ResourceCo RRF Pty Ltd

Energy from Waste Management Plan

Wetherill Park RRF

January 2025

1. Document Information

The following table contains administrative metadata.

Instructional material owner;	HSEQ Manager
Document ID:	CR-MP002
Review Date:	January 2026

Version History

The following table details the published date and amendment details for this document.

Date Published	Version Detail	Reason for issue of amendments	Author or Document Owner (Program)
09 March 2018	Version 6	Approval by DPE 17/03/2018	GHD
May 2023	Version 7	Update after IEA and OEMP audit. Update site data.	Gary Salway
Jan 2025	Version 8	Update following rebrand to ResourceCo	Ben Whitehouse

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Definitions

Term	Definition
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.
Applicant	ResourceCo RRF Pty Ltd
C&D	Construction and demolition
Construction and Demolition Waste	Waste arising from commercial or industrial premises, refurbishments and demolition and construction work
EfWP	NSW Energy from Waste Policy
EfWMP	Energy from Waste Management Plan
EIS	Environmental Impact Statement titled *Waste and Resource Management Facility* SSD 15-7256, ResourceCo Pty Ltd, 35-37 Franck Street, Wetherill Park, prepared by Nexus Environmental Planning Pty Ltd dated 8 March 2016
EMS	Environmental Management System
EPA	Environment Protection Authority
EPL	Environment Protection Licence issued by the EPA under the POEO Act
Load	the quantity of waste material delivered to the stockpile by truck, bin, or trailer
Minister	Minister for Planning (or delegate)
NATA	National Association of Testing Authorities
OEMP	Operational Environmental Management Plan
Operation	The receipt, removal, or processing of waste
PEF	Process Engineered Fuel
Personal Protective Equipment (PPE)	equipment and clothing that is used or worn by an 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
POEO Act	*Protection of the Environment Operations Act 1997*
PROC	Procedure
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.
QC	Quality control
RTS	Response to Submissions titled *Response to Submissions 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 28 November 2016
SOP	Standard operating procedure
Waste	As defined in the POEO Act and includes any materials receive or processed on the site

2. Introduction

2.1 Overview

ResourceCo RRF Pty Ltd (ResourceCo) is the operator of the Wetherill Park Resource Recovery Facility (the facility) located at 35-37 Frank Street, Wetherill Park.

The facility comprises a waste and resource management operation which processes relevant waste materials to recover products including aggregates, metal, timber and to manufacture solid recovered fuel (Processed Engineered Fuel or PEF).

This Energy from Waste Management Plan (EfWMP) is one of a suite of plans that governs the operation of the facility.

2.2 Purpose

This EfWMP has been developed to address and manage the compliance with the NSW 'Energy from Waste Policy'. The key principles of the EfWMP are to provide:

- Details of how the receipt of incoming waste (feedstock) from waste processing facilities or collection systems complies with the resource recovery criteria specified in Table 1 of the EPA's 'Energy from Waste Policy Statement' for each waste stream.
- Details of how ResourceCo will compile and calculate percentages of incoming waste streams every three months and retain this information for submission to the EPA on request
- A procedure for providing evidence to the EPA that incoming material was previously going to landfill
- A procedure for the management of out of specification PEF
- A requirement that out of specification PEF materials would not be reprocessed until further analysis demonstrates that it meets the relevant criteria.
- Define calibration procedures and operating thresholds for the online analyser that will be used to measure real-time chlorine, calorific value and moisture content of the PEF

The EfWMP provides an overall framework for adherence to the NSW 'Energy from Waste Policy' during operation. It has been developed to satisfy the requirements of:

- Condition B8 of the Development Consent for SSD 7256 dated 10 April 2017
- the commitments made in the Environmental Impact Statement titled '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 (EIS)
- the commitments made in the Response to Submissions titled 'Response to Submissions 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 28 November 2016 (RTS)
- ResourceCo's Environmental Management System (EMS), including ISO14001.
- applicable legislation and regulatory requirements
- requirements of relevant government agencies

In the event of any inconsistency in the above documents, the Development Consent prevails.

2.3 Project description

The Waste and Resource Management Facility Project, as defined in the EIS includes the following key built elements:

- Industrial sheds for housing the facility operations.
- Processing equipment capable of converting up to 250,000 tonnes of relevant waste materials per year into approximately 150,000 tonnes of PEF and over 75,000 tonnes of reusable commodities such as metal, aggregates, and timber.
- Workshop, office, and staff amenities
- Vehicular access and internal roadways, weighbridge and 42 car parking spaces in two car parking areas
- Stormwater management system for collection of water for reuse in the processing system, and dust suppression or treatment and discharge from the site, including a 300-kL underground stormwater storage tank and two above ground tanks with combined capacity of 27 kL.
- 30 kL diesel fuel tank

2.4 Environmental management system

2.4.1 ResourceCo corporate EMS

This EfWMP has been developed and will be implemented in accordance with ResourceCo's corporate EMS. This EMS has been developed, implemented, and certified in accordance with the International Standard for Environmental Management Systems AS/NZS ISO 14001 (Certification No. 2012017).

Throughout the operation of the facility, ResourceCo will undertake periodic reviews and audits of the works to ensure the corporate commitments are fulfilled. ResourceCo's EMS, as implemented at the facility, will be periodically audited as part of the corporate EMS re-certification and ongoing validation process.

2.4.2 Wetherill Park Resource Recovery Facility OEMP

This EfWMP is a sub-plan to the Wetherill Park Resource Recovery Facility Operational Environmental Management Plan (OEMP). The OEMP is based on the ISO14001 Environmental Management System, which provides for continual improvement in environmental performance.

The OEMP is intended as an over-arching environmental management document that forms the basis for development of detailed sub plans (such as this) and procedures for managing specific environmental aspects and impacts. It includes a number of subordinate environmental planning and management instruments (e.g. sub plans, procedures, instructions, forms etc.) that will be implemented during operation of the facility.

The scope and interaction of this document within the OEMP document framework is illustrated in Figure 1.

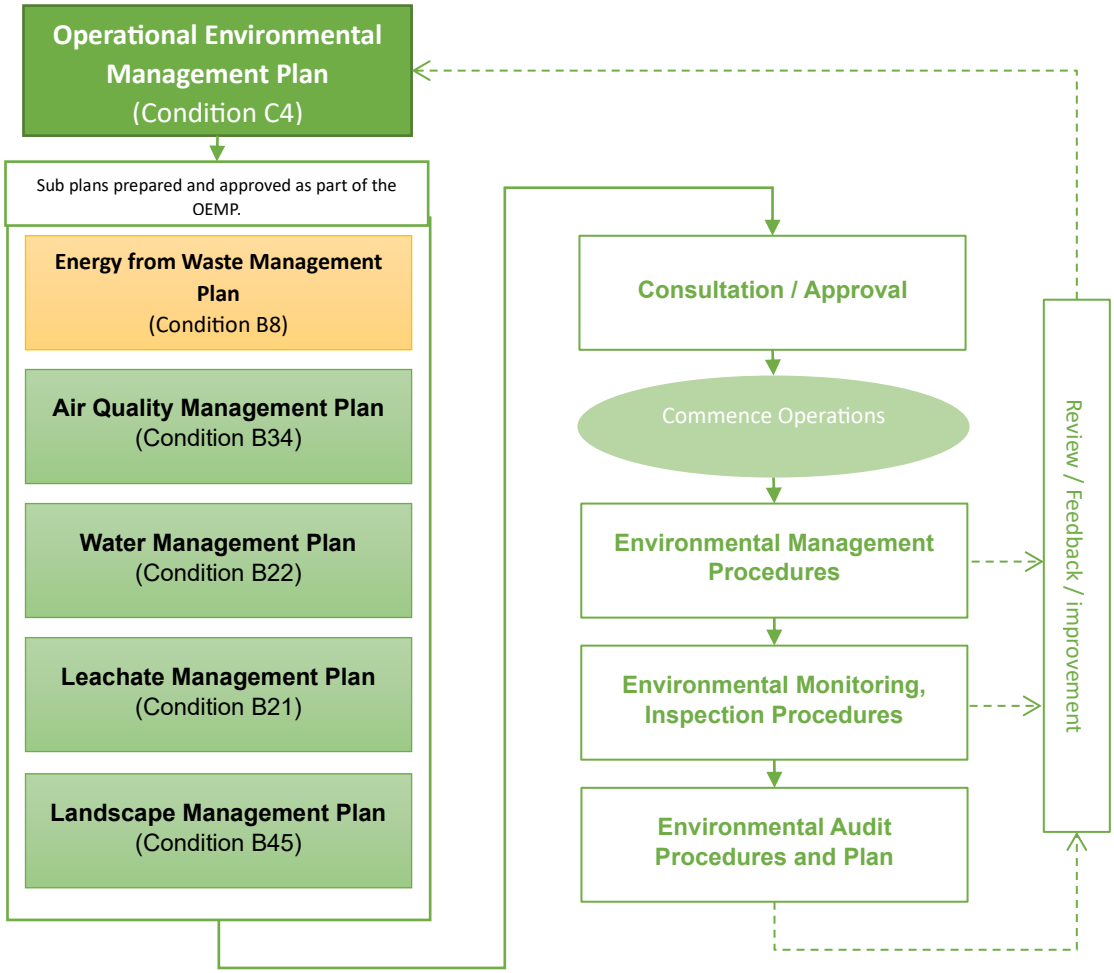

Figure 1 Operational environmental management document structure

2.4.3 Sub plans

In accordance with the Conditions of Approval, a number of sub plans are required to document ResourceCo's management approach to identified risks (e.g. air quality, water and leachate). These sub plans identify potential impacts as they relate to the operation of the facility (as defined in the EIS and RTS) and outline the physical and management safeguards, mitigation measures, responsibilities and monitoring requirements to be implemented to minimise potential impacts on the environment.

The sub plans (including this plan) required according to the Conditions of Approval are shown in Figure 1. Additionally, this shows the sub plans that are to be approved as part of the OEMP and those that are to be approved and/or consulted upon separately.

2.4.4 Procedures and forms

In addition to the environmental management documents nominated above, ResourceCo uses a suite of additional processes and procedures for its EMS. These management tools (described below) are referred to in this EfWMP and/or the individual sub plans:

- Procedures (PROC) and Safe Operating Procedures (SOP) – provide instructions to ResourceCo staff and subcontractors to guide the completion of tasks required during the operation of the facility. The implementation of these PROCs and SOPs

will ensure consistency in approach and quality of results. Specific procedures are developed for management issues including Job Safety and Environmental Analysis (JSEA) for reviewing works to identify hazards and appropriate control measures, and environmental monitoring etc.

- Environment-related forms (FORM) are used to document environmental issues, actions and/or performance against requirements. Typical forms include incident reporting, inspection checklists, audit protocols, complaints/feedback reports etc.

2.5 Consultation and approval process

2.5.1 EfWMP compliance with the Conditions of Approval

Table 1 lists the key requirements of Condition B8 and indicates where these requirements are addressed within this EfWMP or other documents.

Table 1 Conditions of Approval requirements

Condition requirements	Response/reference
Condition B8	
Prior to the commencement of operations, the Applicant must prepare an Energy from waste Management Plan (EfWMP). The EfWMP must:	
(a) be prepared in consultation with the EPA and to the satisfaction of the Secretary	Section 2.5.2
(b) detail the procedures to ensure full and ongoing compliance with the NSW *Energy from Waste Policy*, including:	
(i) details of how the receipt of incoming waste (feedstock) from waste processing facilities or collection systems complies with the resource recovery criteria specified in Table 1 of the EPA's 'Energy from Waste Policy Statement' for each waste stream	Section 4
(ii) details of how ResourceCo will compile and calculate percentages of incoming waste streams every three months and retain this information for submission to the EPA on request	Section 5
(iii) a procedure for providing evidence to the EPA that incoming material was previously going to landfill	PROC 28 (refer Appendix B)
(iv) a procedure for the management of out of specification PEF	Section 9
(v) a requirement that out of specification PEF materials would not be reprocessed until further analysis demonstrates that it meets the relevant criteria	Section 9.2
(c) define calibration procedures and operating thresholds for he online analyser that will be used to measure real-time chlorine, calorific value, and moisture content of the PEF.	PROC 34 (refer Appendix C)

2.5.2 Consultation and approval

In accordance with Condition B8, this EfWMP is required to be prepared in consultation with the EPA and to the satisfaction of the Secretary of the Department of Planning and Environment.

A draft version of this document was sent to the NSW EPA for review and comment. Issues raised by NSW EPA have been addressed in the revised version of this document and documented in correspondence shown in Appendix H.

3. Energy from Waste Policy Statement requirements

Table 2 shows the resource recovery criteria for energy recovery facilities as a direct extract from Table 4 of the *NSW Energy from Waste Policy Statement*. The *NSW Energy from Waste Policy Statement* states that energy recovery facilities may only receive feedstock from waste processing facilities or collection systems that meet the criteria outlined in this table.

Table 2 Resource recovery criteria for energy recovery facilities

Mixed waste stream	Processing facility	% residual waste allowed for energy recovery
Mixed municipal waste (MSW)	Facility processing mixed MSW waste where a council has separate collection systems for dry recyclables and food and garden waste	No limit by weight of the waste stream received at a processing facility
	Facility processing mixed MSW waste where a council has separate collection systems for dry recyclables and garden waste	Up to 40% by weight of the waste stream received at a processing facility
	Facility processing mixed MSW waste where a council has a separate collection system for dry recyclables	Up to 25% by weight of the waste stream received at a processing facility
Mixed commercial and industrial waste (C&I)	Facility processing mixed C&I waste	Up to 50% by weight of the waste stream received at a processing facility
	Facility processing mixed C&I waste where a business has separate collection systems for all relevant waste streams	No limit by weight of the waste stream received at a processing facility
Mixed construction and demolition waste (C&D)	Facility processing mixed C&D waste	Up to 25% by weight of the waste stream received at a processing facility
Residuals from source-separated	**materials**	
Source-separated recyclables from MSW	Facility processing source-separated recyclables from MSW	Up to 10% by weight of the waste stream received at a processing facility
Source-separated Garden waste	Facility processing garden waste	Up to 5% by weight of the waste stream received at a processing facility

Source-separated food waste (or food and garden waste)	Facility processing source-separated food or source-separated food and garden waste	Up to 10% by weight of the waste stream received at a processing facility

Notes

The EPA may consider increases to the maximum allowable percentage of residuals from facilities receiving mixed municipal and commercial and industrial waste where a facility intends to use the biomass component from that process for energy recovery, rather than land application. The facility must be able to demonstrate they are using best available technologies for material recovery of that stream.

Waste streams proposed for energy recovery should not contain contaminants such as batteries, light bulbs or other electrical or hazardous wastes.

Bio-char or char materials produced from facilities using mixed waste streams will not be able to be considered for land application as a soil amendment or improvement agent.

The C&I 'no limit' category is likely to apply only to mixed waste collected from single generators of large volumes of waste (e.g. supermarkets) or precinct-based businesses (e.g. shopping centres). Proponents will need to demonstrate that each entity generating waste has effective and operating collection systems for all waste streams they generate that have reuse or recycling opportunities (e.g. paper/cardboard collection; organic collection; and residual waste collection). Proponents wishing to use the C&I 'no limit' category will need to contact the EPA to determine the eligibility of each entity.

Note: the "no limit mixed C&I" category cannot be used until approval is granted from the EPA.

4. Receipt of incoming waste (feedstock)

This section provides details of how the receipt of incoming waste (feedstock) from the waste processing facilities or collection systems will be managed to comply with the resource recovery criteria specified in Table 4 of the EPA's *NSW Energy from Waste Policy Statement* for each waste stream (as shown in Table 2).

4.1 Waste control

4.1.1 Permitted wastes.

The facility is licensed by the NSW EPA to accept general solid waste (non-putrescible) as defined by Schedule 1 Part 3 of the *Protection of the Environment Operations Act 1997* (POEO Act). Only wastes expressly permitted by the Environment Protection Licence (EPL) are to be accepted for processing.

ResourceCo will target the following landfill-destined waste streams:

- C&D recycling residuals from a facility which recycles mixed C&D waste. This waste stream comprises lighter materials leftover once the C&D recycler has extracted metal, aggregates, soil and some timber from waste stream and typically includes plastics, papers, textiles, timber (clean and unclean) and unrecovered C&D materials.
- Mixed C&I Waste from C&I collectors that is free of organics, wet, liquid, hazardous or radioactive wastes
- Mixed C&D wastes from C&D collectors that is free of organics, wet, liquid, hazardous or radioactive waste
- Source-separated recyclables from Facility processing mixed MSW waste where a council has separate collection systems for dry recyclables and food and garden waste

4.1.2 Excluded wastes.

Specific waste types not permitted to be accepted into the facility include the following:

- Liquid wastes (paint, chemicals, oils, solvents etc)
- Listed wastes.
- Household or kerbside collected green and general waste.
- Explosives
- Poisons
- Radioactive materials
- Medical waste (syringes, clinical and related waste)
- Asbestos
- Scheduled pharmaceuticals.
- Contaminated soils

In addition, in accordance with Condition B5, any waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal, except as expressly permitted by the EPL.

4.1.3 Waste screening and acceptance

Pre-qualification

As outlined in Section 6.2.3 of the OEMP, all potential customers will be required to be pre-qualified before being allowed to bring waste to the facility in accordance with the Incoming Waste Customer Pre-Qualification Procedure (PROC 28). This pre-qualification process will determine if the potential customer's waste meets the approved acceptance criteria for the site, if it will enable high quality PEF product to be produced and which category it meets for the PEF processing criteria, which are:

- C&D recycling residues
- mixed C&I "no limit PEF"
- mixed C&I "50% PEF" or
- mixed C&D
- Source Separated C&I

If the customer's pre-qualification meets the C&D recycling residues category, the customer will be required to complete a declaration stating that their residuals being sent to ResourceCo is no more than 25% of their incoming waste by weight and that ResourceCo is the only energy recover facility to which they are sending their residuals. This declaration will be required to be completed on a quarterly basis to allow ResourceCo to submit this declaration with its quarterly allowable PEF percentage calculation to the NSW EPA.

At the facility

Signs at the entrance clearly indicate the types of wastes that are and are not accepted at the facility.

As outlined in Section 6.2.3 of the OEMP, when a vehicle enters the weighbridge, the Customer Service and Weighbridge Operator will check with the driver if the waste meets the acceptance criteria, and will visually inspect the load for waste types not accepted or to be excluded from the production process (as outlined Section 4.1.2 above). If part or all of the load is identified as not be approved for tipping in the facility the truck will not be unloaded and will be directed to leave the site immediately. The Customer Service and Weighbridge Operator will also ensure that all waste that is controlled under a tracking system has the appropriate documentation prior to acceptance at the site.

If the waste meets the acceptance criteria, then the waste delivery truck will be directed to the waste tipping area inside the manufacturing building. Once the load is tipped the Waste Receival Inspection Officer will inspect the load for waste types not accepted or to be excluded from the production process, and to ensure that all waste that is controlled under a tracking system has the appropriate documentation prior to acceptance at the site.

Wastes that are not able to be accepted will either be sent back out of the site on the same waste delivery truck (if it is able to be) or removed from site as soon as possible by a licenced collector at the customers expense (if the incoming waste truck has left the site or if it is not able to be reloaded). Section 4.1.5 below outlines the approach to handling and disposal of hazardous materials such as asbestos, sharps and chemical/biological materials that, despite the waste acceptance procedures, have been delivered to site.

4.1.4 Waste monitoring program

Incoming waste

The following details will be recorded and kept on file for all incoming waste received on the site:

- Quantity, type, and source of waste
- Date and time of receival
- PEF processing criteria category
- Copies of all documentation relating to tracking for controlled waste brought to the site
- Details of any hazardous or other prohibited materials (including asbestos) brought to the site, along with handling and disposal activities undertaken and a record of any related documentation

4.1.5 Hazardous materials

Any materials listed in Section 4.1.2 will be immediately rejected from the site where safe to do so and staff will be trained to ensure that these materials are first quickly identified and secondly safely removed from the waste stream. Specific management techniques for key hazardous waste types are provided below.

Asbestos

The following will be implemented to manage the potential for asbestos in the waste stream:

- Full-time traffic control/waste inspector on tipping floor at all times during operational hours
- Direct education with the customer base to ensure that only materials that are asbestos free will be accepted at the site. This is particularly focussed upon in the pre-qualification process (refer Section 3.1.3) with a potential new customer.
- Well positioned, appropriate signage at the entrance, weighbridge on weight dockets and at the drop off point.
- Asbestos identification training for all relevant staff on site. Please see Appendix I of the OEMP for the Asbestos Management Plan
- Safe asbestos management and removal training for all relevant staff on site.
- Safe asbestos management and removal procedures are outlined in the Asbestos Management Plan (PROC 204).

Sharps and medical waste

Sharps and medical waste identification training for all relevant staff on site. Refer to SOP 72 *Hazardous Chemicals – including Dangerous Goods and Sharps Procedure*.

Chemicals and oils

Hazardous Chemicals identification training for all relevant staff on site. Refer to SOP 72 Hazardous Chemicals – including *Dangerous Goods and Sharps Procedure*.

Oil spill kits will be kept on site at all times and staff will be trained in its appropriate use.

Chemicals will be managed on an as needs basis with supervisors with dangerous goods training quickly assessing if the spill can be safely managed internally of if external assistance is required i.e., NSW Fire and Rescue.

5. Calculation of percentages

The following procedure will be implemented to calculate the PEF production target and demonstrate compliance with the *Energy from Waste Policy Statement* Resource Recovery Criteria:

Formula:

PEF % ≤ (100% x C&D recycling residuals) + (100% x C&I recycling residuals) + (100% x "no limit mixed C&I" waste) + (50% x"50% mixed C&I" waste) + (25% x mixed C&D waste)

Formula component details:

- All measures are by weight.
- The ResourceCo facility weighbridge is the point of measurement.
- Incoming waste stream volumes are measured when they enter the site over the weighbridge over the 3-month period
- PEF volume is measured when it leaves the site over the weighbridge over the 3-month period
- Incoming waste is classified into the following waste streams:
  - C&D recycling residuals
  - "No limit mixed C&I" waste from C&I sources
  - "50% mixed C&I" waste from C&I sources
  - C&D waste from C&D sources
- C&D recycling residuals will be from a facility which recycles mixed C&D waste and can produce a declaration stating that the residuals being sent to ResourceCo are less than 25% of the mixed C&D waste intake for the facility and that ResourceCo is the only offtake for their residuals for energy recovery purposes.
- "No limit C&I" will be those C&I waste sources which have been approved by the EPA as meeting the no limit criteria
- "50% mixed C&I" will be those C&I waste sources which do not meet the "no limit" criteria
- Mixed C&D will be raw mixed C&D waste that has not gone through a resource recovery process

The frequency of calculation will be 3 monthly (quarterly).

6. Records and reporting

6.1 Reporting

The weighbridge data including type, PEF category and amount of waste (in tonnes) received on the site and all material produced on site and transported off-site (as product or waste) will be recorded and retained.

6.2 Record keeping

PEF calculations and records generated will be identified, collected, and stored in accordance with ResourceCo's quality management system.

Compiled calculations of percentages of incoming waste streams (as per Section 5) as well as Quarterly C&D recycling residuals declarations will be retained on site for the life of the facility and be kept readily available for submission to the EPA on request.

8. Review and improvement

8.1 Review of the Energy from Waste Management Plan

The EfWMP will be reviewed on a regular basis to ensure that it accurately reflects the ResourceCo EMS and conforms to applicable legislative and other requirements. The frequency of review will be at least annually as part of the OEMP review, or more frequently, as a result of a significant non-conformance or as directed by the Secretary of the Department of Planning and Environment or other authority.

At the conclusion of the review process, any recommendations for change, or improvement, to EMS will be reflected through amendments to the relevant system element including the OEMP, other sub plans, procedures or forms.

An assessment will be undertaken of the proposed documentation change against the Conditions of Approval (including development consent, EIS and RTS). Minor changes to the documentation will be recommended by the appropriate manager. The revised documents will be managed in accordance with ResourceCo's quality management system – including approval, document control and communication of changes to relevant staff.

Major documentation changes to the documentation will be reviewed by senior management and if deemed necessary, approval will be sought from the Department of Planning and Environment. Approved revised documents will be managed in accordance with ResourceCo's quality management system – including document control and communication of changes to relevant staff.

Table 3 lists the types of amendments that would be considered minor and major, and the approval process.

Table 3 EfWMP approval process

Review trigger	Amendment type	DPE approval	Examples
Minor amendments and corrections	-	No	Changes to system processes without change to environmental outcome. Minor changes to operational processes without change to environmental outcomes
In response to environmental incidents	Minor	No	Hazardous materials removal
	Major	Yes	Non-compliance with EPL
Audit findings	Minor	No	Change to procedure to improve a process
	Major	Yes	Non-compliance with a Condition of Approval
Request by government agency	Minor or major	Yes	-
Annual review findings	Minor	No	Non-compliance with a target
	Major	Yes	Non-compliance with a Condition of Approval

8.2 Non-conformance, corrective, and preventative action

Non-conformances, including those of an environmental nature, shall be identified through verification processes such as monitoring, inspections, audits and reviews as well as through the receipt of complaints and incidents and near misses. Non-conformances shall be identified through verification processes aimed at ensuring

compliance with NSW Energy from Waste Policy Statement, in particular the resource recovery criteria, the OEMP and this EfWMP. All ResourceCo personnel can raise a non-conformance. In summary, the management process is:

- When a non-conformance issue is detected, the corrective and preventative actions are entered on a CAR (Corrective Action Request) form. In addition, the CAR assigns responsibilities for actions to a manager for close-out and the timing for completion.
- The CAR is entered into the CAR register for recording and tracking progress of follow-up and close-out.
- Upon satisfactory completion of all corrective actions and follow-on preventative actions (e.g., revision of documented procedures), the CAR is closed-out by the responsible staff member.
- The environmental CARs will be reviewed monthly and during the regular review meetings.
- During the annual environmental review, CAR statistics will be assessed and trends analysed.

9. PEF quality management

9.1 Quality control

Quality control for PEF will comprise:

- Control of the wastes accepted into the facility, as described in Section 3 (and Section 6.2.3 of the OEMP), to minimise contaminants, and in particular PVC plastics through:
  - Pre-qualification of customers
  - Waste screening and acceptance processes including visual inspection.
- Development of PEF sampling and testing procedures in conjunction with customers
- Physical separation of the incoming waste stream to remove materials from the PEF product.
- Physical testing in accordance with test procedures
- Online analyser on the low PEF finished product output line.

Note: There are two distinct grades of PEF manufactured, namely Low CV PEF and High CV PEF, which have independent finished product output lines. The online analyser is installed on the Low CV PEF finished product output line only.

Customer Service Officer ton the weighbridge and the Waste Receival Inspection Officer are responsible for ensuring that the waste delivered meets the pre-approved criteria for acceptance.

PEF specification and test procedures will be determined in conjunction with each specific customer (typically cement kilns). Currently, the required specification and test procedures for PEF are summarised in Appendix A. The facility's PEF will be produced to meet these specifications. This will be achieved by:

- Inspection of the incoming waste by the Waste Receival Inspection Officer to ensure inappropriate items are taken out of the waste stream at the tipping floor and do not enter the production line
- Physical separation of incoming wastes with multiple magnets, screens, air separators and manual QC stations to ensure that the following materials do not go into the PEF product:
  - Aggregates such as concrete, rocks, bricks and other heavy inert materials
  - Metals

The physical testing regime, including specific test methods, is attached in Appendix A. The physical testing regime will be performed by a third party, Australian based NATA accredited laboratory.

The online PEF analyser will be designed to provide real time feedback on the major parameters of chlorine content (Cl), calorific value (CV) and moisture (H_2O). The real time feedback on key elements enables continual refinement of the process to help ensure that the key parameters remain within specification.

The online analyser calibration procedures and operating thresholds are provided in PROC 34 attached as Appendix C.

9.2 Management of out of specification PEF

The online analyser compares the real time measured values of the major parameters of chlorine content (Cl), calorific value (CV) and moisture (H_2O) against those detailed in Specification A in Appendix A, namely:

Chlorine (Cl)	≤ 0.2% m/m
Calorific Value (CV)	≥15%
Moisture (H_2O)	≤15% m/m

to determine if the PEF is out of specification.

The operating threshold range of the online analyser is detailed in Appendix C (PROC 34 *On-line Analyser Calibration Procedure*)

Out of specification PEF is managed as per Appendix D (PROC 40 *Managing Out of Specification Solid Recovered Fuel*).

9.3 Managing out of specification PEF – monthly combined composite sample

In the unlikely event that the monthly combined composite sample routine test returned an out of specification result on any of the parameters in the specification then ResourceCo will implement the following procedure:

1. ResourceCo will send the retained duplicate monthly combined composite routine sample to an independent NATA accredited laboratory for testing to all parameters specified in the specification.

If the test results of the retained duplicate monthly combined composite routine sample conform to specification, then:

1. No further action.

If the test results of the retained duplicate monthly combined composite routine sample verify the out of specification, then:

2. ResourceCo will conduct a root cause analysis to determine the source of the out of specification, utilizing information from:
    a. Customer pre-qualification processes.
    b. Waste Inspection processes.
    c. Routine testing.
    d. Trend analysis; and
    e. Any other relevant sources

    as detailed above.
3. ResourceCo will implement corrective and preventive actions to prevent a reoccurrence.
4. ResourceCo will increase routine testing until it is confirmed that the product is able to satisfactorily meet specification on an on-going basis.

10. References

Nexus Environmental Planning Pty Ltd (2016) Environmental Impact Statement titled ‘Waste and Resource Management Facility’ SSD 15-7256, ResourceCo Pty Ltd, 35-37 Frank Street, Wetherill Park

Nexus Environmental Planning Pty Ltd (2016) Response to Submissions titled ‘Response to Submissions Waste and Resource Management Facility’ SSD 15-7256, ResourceCo Pty Ltd, 35-37 Frank Street, Wetherill Park

NSW EPA (2015) ‘NSW Energy from Waste Policy Statement’

Appendices

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Appendix H – Test Methods

Test Methods

Parameter	Reporting unit	Test Method
Gross Calorific value	MJ/kg	I.S. EN 15400:2011
Ash	%	I.S. EN 15403:2011
Moisture	% H2O	I.S. EN 15414:2011
Chlorine	% Cl	I.S. EN 15408:2011
Fluorine	% F	I.S. EN 15408:2011
Bromine	% Br	I.S. EN 15408:2011
Iodine	% I	I.S. EN 15408:2011
Sulphur	% S	I.S. EN 15408:2011
Potassium	% K_2O	I.S. EN 15410:2011
Sodium	% Na_2O	I.S. EN 15410:2011
Mercury	mg/kg Hg	I.S. EN 15411:2011
Cadmium	mg/kg Cd	I.S. EN 15411:2011
Thallium	mg/kg Tl	I.S. EN 15411:2011
Copper	mg/kg Cu	I.S. EN 15411:2011
Lead	mg/kg Pb	I.S. EN 15411:2011
Antimony	mg/kg Sb	I.S. EN 15411:2011
Arsenic	mg/kg As	I.S. EN 15411:2011
Cobalt	mg/kg Co	I.S. EN 15411:2011
Chromium	mg/kg Cr	I.S. EN 15411:2011
Manganese	mg/kg Mn	I.S. EN 15411:2011
Nickel	mg/kg Ni	I.S. EN 15411:2011
Vanadium	mg/kg V	I.S. EN 15411:2011
Polychlorinated biphenyls	mg/kg PCB	SW846 USEAP
Phencyclidines	mg/kg PCP	SW846 USEPA
Particle Size 50 mm, 35 mm	% passing 50 mm % passing 35 mm	I.S. EN 15415-1:2011

Appendix I – Layers of Control

ResourceCo

ResourceCo has a long history of the manufacture of PEF for use as alternative fuel in cement kilns.

Adelaide:

Working closely with Adelaide Brighton Cement Limited, ResourceCo developed Processed Engineered Fuel (PEF) as a partial replacement for fossil fuels in the Adelaide Brighton cement kiln. The process harnessed the energy contained in combustible material that would have traditionally gone to landfill and resulted in the commissioning of Australia's first PEF manufacturing plant in South Australia in 2007.

Malaysia:

ResourceCo is an industry leader in waste recycling and waste management in Malaysia and Asia. It is a pioneer in the region for converting commercial and industrial waste into alternative energy; specifically, alternative fuels for the cement industry.

ResourceCo own the region's first waste to energy processing plant in Ipoh Malaysia, designed for the production of Processed Engineered Fuel (PEF). ResourceCo is in a long-term partnership to supply Lafarge Malaysia - a leading global cement manufacturer with approximately 70,000 tonnes per annum of alternative fuels for its cement kilns.

ResourceCo's approach to minimise any potential environmental impact or harm to human health by customers using PEF in their cement kiln involves six levels of risk protection as follows:

Customer Pre-Qualification

All potential waste customers will be required to be pre-qualified before being allowed to bring waste to the facility. This pre-qualification process will determine if the potential customers' waste meets the approved acceptance criteria for the site, whether it will enable high quality PEF products to be produced, and which category it meets for the PEF processing criteria.

Refer to attached document:

PROC 28 – *Incoming Waste Customer Pre-Qualification Procedure*

Waste Screening and Acceptance

1. Screening

   A comprehensive waste screening process is undertaken prior to receipt of all incoming waste.

   As outlined in Section 3 of the EfWMP, when a vehicle enters the weighbridge, the Weighbridge Operator will check with the driver if the waste meets the acceptance criteria and will visually inspect the load for waste types not accepted or to be excluded from the production process. If part or all of the load is identified as not be approved for tipping in the facility the truck will not be unloaded and will be directed to leave the site immediately. The Weighbridge Operator will also ensure that all

waste that is controlled under a tracking system has the appropriate documentation prior to acceptance at the site.

If the waste meets the acceptance criteria then the waste delivery truck will be directed to the waste tipping area inside the manufacturing building. Once the load is tipped the Waste Receival Inspection Officer will inspect the load for waste types not accepted or to be excluded from the production process, and to ensure that all waste that is controlled under a tracking system has the appropriate documentation prior to acceptance at the site.

Wastes that are not able to be accepted will either be sent back out of the site on the same waste delivery truck (if it is able to be) or removed from site as soon as possible by a licenced collector at the customers expense (if the incoming waste truck has left the site or if it is not able to be reloaded). Item 3 below outlines the approach to handling and disposal of hazardous materials such as asbestos, sharps and chemical/biological materials that, despite the waste acceptance procedures, have been delivered to site.

2. Monitoring

   As outlined in Section 3 of the EfWMP, the following details will be recorded and kept on file for all incoming waste received on the site:

   - Quantity, type, and source of waste
   - Date and time of receival
   - PEF processing criteria category
   - Copies of all documentation relating to tracking for controlled waste brought to the site
   - Details of any hazardous or other prohibited materials (including asbestos) brought to the site, along with handling and disposal activities undertaken and a record of any related documentation

   Each vehicle load of PEF dispatched from ResourceCo's facility shall be assigned a transport certificate detailing the following.

   - Delivery date.
   - Time of departure.
   - Description of the Goods (e.g., Solid Recovered Fuel).
   - Gross/tare weights of the delivering/exporting vehicle.
   - Vehicle registration number; and
   - Unique reference number assigned to the load.

3. Hazardous Materials

   As outlined in Section 3 of the EfWMP, any specific waste types not permitted to be accepted into the facility will be immediately rejected from the site where safe to do so and staff will be trained to ensure that these materials are first quickly identified and secondly safely removed from the waste stream.

   Specific management techniques for key hazardous waste types are provided below.

Asbestos

The following will be implemented to manage the potential for asbestos in the waste stream:

- Traffic control/waste inspector on tipping floor during operational hours.
- Direct education with the customer base to ensure that only materials that are asbestos free will be accepted at the site. This is particularly focussed upon in the pre-qualification process with a potential new customer.
- Well positioned, appropriate signage at the entrance, weighbridge on weight dockets and at the drop off point.
- Asbestos identification training for all relevant staff on site.
- Safe asbestos management and removal training for all relevant staff on site.
- Safe asbestos management and removal procedures are outlined in the Asbestos Management Plan (PROC 204).

Sharps and medical waste

Sharps and medical waste identification training for all relevant staff on site. Refer to PROC 205 Hazardous Materials Response Management Plan

Hazardous Chemicals identification training for all relevant staff on site. Refer to PROC 205 Hazardous Materials Response Management Plan

Oil spill kits will be kept on site at all times and staff will be trained in its appropriate use.

Chemicals will be managed on an as needs basis with supervisors with dangerous goods training quickly assessing if the spill can be safely managed internally of if external assistance is required i.e., NSW Fire and Rescue.

Characterization / baseline testing

Characterization or baseline testing is used to identify and quantify chemicals or other attributes, and to determine the physical properties of a material, to provide scientific understanding of the said engineered material. A characterization study is designed to determine how a process performs under actual operating conditions, to capture the variations in materials and operations, and to understand process capability. Knowing process capability allows one to predict, quantitatively, how well a process will meet specifications.

The comprehensive initial (baseline) sampling and testing of the PEF will enable the characterization of the PEF in terms of its typical composition and variability. This will allow for a quantitative assessment of the PEF and knowing its ability to meet specification, and how well the PEF will meet specification, prior to its use by new customers. Based on ResourceCo's experience and history of PEF manufacture, the characterization study will demonstrate that the PEF will be well within specification, and the process is very capable of manufacturing PEF to the specification, providing reassurance that the risk of producing out of specification PEF is low.

Routine testing

Routine testing of the PEF is undertaken to demonstrate ongoing compliance with the specification, and confirms the product's ability to meet specification, and how well it meets specification, on an ongoing or regular basis.

Monitoring

The monitoring of the on-line analyser, and analysis of the on-site laboratory results will allow changes to be implemented both short term and long term to prevent PEF from going out of specification. As detailed in Section 8.1 of the EfWMP, real time feedback from the on-line analyser will enable continual refinement of the process to ensure that the key parameters remain within specification.

If monitoring of the on-line analyser and analysis of on-site laboratory results demonstrate abnormalities in the PEF, then a one-off sample may be sent to an independent NATA accredited laboratory for testing of all the parameters specified in the specification, to demonstrate compliance with the specification.

Trend Analysis

Trends in the composition of the PEF material will be monitored through:

- On-line analyser
- Spread sheet analysis.

Analysis of data, particularly,will:

- Capture the variations in the PEF, and to understand process capability.
- Capture changing trends in the composition of PEF over time.

This analysis will enable continual refinement of the process to ensure that all parameters remain within specification.