



NEW HOPE
GROUP

14. Waste Management



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14. Waste

14.1. Introduction

This Chapter provides an assessment of the waste management requirements for the revised Project, including the identification of solid and liquid waste streams, regulatory framework, proposed waste management strategies and the expected quantities and waste characteristics. The waste generated by the construction, operation and decommissioning of the revised Project is also described.

14.2. Environmental Value

During the Project construction, operation and decommissioning phases, general and mining wastes will be managed to minimise adverse impacts on environmental values such as, the health and wellbeing of site personnel and nearby sensitive receptors, the diversity of ecological processes and associated ecosystems surrounding the revised Project site and other environmental factors including land resources, surface and groundwater resources and air quality.

A detailed assessment of the geochemistry of mineral waste and proposed strategies to ensure impacts on environmental values are appropriately managed is provided in **Chapter 4**. Impacts on land resources, surface and groundwater resources and air quality are provided in **Chapters 4, 5, 6** and **9** respectively.

14.3. Waste Management Legislation

The regulatory requirements governing waste management in Queensland are provided within the following:

- *Environmental Protection Act 1994* (EP Act);
- *Environmental Protection Regulation 2008* (EPR);
- *Environmental Protection (Waste Management) Policy 2000* (EPP (Waste));
- *Environmental Protection (Waste Management) Regulation 2000* (EPR (Waste Management));
and
- *Waste Reduction and Recycling Act 2011* (WRR Act).

The main aspects of the EP Act and its subordinate legislation are described in detail in Chapter 1.

14.3.1. Waste Definition

The EP Act defines 'Waste' as anything that is:

- left over, or an unwanted by-product, from an industrial, commercial, domestic or other activity; or
- surplus to the industrial, commercial, domestic or other activity generating wastes.

Section 65 of the EPR defines regulated waste as follows:

- a) commercial or industrial waste, whether or not it has been immobilised or treated; and
- b) is of a type, or contains a constituent of a type, mentioned in schedule 7 (of the EPR).

The EPP (Waste) states 'Regulated waste', means a waste that:

- contains a significant quantity and concentration of a hazardous contaminant; or
- the hazardous contaminant exhibits hazardous characteristics because of its toxicity, carcinogenicity, mutagenicity, teratogenicity, flammability, corrosivity, reactivity, ignitability or infectiousness, through its physical, chemical or biological characteristics; or
- the waste may cause environmental harm if improperly transported, treated, stored, disposed or otherwise managed.

The Waste Management Plan (WMP) for the revised Project is provided in **Appendix J.13**. The WMP has adopted strategies consistent with the intent of the waste management hierarchy as defined in the Schedule 1 of the EP (Waste Management) Policy, that being:

- waste avoidance;
- waste re-use;
- waste recycling;
- energy recovery from waste; and
- waste disposal.

The WRR Act aims to improve current waste management and resource recovery practices in Queensland. Amongst other things, the purpose of the new legislation is to promote the principals of the waste management hierarchy as defined above. This has also been considered in the preparation of the WMP for the revised Project.

14.3.2. National Pollutant Inventory Reporting

The National Environment Protection Council (NEPC) has endorsed a National Environment Protection Measure (NEPM) in the form of the National Pollutant Inventory (NPI). The NPI is a database designed to provide the community, industry and government with information on the types and amounts of certain substances being emitted to the land, air and water.

Reporting of these emissions under the NPI commenced in July 1998 and will be a requirement for the revised Project. All NPI information is publicly available through the NPI website (<http://www.npi.gov.au/>).

The main objectives of the NPI are to:

- promote waste minimisation, cleaner production and efficient energy and resource use;
- provide information to industry and government to assist in environmental planning and management; and

- satisfy community demand for accessible information on pollutant emissions to the environment.

The NPI sets out the requirements for reporting, including how a facility triggers a reporting obligation and what substances are on the reporting list. NAC currently reports the relevant emission parameters to the NEPC under the NPI as some emissions exceed the threshold levels for reporting. NAC will therefore continue to estimate and report the revised Project's emissions to the NPI annually.

In reporting waste emissions under the NPI, NAC will refer to the Emission Estimation Technique Manual for each of the activities associated with coal mining. The key activities relevant to the revised Project are:

- Mining;
- Fuel and organic liquid storage; and
- Explosives detonation and firing ranges.

14.3.3. Standard Criteria Assessment

A detailed assessment of the revised Project against the standard criteria as defined in Schedule 4 of the EP Act is outlined in **Chapter 2**. In relation to waste management, the application of the above legislative framework strives to achieve ecologically sustainable development by adopting best practice waste management measures through, amongst other things:

- the implementation of the waste management hierarchy; and
- the provision of a waste tracking management system.

14.4. Waste Management Strategy

Environmental harm will only occur if wastes are not managed properly, especially where there is the potential for waste to cause land, water, and/or groundwater contamination.

The waste management strategies proposed for the revised Project will incorporate those already in use at the NAC Mine and will consider waste management from the concept and planning stages through design, construction, operation and decommissioning. Waste planning for the revised Project will allow for considerable flexibility in the management of all wastes likely to be generated during these phases. Adequate separation of components of the waste stream at the point of generation will be practiced for the revised Project

The appropriate management and storage of wastes will prevent on-site and off-site pollution and enhance opportunities for reuse and/or recycling. General waste unable to be re-used will be disposed of at a licensed waste transfer facility. All wastes transported beyond the projects mining lease boundaries will be transported by licensed waste transport carriers. All waste streams will be reviewed and assessed for potential reuse, prior to removal from the projects ML boundaries.

The revised Project will continue to generate wastes similar to those presently generated at NAC, which presently have limited market demand. There are likely to be opportunities to reuse and recycle aluminium cans, some containers such as glass bottles, paper, and scrap steel. Some general wastes

will be recycled or reused on site, such as pallets, or disposed of by licensed waste management contractors. The revised Project will review the marketability of all wastes for recycling and reuse on a regular basis and will update the WMP accordingly.

14.4.1. Waste Management Plan

The WMP for the revised Project is provided in **Appendix J.13**. In addition, the EM Plan for the revised Project is located in **Appendix J.19** and addresses waste management aspects for the revised Project.

The principles for waste minimisation and management for the revised Project are:

- implementation of the waste minimisation hierarchy with these waste management options:
 - waste avoidance;
 - waste re-use; and
 - waste recycling.
- water conservation, treatment and reuse;
- efficient energy usage;
- compliance with national and state waste management policies, the EP Act and associated regulatory instruments as a minimum; and
- effective waste disposal (as a final option).

All waste generated on-site during the construction, operational and decommissioning phases will be disposed of in accordance with the WMP, which includes:

- waste stream characterisation and separation strategies;
- assessment of waste reduction opportunities for identified wastes; and
- management of waste in accordance with the waste management hierarchy.

In accordance with Section 4.8 of the EM Plan, training will be provided to personnel and contractors in relation to waste management requirements for the revised Project.

The waste management strategies proposed for the revised Project will consider waste management from the concept and planning stages through design, construction, operation and decommissioning. Waste planning allows for considerable flexibility in the management of all wastes. Waste segregation will apply to the management of all waste streams onsite at the point of generation and will cover the handling and removal of a variety of wastes in order to comply with current regulations. For example, paper, cardboard, metal cans and plastics carrying the recycle symbol will be segregated for recycling. Maintaining segregation of different types of waste during generation, storage or transportation, makes recovery achievable.

The appropriate management of wastes will prevent onsite and off-site pollution and enhance opportunities for reuse or recycling. Segregated waste will be removed from the revised Project site to waste transfer stations based on the composition of the waste stream for processing by the

appropriate licensed waste contractor; waste that is not regulated will be sent for disposal to landfill if the material is not able to be reused or recycled.

14.4.2. Cleaner Production

Generally, cleaner production can be achieved through any or all of the following techniques.

- Input substitution - this is not readily applicable to this revised Project. The main input into the production process is raw coal and there are no other viable substitutions.
- Product reformulation - this is not readily applicable to this revised Project. The output is product coal and this is directly from washing RoM coal.
- Production process modification - selection of the best available practicable technologies, for example, the revised Project MHF.
- Improved operation and maintenance - this refers to the selection and use of the most appropriate processes and equipment, for example, the revised Project TLF.
- Reuse of resources that are otherwise wastes.
- Closed-loop recycling – where a product is recycled and used again in the same form.

Aspects of the revised Project that contribute to cleaner production outcomes include:

- selection of the best available practicable technology for coal extraction for upgrades or equipment replacement to ensure appropriate energy intensity and production efficiency of product coal;
- location of the mining and associated infrastructure areas to minimise the clearing of vegetation where practical;
- use of best practice procurement and construction methods for the CHPP precinct, ensuring minimum wastes are produced (i.e. off-site pre-fabrication);
- selection of the best available practicable technology for the CHPP precinct for new or replacement equipment to ensure optimum water use and energy efficiency, minimum dust emissions and waste minimisation;
- use of the most appropriate processes and equipment for operation and maintenance, such as the reuse of wastewater within the mine water management system and CHPP system; and
- recycling of glass, aluminium, steel and cardboards.

Contracts with construction service suppliers will be negotiated to encourage all contractors to adopt waste minimisation procedures consistent with the WMP. This approach includes the purchase of materials cut to standard sizes, bulk purchasing of materials, reduction of packaging, reuse of concrete formwork where practicable, and source separation and segregation of all recoverable materials. Separate skips will be provided to maintain segregation and maximise economic reuse and recycling, in preference to disposal to landfill.

14.4.3. Waste Tracking

The movement of regulated waste in Queensland is subject to a waste tracking system.

In particular, the waste tracking system includes details on the following:

- name, address, local government area and contact details of the generator;
- name, address, contact details and EA number of the receiver;
- name, address, contact details and EA number of the transporter;
- time and date the transporter receives the waste;
- load number;
- waste origin code for the activity that generated the waste; and
- details of the waste, including: type, quantity, physical nature (solid, liquid or gas) and code.

The requirements for managing dangerous goods, including wastes defined as dangerous goods is described in **Chapter 18**. In summary, the following information will be recorded for dangerous goods:

- UN number;
- type and number of containers storing the waste;
- packaging group designator;
- class of dangerous goods; and
- subsidiary risk association.

The waste contractor will provide a monthly report which tracks waste generation at each location and includes data on general and recyclable waste generated and the level of contamination in waste receptacles. All forms of regulated waste will be tracked in accordance with a waste tracking certificate and detailed in a monthly report by the contractor. The EHP Waste Transport Certificates will be forwarded to NAC, with copies being retained by the waste contractor and by the EHP. The certificates will outline the type and amount of regulated waste, the name of the waste producer and the nominated disposal/treatment/storage facility.

In addition, the treatment, storage and transport of regulated waste requires an EA under the EP Act. Where a contractor carries out these activities, the contractor will be required to hold the appropriate approvals.

14.4.4. Spill Containment and Remediation

The spill response process in order of priority is to control, contain, absorb and finally to dispose of the spilled material. Procedures will include the provision of spill containment equipment and materials at workshops, warehouses and fuel/chemical storage areas to reduce the impacts of hydrocarbon/chemical spills that have the potential to enter waterways, undisturbed areas or rehabilitated areas. Training will be provided to personnel and contractors in the management of chemicals, hydrocarbons and wastes.

Sites that become contaminated will be investigated, managed and remediated in accordance with the requirements of the contaminated land provisions of the EP Act.

There is potential for some spill containment areas to collect incident rainfall. In these circumstances water will be tested prior to either releasing to the mine sediment dams for reuse or offsite disposal as regulated waste.

14.4.5. Waste Storage and Containment

All waste storage and containment areas will be located and constructed to ensure that all surface waters are excluded from these areas as far as reasonably practicable by the installation of appropriate levee/bunding structures. These structures are currently in place at NAC and will continue to be used and augmented where appropriate for the revised Project.

State Planning Policy 1/03 *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*, and associated solution 4.1 & 4.2 will be used as a reference for the location of all new facilities with regard to the revised Project.

14.4.6. Waste Monitoring and Auditing

Waste monitoring and auditing will be undertaken at the revised Project. The purpose of monitoring waste management activities and outcomes on-site include:

- assessing actual waste results and comparing with predicted impacts and mitigation measures;
- monitoring for potential environmental impacts; and
- providing baseline data to enable continuous improvement of waste avoidance, reduction and management measures.

14.4.7. Corrective Action and Adaptive Management

NAC will implement a program to address any outstanding non-conformances as a result of the monitoring and auditing program. Corrective actions will be recorded and responsibility will be assigned to the appropriate person for action and close out.

Adaptive management processes are an integral part of the WMP. The WMP will be reviewed regularly and if necessary, will be amended to suit the current activities being conducted throughout the construction and operational phases of the revised Project.

14.5. Waste Inventory, Characteristics and Management

14.5.1. Waste Characteristics

Mining wastes, for example, spoil, coal rejects and tailings will be the major wastes generated by the revised Project. The geochemistry and physical characteristics of mining wastes and their management are discussed in detail in **Chapter 4**.

The other major sources of waste generation from the revised Project are shown in **Table 14–1**, **Table 14–2** and **Table 14–3**.

In summary they are:

- vegetation cleared from areas to be disturbed by the revised Project;
- regulated waste (hydrocarbon waste, detergents, solvents, batteries, tyres);
- general waste (food scraps, paper, rags, cans and glass);
- scrap metal and off cuts from maintenance activities and from the construction of the CHPP precinct, water supply pipeline and mine infrastructure areas; and
- sewage effluent and sludge.

The management methods proposed in **Table 14–1** and **Table 14–3** are based on minimising the potential environmental impacts associated with waste generation at the revised Project. These impacts are grouped below.

- wastage of raw materials (for example, wastage of construction materials such as steel and concrete);
- wastage of embedded energy and greenhouse gas emissions. This is further detailed in **Chapter 10**;
- consumption of landfill air space (for example, where waste is sent to the Oakey landfill);
- risks to human health or safety (for example, through poor management of hazardous materials). The management of dangerous goods and hazardous substances is detailed in **Chapter 18**;
- pollution of soil, groundwater, or surface water (for example, through accidental spills or releases). This is further detailed in **Chapter 4**, **Chapter 5**, and **Chapter 6**; and
- fugitive emissions (including dust and products of combustion) from the revised Project is discussed in **Chapter 9**.

14.5.2. Construction Wastes

During the design phase of the revised Project, a comprehensive assessment of waste generation areas will be undertaken in line with the waste management hierarchy to identify the most appropriate measures to manage all wastes for the revised Project. The estimated volumes of each waste type (apart from spoil and coal washing wastes) likely to be generated during the construction phase of the revised Project and their management method are shown in **Table 14–1**.

Table 14–1 Waste Management: Construction Phase

Waste Type	Source(s)	Management Methods	Approximate Quantity
Cleared Vegetation	Site Infrastructure (rail loop and balloon loop, MHF and TLF)	Where possible use on re-vegetated areas. Reuse on-site as fauna habitat or dispose of in waste dump.	Small amounts of vegetation
Excavated Waste	Site Infrastructure (rail loop and balloon loop, MHF and TLF)	Refill any excavations and spread any excess over the nearby area and allow re-vegetating with appropriate sediment control if likely to be exposed to surface water. Waste materials will be reused as much as practicable to construct haul roads and pads.	All used as fill on-site
Concrete	Site Infrastructure area (MHF, TLF workshops and buildings)	Minimise waste by producing/procuring only the amount necessary. Disposal in waste rock dump. Pre fabrication if possible.	<10 t
Steel/ metal off cuts	Site Infrastructure area (MHF, TLF workshops and buildings)	Minimise waste by producing/procuring only the amount necessary. Segregation and collection on-site. Transportation off-site by a waste contractor for off-site recycling.	<20 t
Timber – pallets and off-cuts	Site Infrastructure area (MHF, TLF workshops and buildings)	Minimise waste by producing/procuring only the amount necessary. Good pallets returned to sender. Damaged pallets disposed of in waste dump, chip and reuse on site as mulch for landscaping and erosion control.	<2 t
Paints and Resins	Site Infrastructure area (MHF, TLF workshops and buildings)	Minimise waste by producing/procuring only the amount necessary. Collection on-site and storage in a segregated area. Transportation off-site by licensed regulated waste transporter and disposal off-site by a regulated waste receiver.	Minor amounts (All available parts should be painted off-site before Installation on-site).
General wastes including putrescible & organic (food waste), some plastics and paper	Construction offices, workshop	General waste will be taken off-site for disposal at a nearby landfill.	<500 t
Recyclables - including paper, cardboard, plastics, glass, aluminium cans	Construction offices	Incorporate into existing waste management system - Collection on-site. Transportation by a waste contractor for off-site recycling.	<10 t

Waste Type	Source(s)	Management Methods	Approximate Quantity
Grease trap wastes	Workshop	Incorporated into existing waste management system - Wastes will be collected and disposed of off-site by a licensed regulated waste transporter, to a licensed regulated waste receiver, for recycling and disposal.	< 3 t
Waste Oil and Containers	Workshop	Collected and stored on-site in a bunded facility (compound, temporary or pallet). Transported off site by a licensed regulated waste transporter, to a licensed regulated waste receiver for recycling.	45 t
Oily Water	Workshop	Oil will be separated from water. The resulting oil will be collected and transported off-site by a licensed regulated waste transporter to a licensed regulated waste receiver for recycling. The separated water is directed to a sediment dam for evaporation or possible reuse on-site for dust suppression activities.	4 t
Electrical Wastes	Contractor crib rooms, offices, facilities, CHPP precinct and infrastructure facilities	Collection and segregation on-site. Transportation by a waste contractor for off-site recycling.	< 10 t
Sewage Effluent	Construction and Administration Offices	Sewage will be pumped to the STP for treatment and disposal in accordance with the EA.	25 ML annum (based on 450 EP). Max construction volume assumed.

14.5.3. Operational Wastes

The revised Project involves the mining of approximately 14 Mtpa of ROM coal, increasing the current production capacity from the current 4.8 Mtpa up to 7.5 Mtpa of production coal, producing up to 122 Mt of product coal over the life of the revised Project. The waste produced as a direct result of mine pit development and mine operation is detailed in **Table 14–2**.

Table 14–2 Mining Wastes (2015 to 2029)

Materials	Estimated Volume	Estimated Waste per Tonne of Product Coal (based on 122 Mt)
Overburden	263.80 Mbcm	2.16 bcm / t
Thick Parting Volume	154.20 Mbcm	1.26 bcm / t
Thin Parting Volume	63.30 Mbcm	0.52 bcm / t
Total Waste Volume	481.30 Mbcm	3.95 bcm / t
CHPP Tailings	26.7 Mt (20.5 Mm³)	0.23 t / t

The estimated volumes of each waste type (apart from spoil and coal washing wastes) likely to be generated during mine operation and their management method are shown in **Table 14–3**. Quantities of wastes have been estimated from current mining operations at NAC and from other industrial developments.

Most overburden is likely to have negligible total sulphur content and is classified as NAF-barren. The overburden is likely to have a high factor of safety with respect to potential acid generation. The potential coal reject material has a low capacity to generate acid and a lower factor of safety than overburden materials. The proposed mitigations measures will reduce the potential harm from mineral wastes. **Chapter 4** provides a detailed assessment of the mineral waste aspects and its management for the revised Project.

During construction and operation, colour-coded, signed bins will be used to segregate and collect food wastes, paper and recyclables. These bins will be located throughout the offices and site infrastructure areas to achieve maximum economic waste recovery. These bins will be emptied into larger skips regularly. All bins and/or skips will have lids to reduce the potential for attracting insects and vermin. General wastes will be collected regularly and transported for disposal to the Oakey landfill by a licensed waste transporter. Recyclables will be transported to a local material recycling facility.

Table 14–3 Waste Management: Operational Phase

Waste Type	Source(s)	Management Methods	Approximate Quantity
Waste oil, oily waste and waste from oil separator	CHPP precinct, Workshops	Collected and stored in a bunded tank. Transported off site by a licensed regulated waste transporter, to a licensed regulated waste receiver, for recycling or treatment and disposal.	15 t per MT of ROM coal
Oily sludge, absorbent, degreaser, grease, oily rags, oil filters	CHPP precinct, Workshops	Collected on-site. Then transported off-site by a licensed regulated waste transporter, to a licensed regulated waste receiver, for recycling or treatment and disposal.	3 t per Mt of ROM coal (oily sludge, absorbent, greases) 25 000 L/a (rags) 0.75 t per Mt coal (filters)
Waste Oil containers	CHPP precinct, Workshops	Drained on site. Drums will be transported off-site by waste contractor for off-site reuse, recycling or disposal. Oil will be collected, then transported off-site by a licensed regulated waste transporter to a licensed regulated waste receiver, for recycling.	Approximately 150 units per year
Scrap metal	Mine plant, including administration, workshops	Minimise waste by producing/procuring only the amount necessary. Segregation and collection on-site. Transportation off-site by a waste contractor for off-site recycling.	30-50 t (inclusive of mine plant equipment)
General wastes including putrescible and organic (food waste), some plastics and paper not suitable for recycling	Workshop, offices	General waste will be taken off-site for disposal at Oakey landfill.	190 t per annum
Recyclables – including paper and cardboard, plastics, and glass.	Workshop, offices	Collection and segregation on-site. Transportation by a waste contractor for off-site recycling.	150 t per annum
Paints and resins	CHPP precinct, Workshops	Minimise waste by producing/procuring only the amount necessary. Collection on-site and storage in a segregated area. Transportation off-site by licensed regulated waste transporter and disposal off-site by a regulated waste receiver.	<2 t per annum

Waste Type	Source(s)	Management Methods	Approximate Quantity
Timber pallets and off-cuts	CHPP precinct, Workshops	Minimise waste by producing/procuring only the amount necessary. Good pallets returned to sender. Damaged pallets disposed of in landfill.	<2 t per annum
Tyres	Workshops	Tyres will be stored and disposed of in the spoil dumps or transported off-site by a licensed regulated waste transporter to a licensed regulated waste receiver for recycling or disposal.	750 t per annum
Vehicle Batteries	Workshops	Collected on-site in a segregated area. Then transported off-site by a licensed regulated waste transporter to a licensed regulated waste receiver for recycling.	120 t per annum
Anti-corrosion Agents	Workshops	Collection and segregation on-site. Transportation by a waste contractor for off-site processing.	<50 t per annum
Regulated waste - sewage waste and residues (sewage sludge)	STP	Sewage sludge is treated on-site at the STP. The thickened sludge will be removed from site from a licensed contractor during the decommissioning phase.	<1 t per annum
Regulated waste – sewage wastewater discharged from the STP	STP	STP effluent will be discharged to a sediment dam for possible reuse on-site for dust suppression and/or evaporation, or discharged to the process water system in accordance with the EA.	18 ML per annum (based on 200 EP) Volume will vary depending on the number of personnel on site.

14.5.4. Decommissioning Wastes

At the decommissioning phase of the revised Project, a comprehensive assessment of waste will be undertaken in line with the waste management hierarchy to identify the most appropriate measures to manage the remaining waste. Site infrastructure will generally be decommissioned and sold off, relocated to another NHG mine site, or demolished in line with the post mine land use. The estimated volumes of each waste type (apart from spoil and coal washing wastes) likely to be generated during the decommissioning phase of the revised Project and their management method are shown in **Table 14-4**.

Table 14–4 Waste Management: CHPP & Infrastructure Decommissioning Phase

Waste Type	Source(s)	Management Methods	Approximate Quantity
Waste oil, oily waste and waste from oil separator and electrical transformers	CHPP precinct, Workshops	Bunded tank and residue oils will be collected and removed from site by a licensed contractor for recycling or treatment and disposal.	10 t
Oily sludge, absorbent, degreaser, grease, oily rags, oil filters	CHPP precinct, Workshops	Collected on-site. Then transported off-site by a licensed regulated waste transporter, to a licensed regulated waste receiver, for recycling or treatment and disposal.	2 t
Waste Oil containers	CHPP precinct, Workshops	Drained on-site. Drums will be transported off-site by waste contractor for off-site reuse, recycling or disposal. Oil will be collected, then transported off-site by a licensed regulated waste transporter to a licensed regulated waste receiver, for recycling.	50 drums
Scrap metal	Mine plant, including Administration, Workshops	Segregated and collection on-site. All scrap metal to be removed for recycling. All re-usable steel and functioning equipment will be sold and removed from site.	2,000 t
Electrical Waste	CHPP precinct, Workshops, Administration	Collection and segregation on-site. Transportation by a licensed waste contractor for off-site recycling.	600 t
Rubber (such as conveyor belts, linings)	CHPP precinct	Collection and segregation on-site. Transportation by a licensed waste contractor for off-site recycling.	<5 km of belt
Radioactive sources (density gauges)	CHPP precinct	Removed and transported off-site by a licensed contractor	3 sources
General wastes including putrescible and organic (food waste), some plastics and paper not suitable for recycling	Workshop, offices	General waste will be taken off-site for disposal at Oakey or nearby landfill.	<500 t

Waste Type	Source(s)	Management Methods	Approximate Quantity
Recyclables - including paper, cardboard, plastics, glass, aluminium cans	Workshop, offices	Collection and segregation on-site. Transportation by a waste contractor for off-site recycling.	<10 t
Concrete	Site Infrastructure area (CHPP precinct, Workshops & Buildings)	Removed and segregation on site. Transportation by a licensed waste contractor for off-site recycling or disposal.	< 5, 000 t
Regulated waste - sewage waste and residues (sewage sludge)	STP	The residual sewerage sludge is recovered by a licensed STP contractor for appropriate disposal off-site in compliance with regulated waste requirements.	<20 t

14.6. Conclusion

During the revised Project construction, operation and decommissioning phases, waste will be managed to avoid adverse impacts on the life, health and wellbeing of people and the diversity of ecological processes and associated ecosystems surrounding the revised Project site. Operational waste streams in particular will remain in line with those currently generated at NAC.

NAC will continue to maintain segregation of different types of waste during generation, storage and transportation. The appropriate management and storage of wastes will prevent on-site and off-site pollution and enhance opportunities for reuse and/or recycling. Waste that is not regulated or able to be re used or recycled will be sent for disposal to the Oakey landfill or the closest practical landfill. All waste streams will be assessed for potential reuse, prior to transport to an approved waste disposal facility.

The revised Project will not generate many wastes that have a market demand. There are likely to be opportunities to reuse and recycle aluminium cans, some containers such as glass bottles, paper and scrap steel. Some other general wastes will be recycled or reused on-site, such as pallets, or disposed of by licensed waste management contractors.

14.7. Summary of Mitigation Measures and Commitments

A summary of the waste management mitigation measures and commitments for the revised Project is provided in **Table 14–5**.

Table 14–5 Summary of Mitigation Measures and Commitments

Mitigation measure	Commitment
Construction Waste Minimisation	<ul style="list-style-type: none"> ■ Assessment of construction methods and possible waste generation areas will be undertaken in line with the waste management hierarchy to identify the most appropriate measures to manage all wastes.
Updates to the WMP	<p>The WMP will be periodically updated to incorporate aspects of the revised Project and involved the following process:</p> <ul style="list-style-type: none"> ■ Identification and minimisation of waste streams; ■ Improve where possible on the waste disposal and management techniques currently adopted; ■ All waste generated on-site during the construction and operational phases will be disposed of in accordance with the updated WMP; ■ Contracts with construction companies will be negotiated to place responsibility on all contractors to adopt best practice waste minimisation procedures; ■ Waste monitoring and auditing will be undertaken; and ■ training will be provided to personnel and contractors in relation to waste management requirements and practices.
Decommissioning Waste Minimisation	<ul style="list-style-type: none"> ■ An assessment of waste will be undertaken in line with the waste management hierarchy to identify the most appropriate measures to manage the remaining waste.