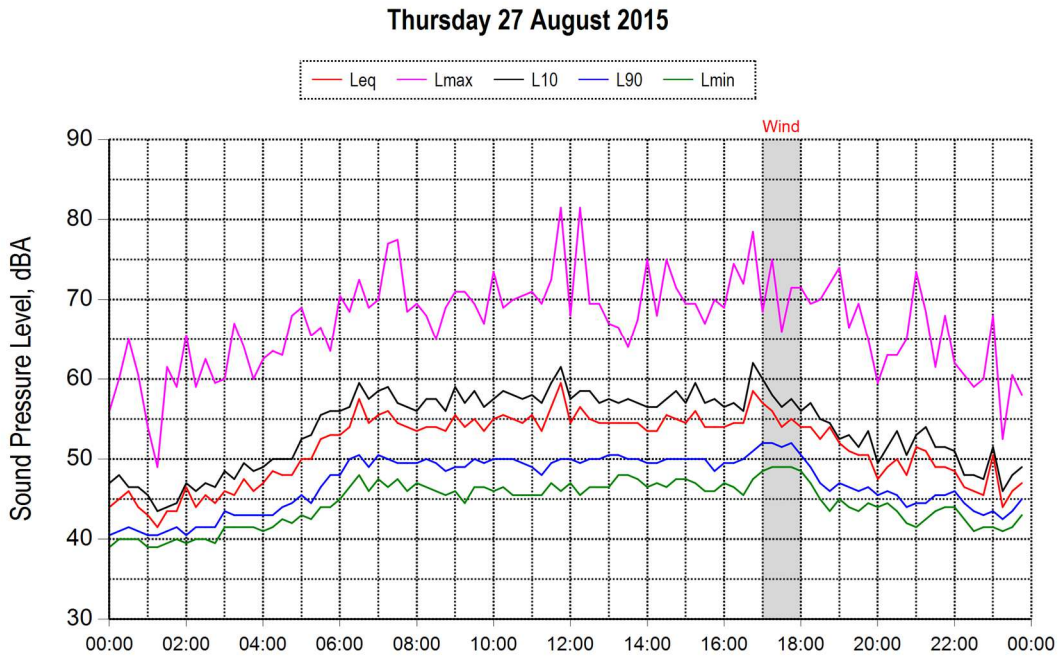


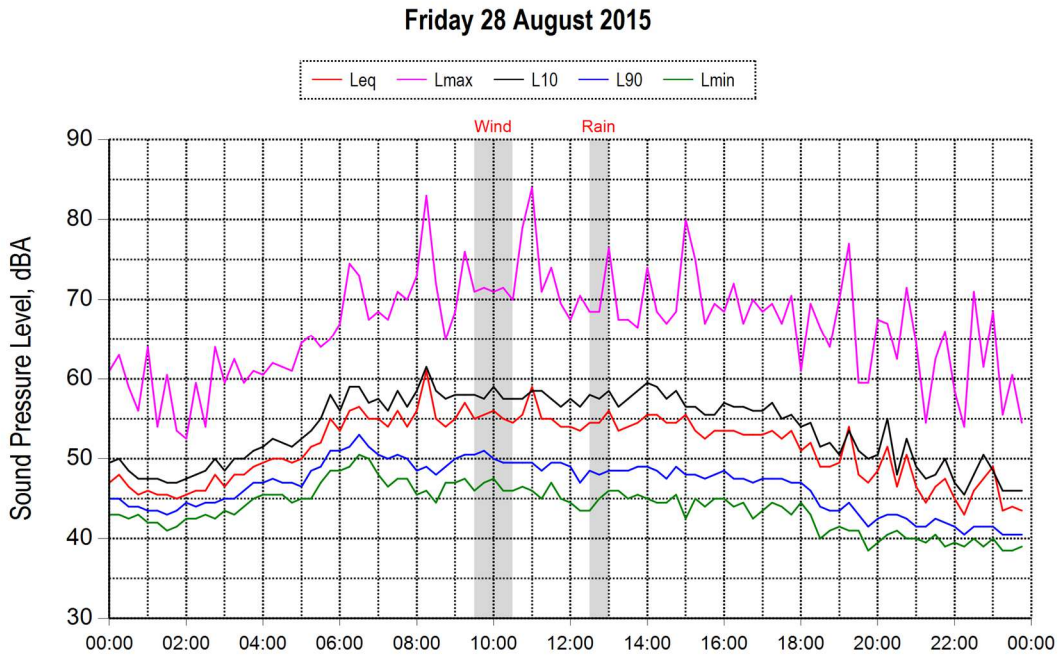
Location: 15 Maugham Crescent, Wetherill Park



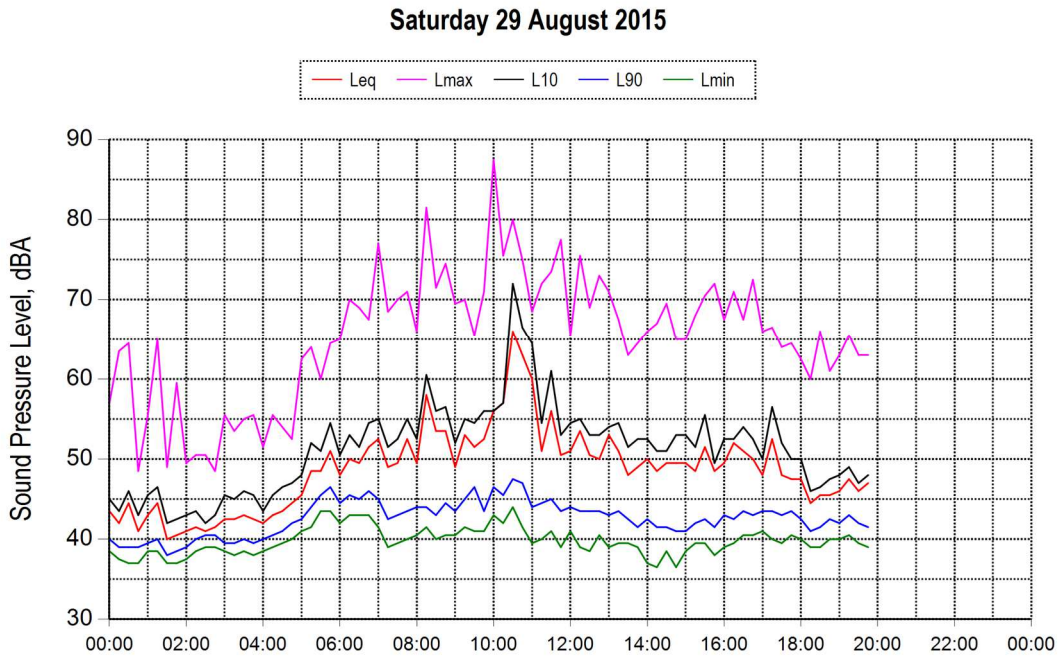


Location: 15 Maugham Crescent, Wetherill Park





Location: 15 Maugham Crescent, Wetherill Park



Attachment 12

Revised Air Quality Impact Assessment

ACOUSTICS AND AIR

WASTE AND RESOURCE MANAGEMENT FACILITY

AIR QUALITY IMPACT ASSESSMENT

REPORT NO. 15278-AQ
VERSION B

MAY 2016

PREPARED FOR

RESOURCECO
PO BOX 212
CONCORD NSW 2137

WILKINSON MURRAY

DOCUMENT CONTROL

Version	Status	Date	Prepared By	Reviewed By
A	Draft	20 January 2016	Nic Hall	John Wassermann
A	Final	28 January 2016	Nic Hall	John Wassermann
B	Final	20 May 2016	Nic Hall	John Wassermann

Note

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Celebrating 50 Years in 2012

Wilkinson Murray is an independent firm established in 1962, originally as Carr & Wilkinson. In 1976 Barry Murray joined founding partner Roger Wilkinson and the firm adopted the name which remains today. From a successful operation in Australia, Wilkinson Murray expanded its reach into Asia by opening a Hong Kong office early in 2006. 2010 saw the introduction of our Queensland office and 2011 the introduction of our Orange office to service a growing client base in these regions. From these offices, Wilkinson Murray services the entire Asia-Pacific region.

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GLOSSARY OF AIR QUALITY TERMS

Air Pollution – The presence of contaminants or pollutant substances in the air that interfere with human health or welfare, or produce other harmful environmental effects.

Air Quality Standards – The level of pollutants prescribed by regulations that are not to be exceeded during a given time in a defined area.

Air Toxics – Any air pollutant for which a national ambient air quality standard (NAAQS) does not exist (i.e. excluding ozone, carbon monoxide, PM-10, sulphur dioxide, nitrogen oxide) that may reasonably be anticipated to cause cancer; respiratory, cardiovascular, or developmental effects; reproductive dysfunctions, neurological disorders, heritable gene mutations, or other serious or irreversible chronic or acute health effects in humans.

Airborne Particulates – Total suspended particulate matter found in the atmosphere as solid particles or liquid droplets. Chemical composition of particulates varies widely, depending on location and time of year. Sources of airborne particulates include dust, emissions from industrial processes, combustion products from the burning of wood and coal, combustion products associated with motor vehicle or non-road engine exhausts, and reactions to gases in the atmosphere.

Area Source – Any source of air pollution that is released over a relatively small area, but which cannot be classified as a point source. Such sources may include vehicles and other small engines, small businesses and household activities, or biogenic sources, such as a forest that releases hydrocarbons, may be referred to as nonpoint source.

Concentration – The relative amount of a substance mixed with another substance. Examples are 5 ppm of carbon monoxide in air and 1 mg/l of iron in water.

Emission – Release of pollutants into the air from a source. We say sources emit pollutants.

Emission Factor – The relationship between the amount of pollution produced and the amount of raw material processed. For example, an emission factor for a blast furnace making iron would be the number of pounds of particulates per ton of raw materials.

Emission Inventory – A listing, by source, of the amount of air pollutants discharged into the atmosphere of a community; used to establish emission standards.

Flow Rate – The rate, expressed in gallons -or litres-per-hour, at which a fluid escapes from a hole or fissure in a tank. Such measurements are also made of liquid waste, effluent, and surface water movement.

Fugitive Emissions – Emissions not caught by a capture system.

Hydrocarbons (HC) – Chemical compounds that consist entirely of carbon and hydrogen.

Hydrogen Sulphide (H_2S) – Gas emitted during organic decomposition. Also, a by-product of oil refining and burning. Smells like rotten eggs and, in heavy concentration, can kill or cause illness.

Inhalable Particles – All dust capable of entering the human respiratory tract.

Nitric Oxide (NO) – A gas formed by combustion under high temperature and high pressure in an internal combustion engine. NO is converted by sunlight and photochemical processes in ambient air to nitrogen oxide. NO is a precursor of ground-level ozone pollution, or smog.

Nitrogen Dioxide (NO_2) – The result of nitric oxide combining with oxygen in the atmosphere; major component of photochemical smog.

Nitrogen Oxides (NO_x) – A criteria air polluant. Nitrogen oxides are produced from burning fuels, including gasoline and coal. Nitrogen oxides are smog formers, which react with volatile organic compounds to form smog. Nitrogen oxides are also major components of acid rain.

Mobile Sources – Moving objects that release pollution; mobile sources include cars, trucks, buses, planes, trains, motorcycles and gasoline-powered lawn mowers.

Particulates; Particulate Matter (PM-10) – A criteria air pollutant. Particulate matter includes dust, soot and other tiny bits of solid materials that are released into and move around in the air. Particulates are produced by many sources, including burning of diesel fuels by trucks and buses, incineration of garbage, mixing and application of fertilizers and pesticides, road construction, industrial processes such as steel making, mining operations, agricultural burning (field and slash burning), and operation of fireplaces and woodstoves. Particulate pollution can cause eye, nose and throat irritation and other health problems.

Parts Per Billion (ppb)/Parts Per Million (ppm) – Units commonly used to express contamination ratios, as in establishing the maximum permissible amount of a contaminant in water, land, or air.

PM10/PM2.5 – PM10 is measure of particles in the atmosphere with a diameter of less than 10 or equal to a nominal 10 micrometers. PM2.5 is a measure of smaller particles in the air.

Point Source – A stationary location or fixed facility from which pollutants are discharged; any single identifiable source of pollution; e.g. a pipe, ditch, ship, ore pit, factory smokestack.

Scrubber – An air pollution device that uses a spray of water or reactant or a dry process to trap pollutants in emissions.

Source – Any place or object from which pollutants are released.

Stack – A chimney, smokestack, or vertical pipe that discharges used air.

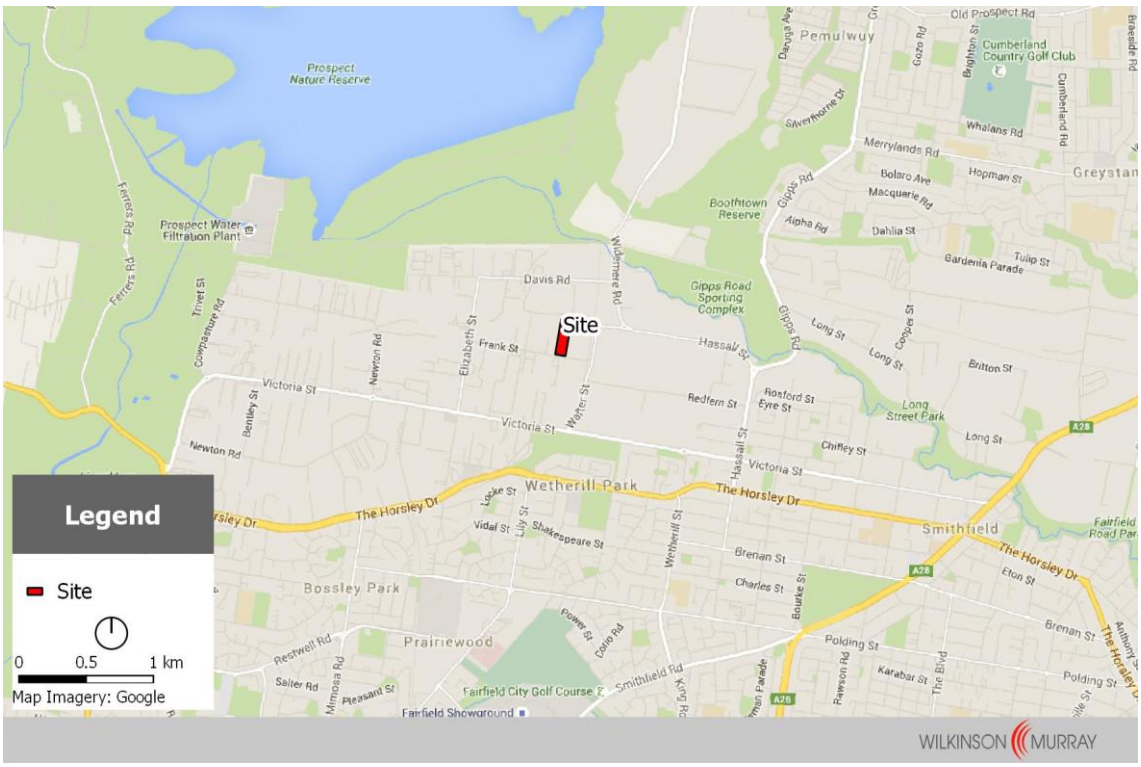
Stationary Source – A place or object from which pollutants are released and which does not move around. Stationary sources include power plants, gas stations, incinerators, houses etc.

Temperature Inversion – One of the weather conditions that are often associated with serious smog episodes in some portions of the country. In a temperature inversion, air does not rise because it is trapped near the ground by a layer of warmer air above it. Pollutants, especially smog and smog-forming chemicals, including volatile organic compounds, are trapped close to the ground. As people continue driving and sources other than motor vehicles continue to release smog-forming pollutants into the air, the smog level keeps getting worse.

1 INTRODUCTION

ResourceCo RRF Pty Ltd (ResourceCo) is seeking approval under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the construction and operation of a Waste and Resource Management Facility (the Project) at 35-37 Frank Street, Wetherill Park (the Site). The location of the Site is shown in Figure 1-1.

Figure 1-1 Site Location



The Project was declared to be a State Significant Development (SSD). Assessment and approval is being pursued in accordance with the EP&A Act. The Secretary's Environmental Assessment Requirements (SEARs) for the project have been issued and set out the environmental assessment requirements for the project.

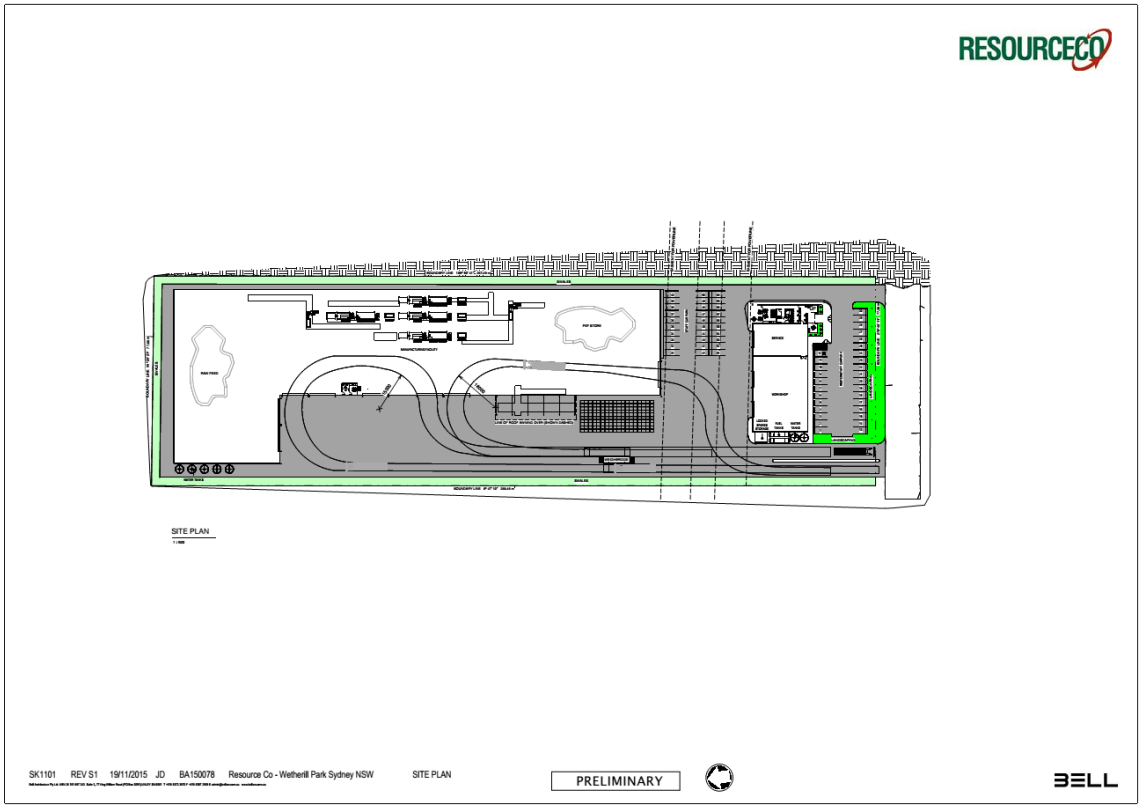
This Air Quality Impact Assessment (AQIA) has been prepared to address the relevant SEARs in relation to the preparation of the Environmental Impact Statement (EIS) for the project, and was conducted in general accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (DEC, 2005).

2 AREA DESCRIPTION & PROPOSED OPERATION

2.1 The Site

The Site is located at on the northern side of Frank Street, to the west of the intersection with Redfern Street. The Site has an area of approximately 2.1 hectares. The site plan, as presented in Figure 2-1, shows car-parking, office and workshop facilities at the southern end of the Site, near Frank Street, and a large building covering the rear two thirds of the Site.

Figure 2-1 Site Plan



2.2 Surrounding Land Use and Sensitive Receptors

The land use immediately surrounding the Site is industrial. The nearest sensitive residential receptors are located in Wetherill Park, more than 700 metres away from the site. A number of residential receptor 'catchments' have been defined to identify receivers to the east, south-east, south and south-west. Table 2-1 presents each catchment, and identifies the most affected discrete residential receptor in each catchment, which will be used for the purposes of dispersion modelling and assessment of potential impacts.

The nearest industrial receptors, located adjacent to the site, are also identified in Table 2-1.

Table 2-1 Sensitive Receptors

Catchment / Receiver	Most Affected Receptor				
	Address	Easting (m)	Northing (m)	Distance from Site	Elevation (m)
R1	15 Maugham Crescent	306488	6252687	730	53
R2	54 Eyre Street	307879	6253087	1,410	32
R3	160 Chifley Street	307467	6252917	1,080	32
R4	6 Cobbett Street	306163	6252516	955	63
I1	39-41 Frank Street	306562	6253485	Boundary	52
I2	36-38 Frank Street	306464	6253375	Boundary	51
I3	27-33 Frank Street	306382	6253552	Boundary	48
I4	3A Davis Road	306497	6253749	Boundary	44

Figure 2-2 Sensitive Receptors

2.3 The Project

2.3.1 Overview

It is proposed to establish a Waste and Resource Management Facility on the Site which will process waster material to produce *Processed Engineering Fuel* (PEF) and other reusable commodities including aggregates, metal, timber and soil.

PEF is primarily a plastic-based material with high calorific value, derived from waste streams such as Construction and Demolition (C&D) waste, Commercial and Industrial (C&I) waste, and pre-processed Municipal Solid Waste (MSW). The proposed development would process dry, non-putrescible C&I and mixed C&D waste.

PEF is an alternative fuel used in energy intensive industrial to replace fossil fuels, such as coal and pet coke and is most commonly used in the cement manufacturing industry.

Recycling combustible waste into PEF provides the following benefits:

- Diverting waste from landfill;
- Conserving natural fossil fuels by replacement with sustainable green fuel;
- Reducing carbon emissions in cement manufacturing processes; and,
- Cost savings for industry through replacing fossil fuels with PEF.

The proposed facility has the capability to convert up to 250,000 tonnes of raw material per annum into approximately 150,000 tonnes of PEF and 75,000 tonnes of other reusable commodities. All raw materials are separated during processing and over 90% of the material is recycled.

2.3.2 Site Operations and Processes

C&D and C&I waste would be delivered to the site by customers, typically in medium rigid tip trucks. The average load size would be approximately 6 tonnes and up to 150 trucks would deliver to the site per day.

Materials dumped onto the tipping floor of the processing building and inspected. If the load is found to contain any prohibited materials, such as batteries or putrescible waste, it would immediately be loaded back into the delivering vehicle and rejected from the site. The approved waste materials are then moved to a stockpile. Prior to processing this material is pre-sorted through using an excavator where large metal items such as gas bottles are removed.

The waste is then loaded into the processing plant using an excavator and/or a front end loader. Based on the size and weight of the waste high calorific value products, such as plastics, paper, timber and textiles are separated from non-combustible products such as bricks, sand, concrete and glass.

The non-combustible products are quickly removed from the waste stream and are temporarily stockpiled in the building prior to being taken to other facilities for recycling into other products, such as road base.

The high calorific value products are then run through shredders to size the PEF to the specification of the end user. The sized material is then passed beneath another magnet to extract any ferrous metal liberated by the shredding process. This material is then stockpiled for loading on to outgoing trucks.

Approximately 25 semi-trailer loads of PEF would be shipped from the site per day. Additionally, approximately 25 large tip truck loads of other materials, primarily aggregates, would leave the site per day.

In addition to the heavy vehicle movements on the site, a number of mobile plant items would be operated within the processing building, as presented in Table 2-2. The sweeper and the forklift would also be operated outside the building.

Table 2-2 Mobile Plant

Item	Quantity
Bobcat	1
Excavator	3
Front end loader	2
Sweeper	1
Forklift	1

2.3.3 Dust Control

The processing building would feature a dust suppression sprinkler system, fitted to the ceiling, and would not have any form of mechanical ventilation. Rapid roller doors are proposed in all locations where regular access is required. For other doors, which only require access for maintenance, conventional doors are proposed however these will remain closed during normal operations. Based on the proposed number of truck movements any one of the roller doors used for access are likely to be open up to a total of 1/3 of the time during the day.

2.3.4 Operating Hours

The processing plant would operate in 2 shifts; from 5:00am to 10:30pm Monday to Friday, 6:00am to 5:00 pm Saturday, and 8:00am to 6:00pm Sunday as required.

Waste would be accepted between 5:00am and 5:00pm Monday to Saturday, and between 7:00am and 4:00pm Sunday.

Maintenance activities would occur as required outside these core hours and it is possible some deliveries from the site may occasionally occur.

2.3.5 Site Construction

The construction of the site would include a bulk earthworks phase of approximately three months. The earthworks would involve cut and fill on the site, and the importation of approximately 9,000 cubic metres of fill.

3 AIR QUALITY CRITERIA

3.1 Introduction

The NSW EPA's *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (DEC, 2005) sets out applicable impact assessment criteria for a number of air pollutants.

Air quality criteria are benchmarks set to protect the general health and amenity of the community in relation to air quality. The sections below identify the pollutants of interest in this study and the application air quality criteria for each pollutant.

3.2 Pollutants of Interest

Potential pollutants identified for this development with the potential to result in air quality impacts include odour and dust.

As presented in Section 2.3.2, putrescible waste is not accepted on the Site. However, it is foreseeable that a customer may deliver a load which contains some putrescible waste, and that it would spend a small amount of time on site before it is rejected and removed.

C&D and C&I waste contain a significant percentage of dusty materials, such as bricks, concrete and sand. The handling of these materials, and the shredding of combustible materials will produce dust and particulate matter.

3.3 Impact Assessment Criteria

3.3.1 Odour

NSW legislation prohibits emissions that cause offensive odour to occur at any off-site receptor. Offensive odour is evaluated in the field by authorised officers, who are obliged to consider the odour in the context of its receiving environment, frequency, duration, character and so on and to determine whether the odour would unreasonably interfere with the comfort and repose of the normal person. In this context, the concept of offensive odour is applied to operational facilities and relates to actual emissions in the air.

However, in the approval and planning process for proposed new operations or modifications to existing projects, no actual odour exists and it is necessary to consider hypothetical odour. In this context, odour concentrations are used and are defined in odour units. The number of odour units represents the number of times that the odour would need to be diluted to reach a level that is just detectable to the human nose. Thus by definition, odour less than one odour unit (1 OU), would not be detectable to most people.

The range of a person's ability to detect odour varies greatly in the population, as does their sensitivity to the type of odour. Therefore there can be a wide range of variability in the way odour response is interpreted.

It should be noted that odour refers to complex mixtures of odours, and not 'pure" odour arising from a single chemical. Odour from a single, known chemical very rarely occurs (when it does, it is best to consider that specific chemical in terms of its concentration in the air). In most situations, odour will be comprised of a cocktail of many substances that is referred to as a complex mixture of odorous pollutants, or more simply odour.

For developments with potential for odour it may be necessary to predict the likely odour impact that may arise. This is done by using air dispersion modelling which can calculate the level of dilution of odours emitted from the source at the point that it reaches surrounding receptors. This approach allows the air dispersion model to produce results in terms of odour units.

The NSW criteria for acceptable levels of odour range from 2 to 7 OU, with the more stringent 2 OU criteria applicable to densely populated urban areas and the 7 OU criteria applicable to sparsely populated rural areas, as outlined below.

Table 3-1 presents the relevant impact assessment criteria for complex mixtures of odorous pollutants.

Table 3-1 Impact assessment criteria – complex mixtures of odorous pollutants

Population of affected community	Impact assessment criteria (OU)*
Urban (≥~2000) and/or schools and hospitals	2.0
~500	3.0
~125	4.0
~30	5.0
~10	6.0
Single rural residence (≤~2)	7.0

Note: * 99th percentile nose-response time.

The sensitive receivers identified in this assessment are located in an urban setting, and therefore an impact assessment criterion of 2.0 OU/m^3 has been adopted.

3.3.2 Dust and Particulate Matter

The EPA Approved Methods specifies air quality assessment criteria for assessing impacts from dust generating activities. These criteria are consistent with the National Environment Protection Measures for Ambient Air Quality (NEPC, 1998).

Table 3-2 summarises the air quality goals for dust and particulate matter that are relevant to this study. The air quality goals relate to the total concentrations of dust and particulate matter in the air and not just that from the project. Therefore, some consideration of background levels needs to be made when using these goals to assess impacts.

Table 3-2 Impact assessment criteria – dust and particulate matter

Pollutant	Averaging period	Impact	Criteria
Total suspended particulates (TSP)	Annual	Total	90 µg/m³
Particulate matter ≤10 µm (PM_{10})	Annual	Total	30 µg/m³
	24-hour	Total	50 µg/m³
Deposited dust (DD)	Annual	Total	4 g/m²/month
	Annual	Incremental	2 g/m²/month

There are currently no air quality goals for particulate matter ≤ 2.5 µm ($PM_{2.5}$) for projects within NSW. However, the National Environmental Protection Council (NEPC) has developed an advisory National Environmental Protection Measure (NEPM) for $PM_{2.5}$, as follows:

- A maximum 24 hour average concentration of 25 µg/m^3; and,
- An annual average concentration of 8 µg/m^3.

The above goals for $PM_{2.5}$ concentrations are considered advisory only.

4 EXISTING ENVIRONMENT

4.1 Local Climate

Long term meteorological data for the area surrounding the Site is available from the Bureau of Meteorology (BOM) operated Automatic Weather Station (AWS) at the Horsley Park Equestrian Centre. The Horsley Park Equestrian Centre AWS is located approximately 5 kilometres south west of the Site and records observations of a number of meteorological data including temperature, humidity, rainfall, wind speed and wind direction.

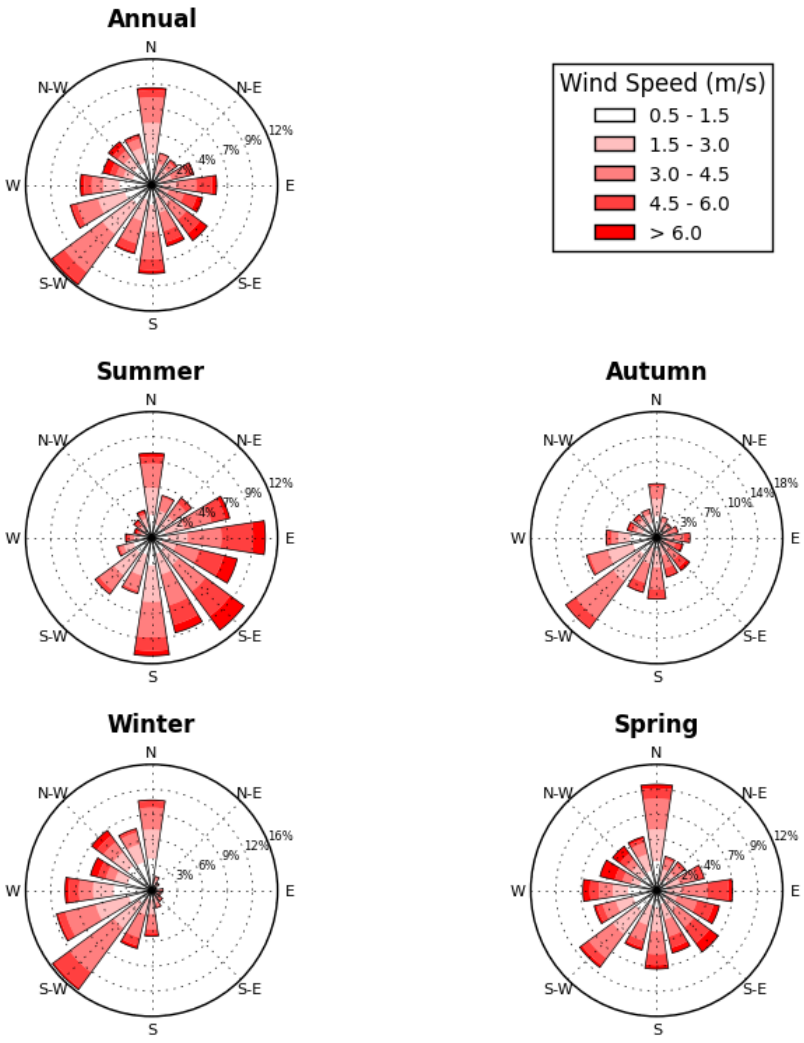
Long-term climate statistics are presented in Table 4-1. Temperature data recorded at the Horsley Park Equestrian Centre AWS indicates that January is the hottest month of the year, with a mean daily maximum temperature of 29.8°C. July is the coolest month with a mean daily minimum temperature of 5.8°C. February is the wettest month with an average rainfall of 112 mm falling over almost 8 days. There are on average 77 rain days per year, delivering 770 mm of rain.

Table 4-1 Long-term climate averages – Horsley Park Equestrian Centre AWS

Observation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
9am Mean Observations													
Temperature (°C)	22.0	21.5	19.4	17.5	13.8	11.1	10.3	12.0	15.6	18.1	19.2	20.9	16.8
Humidity (%)	73	77	81	76	77	80	78	70	65	61	70	71	73
3pm Mean Observations													
Temperature (°C)	28.2	27.1	25.3	22.2	19.2	16.6	16.1	17.8	20.8	22.5	24.2	26.5	22.2
Humidity (%)	49	53	54	53	52	55	50	42	42	45	50	48	49
Daily Minimum and Maximum Temperatures													
Minimum (°C)	17.7	17.8	15.9	12.8	9.0	7.1	5.8	6.5	9.4	11.6	14.4	16.1	12.0
Maximum (°C)	29.8	28.6	26.7	23.5	20.3	17.6	17.2	19.1	22.5	24.6	26.3	28.0	23.7
Rainfall													
Rainfall (mm)	71.1	111.7	74.3	81.8	48.7	65.4	38.3	38.6	34.9	57.5	82.9	65.1	770.2
Rain days	7.7	7.4	7.5	7.7	5.6	6.3	5.5	4.4	4.9	5.7	7.3	7.1	77.1

Windrose plots showing the distribution of wind direction and wind speed at the Horsley Park Equestrian Centre AWS between 2009 and 2014 are presented in Figure 4-1.

Figure 4-1 Windroses – Horsley Park Equestrian Centre AWS, 2009 – 2014



4.2 Local Ambient Air Quality

4.2.1 Odour

No significant sources of odour have been identified in the vicinity of sensitive receptors considered in this assessment.

4.2.2 Dust and Particulate Matter

Air Quality monitoring data from the Office of Environment and Heritage (OEH) air quality monitoring site at Prospect has been used to characterise the ambient air quality in the area surrounding the Site. The OEH's Prospect site is located approximately 5 kilometres north of the Site.

A summary of the PM_{10} monitoring results from 2012 to 2014 collected at the Prospect monitoring site is presented in Table 4-2

Table 4-2 PM_{10} Monitoring Results – Prospect

Year	Annual Average (µg/m3)	24 Hour Average (µg/m^3)	
		Maximum	90th Percentile
2012	17.2	38.7	26.4
2013	19.2	81.8	29.9
2014	17.6	44.3	25.6

Table 4-2 indicates that ambient PM_{10} concentrations in the area surrounding the Site are generally below recommended limit of 50 µg/m^3. Serious bushfires in the Blue Mountains during October 2013 resulted in a number of days where ambient PM_{10} concentrations were significantly elevated.

There are no readily available site specific TSP and deposited dust monitoring data. The Prospect monitoring site does not measure these components; however estimates of the background levels for the area are required to assess the impacts per the criteria presented in Section 3.3.2.

Estimates of the annual average background TSP concentrations can be determined from a relationship between measured PM_{10} concentrations. This relationship assumes that 40% of the TSP is PM_{10} and was established as part of a review of ambient monitoring data collected by co-located TSP and PM_{10} monitors operated for reasonably long periods of time in the Hunter Valley (NSW Minerals Council, 2000).

Applying this relationship with the 2012 annual average PM_{10} concentration of 17.2 µg/m3 at the Prospect monitoring station estimates an annual average TSP concentration of 43.0 µg/m3.

To estimate annual average dust deposition levels, a similar process to the method used to estimate TSP concentrations is applied. This approach assumes that a TSP concentration of 90µg/m3 will have an equivalent dust deposition value of 4 g/m^2/month; and indicates a background annual average dust deposition of 1.91 g/m^2/month for the area surrounding the project.

The OEH monitoring site in Prospect began to record ambient concentrations of $PM_{2.5}$ in December 2014. Table 4-3 presents a summary of this data between December 2014 and 15 October 2015.

Table 4-3 $PM_{2.5}$ Monitoring Results – Prospect

Year	Annual Average (µg/m3)	24 Hour Average (µg/m^3)	
		Maximum	90th Percentile
2014/15	8.4	29.6	13.8

It should be noted that the annual average and maximum 24 hour average $PM_{2.5}$ concentrations measured at the Prospect OEH monitoring site exceed the NEPM advisory goals. There is one exceedance of the 24-hour average NEPM goal for $PM_{2.5}$ during 2015. This occurred during June, and is most likely the result of wood heaters being used in nearby residential areas.

For the purposes of assessing total $PM_{2.5}$ levels resulting from the Project, the second highest 24-hour average observation of 24.9 µg/m^3 will be used to represent the background level. This facilitate the identification of any additional exceedances of the NEPM goal.

5 DISPERSION MODELLING

5.1 Meteorological Modelling

5.1.1 TAPM

No meteorological observation data is available for the Site. The Horsley Park Equestrian Centre AWS is located approximately 5 kilometres south west of the Site. Therefore, site-specific meteorological data was generated through the use of a prognostic model. The prognostic model used was The Air Pollution Model (TAPM), developed and distributed by the Commonwealth Scientific and industrial Research Organisation (CSIRO).

TAPM is an incompressible, non-hydrostatic, primitive equations prognostic model with a terrain-following vertical coordinate for three-dimensional simulations. It predicts the flows important to local scale air pollution, such as sea breezes and terrain induced flows, against a background of large scale meteorology provided by synoptic analyses. TAPM benefits from having access to databases of terrain, vegetation and soil type, leaf area index, sea-surface temperature, and synoptic scale meteorological analyses for various regions around the world.

The prognostic modelling domain was centred at 33.84° S, 150.91° E and involved four nesting grids of 30km, 10 km, 3 km and 1km with 25 grids in the lateral dimensions and 25 vertical levels.

The TAPM model included assimilation of data collected at the Horsley Park Equestrian Centre AWS during the year 2012. This modelling year was chosen based on a long term meteorological analysis (see Appendix A).

5.1.2 CALMET

The three dimensional prognostic wind field from the TAPM simulation was incorporated in a CALMET model as the initial guess wind field. CALMET was run using the 'No-Observations Approach' recommended by TRC (2011).

The CALMET domain was 6 x 6 km with a grid resolution of 0.15 km. Local land use and topographical data (SRTM 3) were used to produce realistic fine scale flow fields in the area surrounding the site.

5.2 Dispersion Modelling

CALPUFF is a non-steady state Gaussian puff dispersion model, developed for the US EPA and approved for use in DEC (2005). CALPUFF is considered an advanced dispersion model and is intended for use in situations where less advanced Gaussian plume models are not appropriate. CALPUFF is most often used in areas exhibiting one or more of the following features:

- Complex terrain;
- Recirculating coastal sea breezes;
- High frequency of calm winds; and,
- Buoyant line sources.

CALPUFF is also the preferred dispersion model for odour, and for this reason has been selected for this assessment.

5.2.1 Peak to Mean Ratios

To account for the time-averaging limitations of the dispersion model, peak-to-mean ratios have been incorporated into all odour flux rates in accordance with the Approved Methods. Peak-to-mean ratios for various source types, as prescribed by the Approved Methods, are presented in Table 5-1.

Table 5-1 Peak-to-mean ratios

Source type	Pasquill-Gifford stability class	P/M60	
		Near-field	Far-field
Area	A,B,C,D	2.5	2.3
	D,E	2.3	1.9
Line	A-F	6	6
Surface wake-free point	A,B,C	12	4
	D,E,F	25	7
Tall wake-free point	A,B,C	17	3
	D,E,F	35	6
Wake-affected point	A-F	2.3	2.3
Volume	A-F	2.3	2.3

Note: * Ratio of peak 1-second average concentrations to mean 1-hour average concentrations.

5.2.2 Building Wake Effects

All emissions associated with this development were modelled using volume sources, which are not affected by building wakes.

5.2.3 Dust Particle Size Distribution

Dust deposition is strongly influence by particle size. Therefore, the total dust emissions from the Site are separated into three fractions, based on particle size, as presented in Table 5-2. Each fraction is modelled as a separate species in CALPUFF, and the predicted ground level concentrations of $PM_{2.5}$, PM_{10}, TSP and dust deposition levels are calculated as combinations of the relevant fractions.

Table 5-2 Dust Particle Size Distribution

Particle Category	Size Range	Distribution (% of TSP)
Fine Particles (FP)	<2.5 µg	4.68%
Coarse Matter (CM)	2.5 – 10 µg	34.4%
Rest	10 – 30 µg	60.92

6 EMISSIONS TO AIR

6.1 Odour Emissions

No significant odour sources have been identified for the normal operations of the facility. However, it is foreseeable that a customer may deliver a load which contains some putrescible waste, and that it would spend a small amount of time on site before it is rejected and removed. The client has advised that a partial load of putrescible waste would spend no more than 1 – 2 hours on site.

A specific odour emission rate (SOER) of 3.65 $OU.m^3/s^2/s$ has been used to represent the likely odour emissions from putrescible waste on the tipping floor. This value is adopted from an assessment of putrescible waste in a resource recovery facility in Newcastle (PAE Holmes, 2011). It is assumed that a partial load of putrescible waste would cover no more than $100m^2$ of the tipping floor.

A summary of the estimate odour emissions from the tipping floor are presented in Table 6-1.

Table 6-1 Odour Emission Estimate

Source	SOER ($OU.m^3/m^2/s$)	Area (m^2)	Odour flux rate	Peak to mean ratio	Peak odour flux rate
Tipping Floor	3.65	100	365	2.3	840

6.2 Dust Emissions

Dust emissions during operation of the project have been estimated based on information provided by the client, using emission factors sourced from both locally developed and US EPA developed documentation.

6.2.1 Operational Dust Emissions

Dust would be generated during site operations due to the handling and processing of materials, and from truck movements on paved roads.

As presented in Section 2.3.2, the majority of the PEF production process involves separating the incoming waste, by size and weight, to extract materials with sufficient calorific value. Aggregate materials, such as bricks and concrete, are quickly removed and are therefore not handled as many times as the combustible materials which are included in PEF. Over the duration of the production process, aggregate materials are handled approximately 5 times, whereas combustible materials are handled approximately 10 times.

Since the PEF production takes place inside a building with dust suppression sprinklers, it is assumed that dust emissions are reduced by 50%. Although roadways would be kept clean, no reduction has been applied to the dust emissions from truck movements.

Total dust emissions from all significant dust generating activities during site operations are presented in Table 6-2. Detailed emission inventory and emission estimation calculations are presented in Appendix B.

Table 6-2 Estimated Annual Operational TSP Emissions

Activity	TSP Emissions (kg/year)
Truck movements on paved roads	2,480
Handling aggregate materials	16
Handling combustible/PEF materials	1
Shredding PEF materials	202
Total	**2,699**

The average daily operational TSP emissions from the site would be approximately 10.8 kg per day.

6.2.2 Construction Dust Emissions

The construction of the development would involve a bulk earthworks phase which would involve some cut and fill within the site, and the importation of approximately 9,000 cubic metres of fill material. The bulk earthworks phase would generate the highest dust emissions during construction, and is anticipated to last for approximately three months.

Table 6-3 Estimated Construction TSP Emissions

Activity	TSP Emissions (kg)
Material handling (excavators & loaders)	5.5
Dozers	260
Hauling (unsealed)	352
Wind erosion	55
Total	**673**

The average daily TSP emissions from the site during the bulk earthworks phase would be approximately 9.4 kg per day.

The estimated TSP emissions associated with the construction of the development are similar in magnitude, however slightly lower, that those for operations, and will only occur over a three month period. Accordingly, no further detailed assessment of construction dust emissions will be presented, since the impacts would be no greater than those during operations.

7 ASSESSMENT OF IMPACTS

The following section presents quantitative assessments of the potential odour and dust impacts on nearby sensitive receptors from the operation the project.

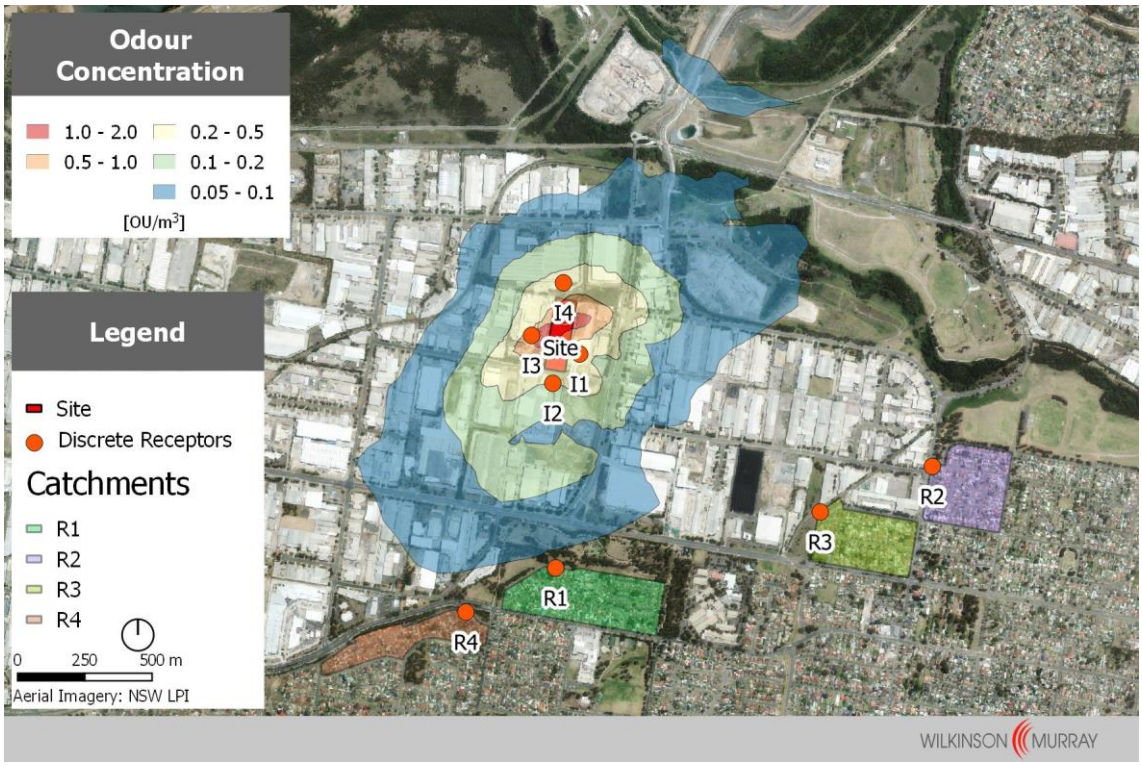
7.1 Assessment of Operational Odour Impacts

Based on dispersion modelling results, the predicted operational odour impacts on nearby receptors is presented numerically in Table 7-1 and graphically via contours in Figure 7-1.

Table 7-1 Predicted 99th percentile peak odour concentrations

Receptor	Predicted peak odour concentration (OU/m³)	Impact assessment criterion (OU/m³)	Complies? (Yes/ No)
R1	<0.1	2.0	Yes
R2	<0.1	2.0	Yes
R3	<0.1	2.0	Yes
R4	<0.1	2.0	Yes
I1	1.25	2.0	Yes
I2	0.20	2.0	Yes
I3	1.04	2.0	Yes
I4	0.28	2.0	Yes

Figure 7-1 Predicted 99th percentile peak odour concentrations



Review of Table 7-1 indicates that the predicted 99th percentile odour concentrations comply with the established criterion of 2.0 OU/m^3.

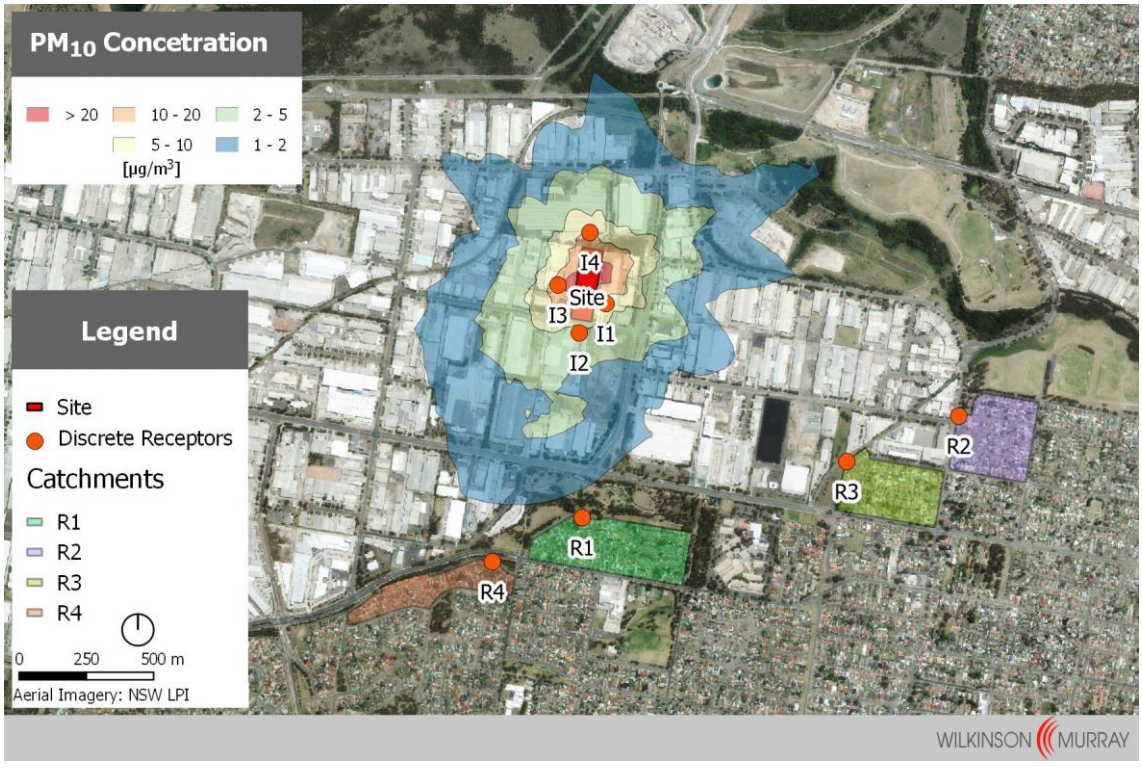
7.2 Assessment of Operational Dust Impacts

Table 7-2 presents the dispersion modelling results for criteria dust and particulate matter pollutants at sensitive receptors. A contour plot of the incremental 24 hour average PM_{10} concentrations is presented in Figure 7-2.

Table 7-2 Predicted Criteria Dust Impacts at Discrete Receptors

Receptor	TSP		PM_{10}				Dust Deposition	
	Annual Average		24-hour Average		Annual Average		Annual Average	
	Increment	Total	Increment	Total	Increment	Total	Increment	Total
Goal	**90 µg/m^3**		**50 µg/m^3**		**30 µg/m^3**		**2 g/m^2/month**	**4 g/m^2/month**
R1	0.18	43.18	0.60	39.30	0.09	17.29	0.00	1.91
R2	0.03	43.03	0.18	38.88	0.02	17.22	0.00	1.91
R3	0.05	43.05	0.32	39.02	0.02	17.22	0.00	1.91
R4	0.15	43.15	0.54	39.24	0.08	17.28	0.00	1.91
I1	13.05	56.05	26.00	**64.70**	5.27	22.47	0.58	2.49
I2	1.67	44.67	4.34	43.04	0.73	17.93	0.07	1.98
I3	8.54	51.54	21.10	**59.80**	3.51	20.71	0.38	2.29
I4	2.43	45.43	7.87	46.57	1.02	18.22	0.11	2.02

Figure 7-2 Predicted Incremental 24-hour Average PM_{10} Concentration



Review of Table 7-2 demonstrates that dust and particulate matter emissions from the project have a negligible contribution to air quality at nearby sensitive residential receptors. The impact assessment criteria are met at all residential receptors for TSP, PM_{10} and deposited dust.

At the most affected industrial receptors, the predicted results in Table 7-2 indicate the potential for exceedances of the 24 hour average PM_{10} impact assessment criterion. Accordingly, a contemporaneous assessment of 24 hour average PM_{10} concentrations has been conducted for the most affected industrial receptor, I1.

The contemporaneous assessment of 24 hour average PM_{10} concentrations involves adding the existing background PM_{10} concentration, observed at the OEH monitoring site in Prospect, to the predicted incremental concentration for each day of the simulation period.

Figure 7-3 presents the results of the contemporaneous assessment of 24 hour average PM_{10} concentrations at I1. Based on the contemporaneous assessment, 24 hour PM_{10} impacts associated with the operation of the site comply with the impact assessment criterion.

Figure 7-3 Contemporaneous 24 hour Average PM_{10} Concentrations at Industrial Receptor I1

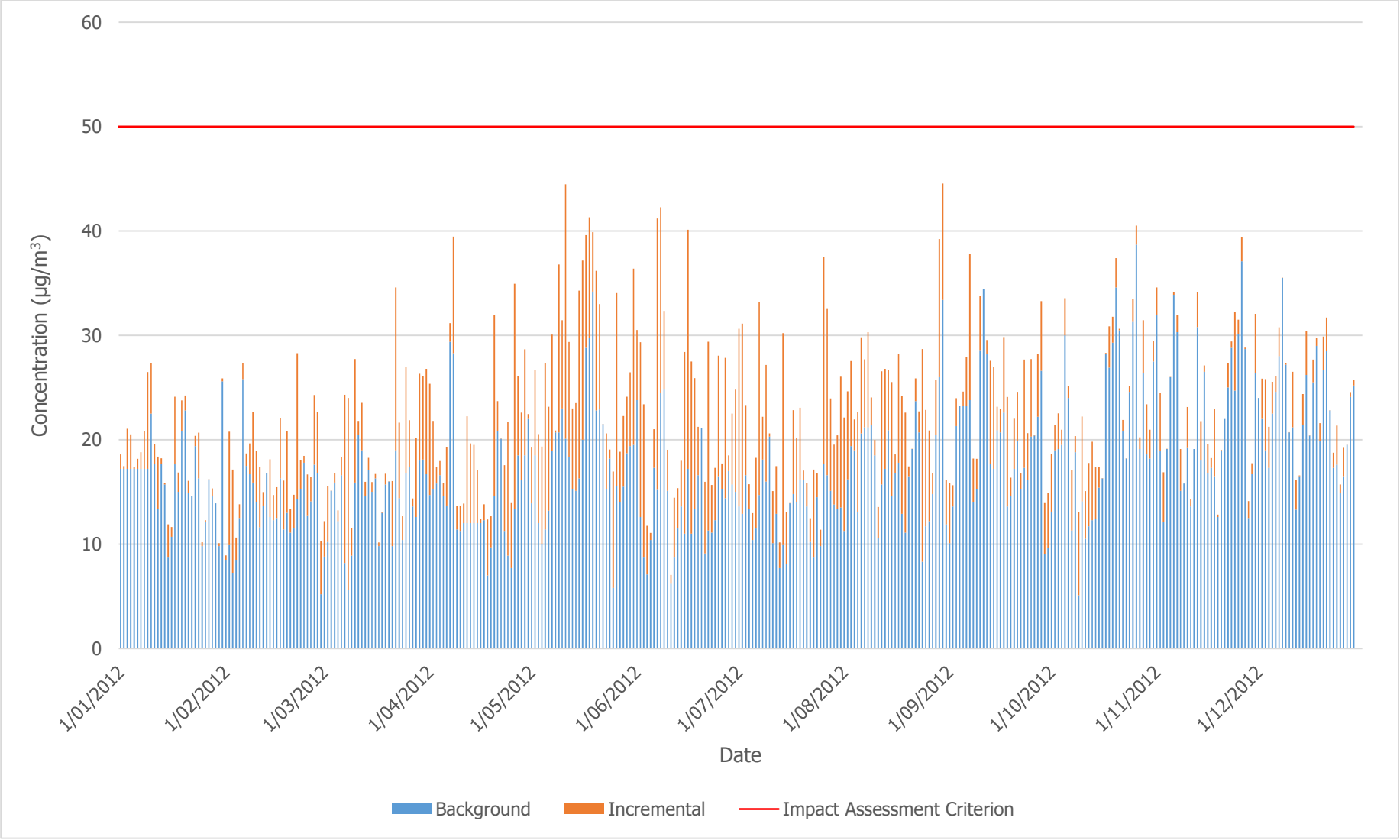


Table 7-3 presents the dispersion modelling results for $PM_{2.5}$ at discrete receptors. Review of Table 7-3 indicates that the Project is unlikely to generate additional exceedances of the 24-hour average NEPM goal for $PM_{2.5}$ at any sensitive residential receptors. The existing ambient annual average concentrations of $PM_{2.5}$ are slightly above the NEPM goal, and the Project has a negligible contribution to these concentrations at residential receptors.

Table 7-3 Predicted $PM_{2.5}$ Impacts at Discrete Receptors

Receptor	$PM_{2.5}$			
	24-hour Average		Annual Average	
	Increment	Total	Increment	Total
Goal	**25 µg/m³**		**8 µg/m³**	
R1	0.08	24.98	0.01	8.41
R2	0.02	24.92	0.00	8.40
R3	0.04	24.94	0.00	8.40
R4	0.07	24.97	0.01	8.41
I1	3.13	28.03	0.63	9.03
I2	0.52	25.42	0.09	8.49
I3	2.54	27.44	0.42	8.82
I4	0.95	25.85	0.12	8.52

8 BEST PRACTICE MANGEMENT

The preceding air quality impact assessment has demonstrated that the Project is expected to comply with relevant air quality criteria. Notwithstanding this, responsible developments should implement reasonable and feasible measures to reduce their burden on local and regional air quality. To this end, the following section presents a number of measures to reduce odour and dust emissions from the site.

8.1 Odour Management

Any incoming loads containing odorous materials will be identified immediately and rejected from the site. Additionally, the following odour management measures should be considered during the operation of the Project:

- Procedures for staff to report the presence of odours; and,
- Maintaining an odour complaints register which captures any complaints from off-site receptors.

8.2 Dust Management

8.2.1 Operational Dust Management

The main building will be fitted with dust suppression sprinklers and automatic roller doors. In addition, the following dust management measures should be considered during the operation of the Project:

- Engines of trucks and mobile plant to be switched off when not in use;
- Maintain and service plant in accordance with manufacturer's specifications;
- Sweep trafficable areas at least once daily;
- Limit vehicle speeds to 20 km/h;
- Cover vehicle loads if transporting material off-site; and,
- Reduce drop heights during loading and unloading of material.

8.2.2 Construction Dust Management

Potential construction dust mitigation measures which should be considered during the construction of the project are as follows:

- Engines of construction plant to be switched off when not in use;
- Maintain and service plant in accordance with manufacturer's specifications;
- Use of water carts and sprays to suppress any instances of visible dust leaving the site;
- Limit vehicle speeds to 20 km/h;
- Cover vehicle loads if transporting material off-site;
- Reduce drop heights during loading and unloading of fill material;

- Minimise area of exposed surfaces;
- Minimise amount of stockpiled materials;
- Where possible, apply barriers, covering or temporary rehabilitation;
- Rehabilitate completed sections as soon as practicable; and,
- Restrict construction activities during unfavourable weather conditions.

9 CONCLUSION

Wilkinson Murray has conducted an air quality impact assessment for the proposed Waste and Resource Management Facility at 35-37 Frank Street, Wetherill Park.

The assessment has been conducted in general accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (DEC, 2005).

Quantitative assessments of potential odour and dust impacts from the operation of the Project has been conducted, based on TAPM meteorological simulations and the CALPUFF dispersion modelling system.

The results of the dispersion modelling indicate that odour concentrations at sensitive receptors due to the operation of the Project comply with the established criterion, and are likely to be undetectable.

Total ground level concentrations of criteria dust and particulate matter pollutants are predicted to comply with the impact assessment criteria at all sensitive receptors.

The existing ambient concentrations of $PM_{2.5}$ are slightly above the NEPM advisory goals, and the Project is predicted to have a negligible effect on these levels.

10 REFERENCES

NSW Department of Environment and Conservation (2005)

"Approved Methods for the Modelling and Assessment of Air Pollutants in NSW", August 2005.

PAE Holmes (2011)

"Air Quality Impact Assessment – Proposed SITA Newcastle Resource Recovery Facility, Steel River", March 2011

SPCC (1983)

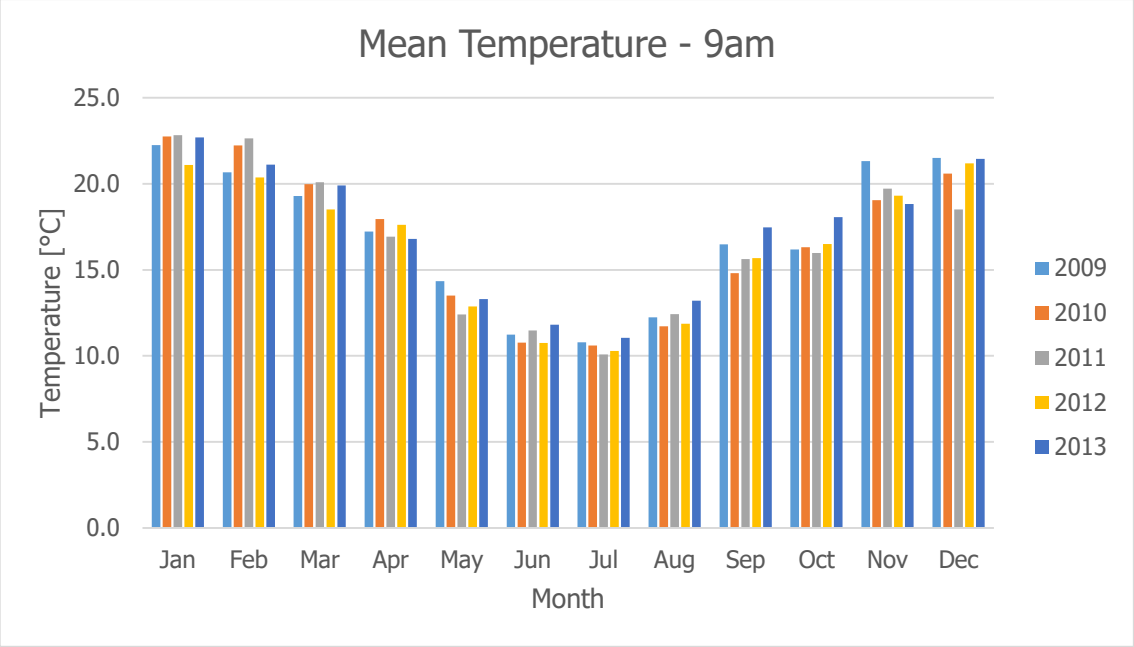
"Air Pollution from Coal Mining and Related Developments", State Pollution Control Commission.

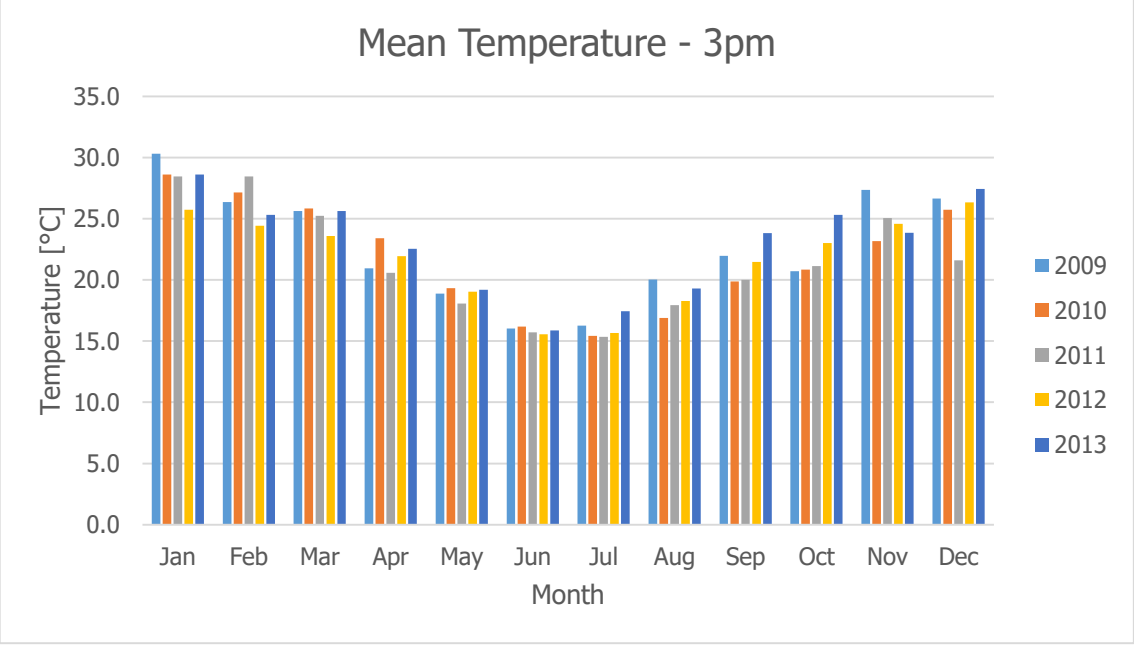
US EPA (1985 and updates)

"Compilation of Air Pollutant Emission Factors", AP-42, Fourth Edition, United States Environmental Protection Agency.

APPENDIX A

METEOROLOGICAL COMPARISON, HORSLEY PARK EQUESTRIAN CENTRE AWS: 2009 – 2014


Mean Temperature - 9am
25.0
20.0
15.0
10.0
5.0
0.0
Temperature [°C]
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
2009
2010
2011
2012
2013


Mean Temperature - 3pm
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30.0
25.0
20.0
15.0
10.0
5.0
0.0
Temperature [°C]
Jan
Feb
Mar
Apr
May
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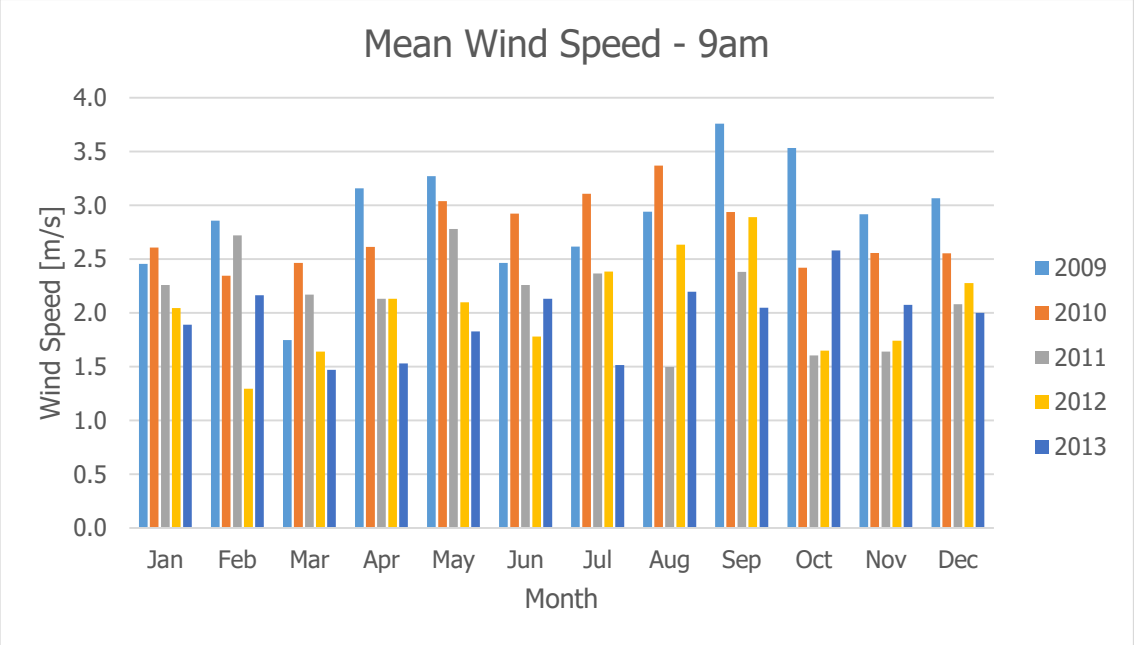
Sep
Oct
Nov
Dec
Month
2009
2010
2011
2012
2013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Wind Speed [m/s]
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3.0
2.5
2.0
1.5
1.0
0.5
0.0
Jan
Feb
Mar
Apr
May
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Month
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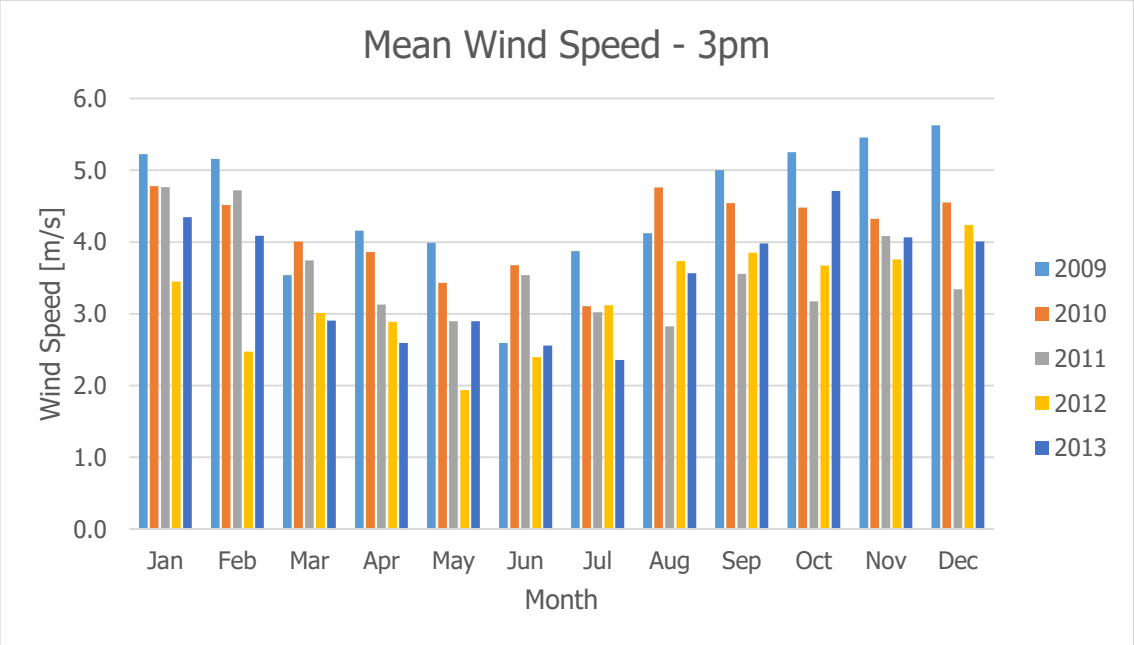
2012
2013


Mean Wind Speed - 3pm
Wind Speed [m/s]
6.0
5.0
4.0
3.0
2.0
1.0
0.0
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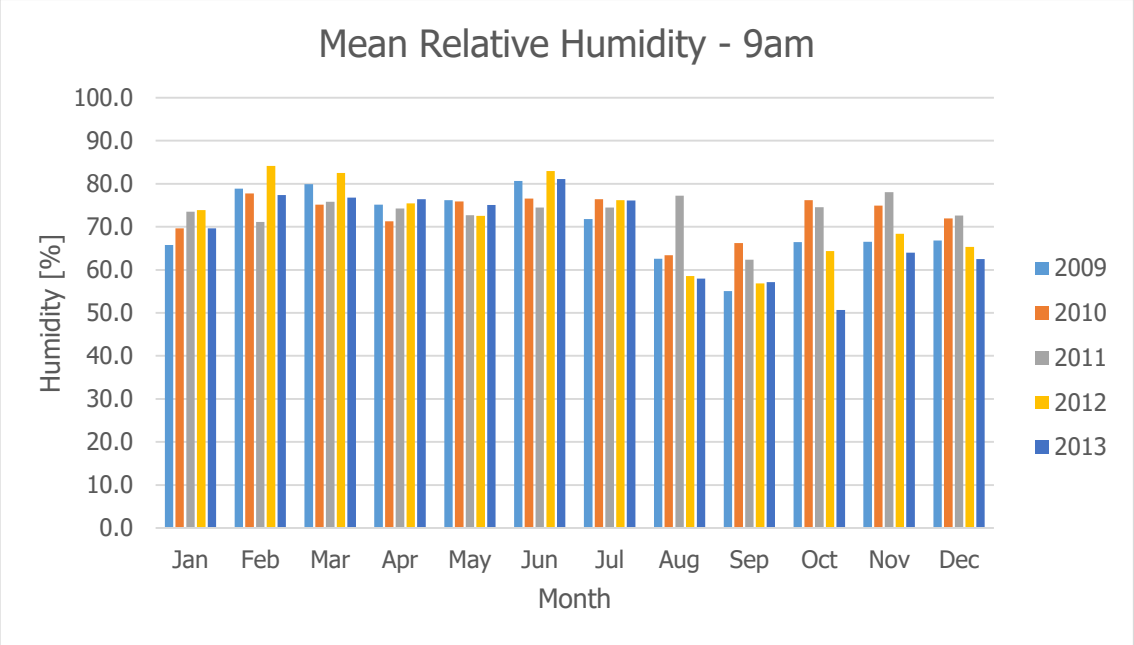
Mean Relative Humidity - 9am
Humidity [%]
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90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jan
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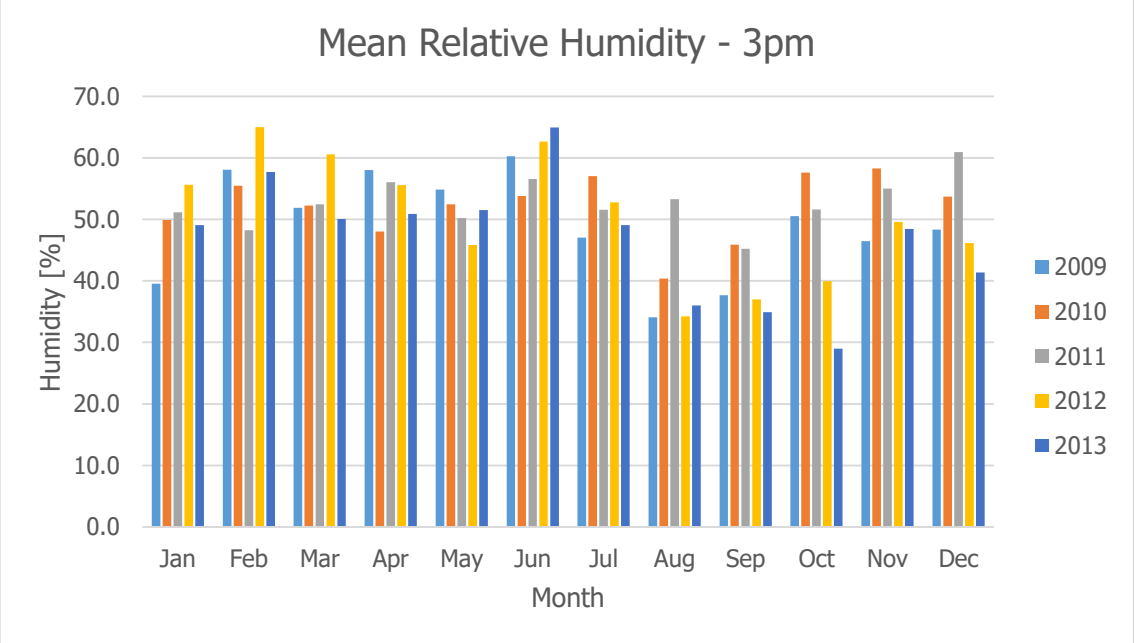
Mean Relative Humidity - 3pm
Humidity [%]
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60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jan
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2009
2010
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2012
2013

APPENDIX B

DUST EMISSIONS INVENTORY

B.1 Particulate Emission Factor Equations

Vehicles on paved roads

TSP emissions from vehicles on paved roads are a function of the mass of the vehicles and the amount of silt loading on the road. The following US EPA emission factor (US EPA, 1985 and updates) is used to calculated emissions from paved roads:

$$E[g/VKT] = k \times (sL)^{0.91}(W)^{1.02}$$

Where:

k = 3.23 for TSP

sL = road surface silt loading [g/m^2]

W = average vehicle weight [tons]

Loading / unloading / transferring material

Each tonne of material handles will generate quantities of particulate matter that will depend on the wind speed and the moisture content of the material according to the US EPA emission factor (US EPA, 1985 and updates) shown below:

$$E[kg/t] = k\ (0.0016)\left(\frac{\left(\frac{U}{2.2}\right)^{1.3}}{\left(\frac{M}{2.0}\right)^{1.4}}\right)$$

Where:

k = 0.74 for TSP

U = wind speed [m/s]

M = moisture content [%]

A wind speed of 1 m/s is assumed as the activities are taking place inside a building with no forced ventilation.

Crushing

Particulate emission factors for crushing have been taken from the US EPA (US EPA, 1985 and updates) and are summarised below:

Activity	Emission Factor [kg/t]		
	TSP	PM_{10}	$PM_{2.5}$
Tertiary crushing (uncontrolled)	0.0027	0.0012	*
Screening (uncontrolled)	0.0125	0.0043	*

* No emissions data available

B.2 Emission Estimates

Table B-1 Summary of TSP Emissions

Activity	Total Emission [kg/year]	Intensity	Units	Emission Factor	Units	Variable 1	Units	Variable 2	Units	Variable 3	Units	Variable 4	Units	Control [%]
handling aggregate materials	15.9	75000	t	4.25E-04	kg/t	1	wind speed [m/s]	2	moisture content [%]					50
handling PEF materials	1.3	150000	t	1.69E-05	kg/t	1	wind speed [m/s]	20	moisture content [%]					50
crushing	202.5	150000	t	0.0027	kg/t									50
hauling - waste delivery	2194.6	15000	VKT/year	146.3070408	g/VKT	5	silt Loading [g/m^2]	10	ave vehicle mass [t]	150	vehicles	0.4	km per trip	0
hauling - Outgoing (PEF)	252.2	850	VKT/year	296.6988219	g/VKT	5	silt Loading [g/m^2]	20	ave vehicle mass [t]	25	vehicles	0.4	km per trip	0
hauling - Outgoing (other)	32.8	111	VKT/year	296.6988219	g/VKT	5	silt Loading [g/m^2]	20	ave vehicle mass [t]	25	vehicles	0.4	km per trip	0
Total	**2699**													