

# Waste Management Plan

# **Project Terra - Ammonium Nitrate Facility**

Blue Diamond Australia Pty Ltd

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→ The Power of Commitment



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## Acknowledgement of Country

GHD acknowledges Aboriginal and Torres Strait Islander peoples as the Traditional Custodians of the land, water and sky throughout Australia on which we do business. We recognise their strength, diversity, resilience and deep connections to Country. We pay our respects to Elders of the past, present and future, as they hold the memories, knowledges and spirit of Australia. GHD is committed to learning from Aboriginal and Torres Strait Islander peoples in the work we do.



## Contents

1.	Introd	duction		1
	1.1	Backgrou	Ind	1
	1.2	Project lo	cation	1
	1.3	Purpose	of this report	1
	1.4	Objective	S	2
	1.5	Limitation	IS	2
	1.6	Assumpti	ons	2
2.	Legis	lation and g	jovernance framework	3
	2.1	Legislatio	n, policy and guidelines	3
	2.2	Waste Ma	anagement Hierarchy	3
		2.2.1 \	Naste hierarchy	3
		2.2.2 \	Naste Resource and Recovery Strategy 2030	4
	2.3	Licensing	requirements	5
	2.4	Other app	provals	6
3.	Prop	osed activiti	es and waste streams	7
	3.1	Proposed	lactivities	7
		3.1.1 A	AN Handling	7
		3.1.2 N	Materials through-put	8
		3.1.3 A	ANF Site operations	8
		3.1.4	ANF elements	8
	3.2	Waste str	eams	9
		3.2.1	Waste categories	9
			3.2.1.1 Non-hazardous waste	9
		3	3.2.1.3 Recyclables	9
		3	3.2.1.4 Liquid waste	10
		3.2.2 A	ANF waste streams	10
		3.2.3 F	Potential environmental impacts	11
4.	Wast	e managem	ent practices	12
	4.1	Waste ha	Indling and storage	12
		4.1.1 [	Design considerations	12
		4.1.2 \	Naste receptacles	12
		4.1.3 \$	Storage and handling practices	13
	4.2	Waste tra	insportation	13
	4.3	Waste ma	anagement plan	13
	4.4	Site induc	ction and training	16
	4.5	Monitorin	g	16
	4.6	Reporting	and record keeping	16
	4.7	Non-conf	ormance and corrective actions	17
	4.8	Review a	nd improvement	17
5.	Refer	erences		18

## Table index

Table 1	Prescribed Premises Category	1
Table 2	Infrastructure and equipment	5
Table 3	Material volumes used on the Site	8
Table 4	Site operations	8
Table 5	Elements and surface treatments within the ANF	8
Table 6	Process and non-process waste streams handled at ANF during the operational phase	10
Table 7	Objectives, targets and proposed emission controls for potential waste streams	14

## Figure index

Figure 1	Waste hierarchy based on the WARR Act	3
Figure 2	Draft: Waste Avoidance and Resource Recovery Strategy 2030 goals and	
	targets	4
Figure 3	The Circular Economy	5
Figure 4	Process Flow Diagram	7
Figure 5	Regional Context	20
Figure 6	Site Plan and Drainage Layout	21

## Appendices

Appendix A	Figures
Appendix B	Platinum Blasting Services waste management procedure

# Acronyms

Acronym	Definitions	
ADG	Australian Dangerous Goods	
ANE	Ammonium Nitrate Emulsion	
ANF	Ammonium Nitrate Facility	
ANSOL	Ammonium Nitrate solution	
AS	Australian Standards	
BBS	Big Bag Scheme	
BDA	Blue Diamond Australia Pty Ltd	
BMP	Bushfire Management Plan	
CWTS	Controlled Waste Tracking System	
DA	Development Approval	
DEMIRS	Department of Energy, Mining, Industrial Regulation and Safety (WA)	
DevWA	DevelopmentWA (WA)	
DFES	Department of Fire and Emergency Services (WA)	
DG	Dangerous Goods	
DWER	Department of Water and Environmental Regulation (WA)	
EP Act	Environmental Protection Act 1986 (WA)	
GPT	Gross pollutant trap	
HESCO	HESCO barriers (blast barriers)	
MHF	Major Hazard Facilities	
PBS	Platinum Blasting Services	
SIA	Strategic Industrial Area	
SPEL	Hydrocarbon separator system, SPEL Puraceptor (now known as a Spillceptor)	
SSAN	Security Sensitive Ammonium Nitrate	
WA	Western Australia	
WALGA	Western Australian Local Government Association	
WARR Act	Waste Avoidance and Resource Recovery Act 2007	
WMP	Waste Management Plan	
WQ	WQ basin	
WWTP	Waste water treatment plant	

# 1. Introduction

## 1.1 Background

Blue Diamond Australia Pty Ltd (BDA) is planning to construct and own an Ammonium Nitrate Facility (ANF), commercially referred to as Project Terra (Proposal).

GHD Pty Ltd (GHD) acts on behalf of Blue Diamond Australia in preparing an application for development approval for Project Terra. Project Terra is proposed to be located within the Oakajee Strategic Industrial Area (SIA) on a 12-hectare area that forms part of a larger 48-hectare option to lease area that BDA has been allocated by DevelopmentWA (DevWA).

The project will comprise of:

- An ammonium nitrate emulsion (ANE) manufacturing plant with a production capacity of up to 40,000 tonnes per year; and
- An ammonium nitrate storage facility with a capacity of up to 15,000 tonnes per year.

The proposed project area is located approximately 20 kilometres north of Geraldton, Western Australia, which is in the Shire of Chapman Valley local government area.

The proposed ANF will be a 'Prescribed Premises' under Schedule 1 of the *Environmental Protection Regulations* 1987, with the proposed activity being categorised under the following Prescribed Premises activities and design capacity thresholds (refer Table 1).

Table 1 Prescribed Premises Category

Category	Description	Category Production	Proposed Design	
number		or Design Category	Capacity	
33	Chemical blending or mixing not causing discharge: premises on which chemicals or chemical products are mixed, blended or packaged in a manner that causes or is likely to cause a discharge of waste into the environment.	500 tonnes or more per year	40,000 tonnes/year	

## 1.2 Project location

Project Terra is proposed to be located in Oakajee which is a locality in the Mid-West region of Western Australia, within the Shire of Chapman Valley local government area (the Shire).

BDA has been allocated 48 ha of land within the Oakajee SIA by DevWA to accommodate the project. Project Tera operations will occupy 12 ha of the 48 ha lease area.

The proposed installation site is approximately 20 kilometres north of the Geraldton township and 4.75 kilometres north-northwest of White Peak township. The land leased to BDA spans across the following parcels:

- Lot 11 on plan 18559 being the whole of the land in Certificate of Title Volume 2121 Folio 945, Land ID: 1731700
- Lot 12 on plan 18559 being the whole of the land in Certificate of Title Volume 2121 Folio 946, Land ID: 1731695

## 1.3 Purpose of this report

This Waste Management Plan (WMP) has been prepared to demonstrate how waste from the proposed ANF operations will be identified, recorded, and appropriately managed and removed for recovery, processing or disposal at authorised facilities, or to other areas within the ANF.

This WMP is for the operational phase only and construction waste will be addressed in a construction environmental management plan.

## 1.4 Objectives

The WMP objectives for the ANF include the following:

- Where practicable apply principles from the Waste Avoidance and Resource Recovery Act 2007 (WARR Act) for waste avoidance and recovery (reuse, reprocessing, recycling).
- Accurately identify all known and potential waste streams associated with the operation of the ANF.
- Undertake reasonable and practicable measures to avoid and minimise discharge of hazardous and nonhazardous waste to the environment.
- Alignment with the Consultation draft: Waste Avoidance and Resource Recovery Strategy 2030 (Waste Authority WA, 2024) goals and targets.
- Monitor and record outcomes of applying the principles of waste avoidance and recovery.

## 1.5 Limitations

This report: has been prepared by GHD for Blue Diamond Australia Pty Ltd and may only be used and relied on by Blue Diamond Australia Pty Ltd for the purpose agreed between GHD and Blue Diamond Australia Pty Ltd as set out in section 1.3 of this report.

GHD otherwise disclaims responsibility to any person other than Blue Diamond Australia Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

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## 1.6 Assumptions

GHD has prepared this WMP for Project Terra relying on the information provided by BDA, datasets used sourced from government databases and datasets received from third parties. It is assumed that all provided information are reliable and suitable for the purpose of the WMP.

# 2. Legislation and governance framework

## 2.1 Legislation, policy and guidelines

The following legislation, policies and guidelines are relevant to the WMP for the Site:

- Western Australia:
  - Environmental Protection Act 1986 (EP Act)
  - Environmental Protection Regulations 1987
  - Environmental Protection (Controlled Waste) Regulations 2004
  - Waste Avoidance and Resource Recovery Act 2007 (WARR Act)
  - Waste Avoidance and Resource Recovery Regulations 2008
  - Commercial and Industrial Waste Management Plan Guidelines (WALGA)
  - Landfill Waste Classification and Waste Definitions 1996 (as amended 2018) (DWER, 2019b)
  - Waste Avoidance and Resource Recovery Strategy 2030 (Waste Authority WA, 2024)
  - Western Australia's Waste Avoidance and Resource Recovery Strategy Action Plan 2030 (Waste Authority WA).
- Commonwealth:
  - Recycling and Waste Reduction Act 2020
  - National Waste Policy 2018
  - National Waste Action Plan 2019
  - National Environment Protection (used packaging) Measure 2011
  - National Plastics Plan 2021.

## 2.2 Waste Management Hierarchy

#### 2.2.1 Waste hierarchy

The waste hierarchy is set out in the WARR Act, which ranks waste management options in order of most preferred to least preferred (Refer Figure 1, Waste Authority WA (2020)).



## 2.2.2 Waste Resource and Recovery Strategy 2030

The Draft Waste Resource and Recovery Strategy 2030 was developed by the Waste Authority WA in 2019 and updated in 2024, in line with stakeholder feedback, to outline the vision, guiding principles, goals and targets, objectives and strategic priorities to 2030 summarised in Figure 2 (Waste Authority WA, 2024).

This includes the following specific targets for commercial and industrial (C&I) waste relevant to this WMP:

- Avoid: 10% reduction in generation per capita
- Recover: Increase recycling rate to 80%



Figure 2 Draft: Waste Avoidance and Resource Recovery Strategy 2030 goals and targets

The Draft Waste Resource and Recovery Strategy 2030 includes a vision of "a sustainable, low-waste future powered by a circular economy, where our communities, economies and environment thrive". Moving towards a more circular economy for waste includes following four key principles:

- Reduce the impact of waste on the environment and climate.
- View waste management as an essential service.
- Share responsibility and empower everyone to make changes.
- Ensure circular economy benefits are felt by all communities.

The Draft Waste Resource and Recovery Strategy 2030 indicates that "*a circular economy aims to keep products* and materials circulating in the economy for longer, at their highest value, and brings multiple economic, social and environmental benefits" as shown in Figure 3 (Waste Authority WA, 2024).



Figure 3 The Circular Economy

## 2.3 Licensing requirements

The Environmental Protection Regulations 1987 provides a list of prescribed premises regulated under Part V of the EP Act. The Regulations state that if a prescribed premise triggers the threshold value for that category, a licence should be obtained by the occupier of that prescribed premises in accordance with the requirements of the Regulations.

As per Schedule 1 of the *Environmental Protection Regulations* 1987, the specific description and threshold values applicable for the ANF are identified in Table 2.

Table 2 Infrastructure and equipment

Infrastructure and equipment	Relevant categories
Emulsion Plant	75
Wastewater Treatment Plant	1 <u>12</u> 10
Diesel Powered Generator	150
Diesel Fired Steam Boilers	1.4%
Diesel Powered Forklifts	9 <b>-</b> 9
Diesel Tank	19 <b>9</b> 0
Emulsifier Tanks	1.000
ANE Tanks	1 <del></del>

## 2.4 Other approvals

A summary of other approvals relevant to the ANF which are currently being undertaken by BDA are included below:

- Development Approval under the Planning and Development Act 2005.
- BDA proposes to treat and dispose of sewage from the crib room during the operational phase via septic system. Approval will be sought from the Department of Health / Shire of Chapman Valley under the *Health Act 1911*. Appropriate permits will be sought for collection of sewage and disposal off site during construction works.
- Assessment to determine if the ANF will be managed as a major hazard facility under the Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007.
- A Security Sensitive Ammonium Nitrate (SSAN) manufacture licence, or an SSAN storage licence, granted under the Dangerous Goods Safety (Security Sensitive Ammonium Nitrate) Regulations 2007 and Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007 by Department of Energy, Mining, Industrial Regulation and Safety (DEMIRS) in respect of a dangerous goods Site. Ammonium nitrate and ammonium nitrate emulsion are classed as a 5.1 oxidising agents under the Australian Dangerous Goods (ADG) code.
- A dangerous goods licence under the Dangerous Goods Safety (Storage and Handling of Non-explosives)
   Regulations 2007 for diesel storage (combustible liquid) and other potentially dangerous goods stored onsite.
- A Department of Water and Environmental Regulation (DWER) works approval to construct the premises and subsequent licence to operate the ANF.
- Water will be source off site and tankered in for storage on Site therefore a groundwater abstraction licence is not required.

Schedule 1 of the *Environmental Protection (Controlled Waste) Regulations 2004* provides a list of controlled wastes. This Regulation stipulates that for facilities handling controlled waste, an application for a licence is to be made in the approved manner and with the approved form duly completed. It is expected that the ANF will handle and store, potential controlled wastes such as waste oil and water, hydrocarbons and water, mixtures or emulsions, industrial solvents etc. The determination as to whether a Controlled Waste license application for the ANF should be lodged is the responsibility of the owners / managers.

# 3. Proposed activities and waste streams

## 3.1 Proposed activities

This application seeks approval for the development of an ANF within the Oakajee SIA. The ANF will comprise of an emulsion manufacturing plant and a storage facility.

The manufacturing plant will have capacity to produce up to 40,000 tonnes of ANE per year, and the storage facility will house up to 15,000 tonnes of AN.

The project installation comprises of:

- Four emulsion storage tanks
- Two emulsifier tanks
- One diesel tank
- Generator, boilers
- Two AN domes
- AN stacks
- Office, crib hut, W/C, stores and two trace manufacturers
- Eight water tanks

#### 3.1.1 AN Handling

The AN is delivered to the Site in 1.2 t bulk plastic bags where it is unloaded to the AN stacking on the Site. From here the AN is transferred to the ANE plant, or is loaded in the bags onto trucks, augered into tippers or 20 ft containers for delivery to mine sites. Site layout plans are contained in Appendix A, Figure 6)

A simplified production process for ANE is shown in Figure 4. The first step of the ANE manufacturing process is the blending of diesel and emulsifier to produce a Fuel Phase. The second step is the mixing and heating of water and AN in "melt tanks" to produce AN solution (ANSOL). The ANSOL is then mixed with the Fuel Phase to produce ANE. The ANE product is then pumped from the melt tanks into storage tanks located on the Site.

ANE is primarily utilised in blasting activities to prevent explosives in blast holes from deteriorating due to water in the holes or surrounding strata. This maximises the energy efficiency of the blast and minimises the production of blast fumes (nitrous oxide), thereby reducing the potential environmental and community impacts.



## 3.1.2 Materials through-put

Table 3 shows the materials through-put on the Site.

Table 3	Material volumes	used on the Site

Material	Annual volume/mass		
Ammonium nitrate (AN)	50,000 tonnes/year		
Diesel – ANE production	1,600,000 L/year		
Diesel – Steam boilers	650,000 L/year		
Diesel – generator	157,000 L/year		
Diesel – forklifts	*		
Emulsifier (surfactant)	2,500 tonnes/year		
Water	1,300,000 L/year		

## 3.1.3 ANF Site operations

A summary of the expected standard and non-standard operation for the ANF Site is outlined in Table 4.

Table 4 Site operations

Phase	Timing	Staff	Vehicle movements/day (light and heavy)
Standard Operations	6:30 AM to 5:30 PM (Mon to Fri)	6	10 to 16
Non-standard Operations (20 - 30 days/year)	24-hours	10	65 to 71

#### 3.1.4 ANF elements

The ANF generally comprises of AN storage areas, the emulsion plant and associated infrastructure, as well as staff facilities and internal roads. The plant and building components will be prefabricated, where possible, and assembled on Site. The ANF Site perimeter will be gated and fenced.

Table 5 summarises the elements that comprise the proposed ANF and the surface treatment for each.

Table 5 Elements and surface treatments within the ANF

Element	Activity	Surface treatment		
Diesel storage	One diesel tank, diesel fired steam boilers and generator	Any stormwater within the diesel tank area is considered to be potentially contaminated with hydrocarbons. The potential hydrocarbon contaminated catchment is to be bunded to isolate the runoff and direct it to the hydrocarbon separator system. SPEL Puraceptor (now known as a Spillceptor) via spill kits. Both the surface of the catchment and bunding are required to be impervious with a permeability of $1 \times 10^{-9}$ m/s.		
		The SPEL Puraceptor is a full retention separator that provides hydrocarbon capture and spill containment that will be sized to contain more than the anticipated maximum fuel / oil spillage. This will enable the treatment system to be fully operational in treating stormwater runoff at all times (GHD, 2024).		
Emulsion plant, Emulsifier tanks, AN	Two emulsifier tanks	Any stormwater runoff within the proposed AN emulsion plant, container stacks, and dome areas is considered to be		
and ANE storage tanks	AN bag stacks with two dome structures above	<ul> <li>potentially contaminated with AN and ANE.</li> <li>The container storage area will be compacted</li> </ul>		
	AN container stacks	hardstand – containers will be sealed to reduce potential for environment impact.		
	Four ANE tanks with HESCO barriers (blast barriers)	<ul> <li>The area under the ammonium nitrate storage domes will be compacted hardstand.</li> </ul>		
		<ul> <li>The northern most road will be bitumen with the area in front of the emulsion plat being concrete.</li> </ul>		

Element	Activity	Surface treatment	
		<ul> <li>The area under the boilers, diesel tank, emulsifier tank, manufacturing plant and emulsion storage tanks will be concrete.</li> </ul>	
		Stormwater within the potential AN / ANE contaminated catchment will be directed to the water quality basin via a pit and pipe network (GHD, 2024).	
		All non-process waste will be stored in suitable waste receptacles (self-bunded as required).	
Staff facilities and storage areas	Office, crib room facilities, store and W/C facilities	Wastewater generated from staff facilities will be treated via a waste water treatment plant (WWTP) for domestic wastewater only and treated wastewater will be discharged to land on site.	
Stormwater management	Collected and discharged to ground on Site	The water quality basin shall be lined and shall intercept the first flush runoff with possible contamination from AN spillage within the bunded area (GHD, 2024).	
		The basin will divert the excess runoff from the storm event to the constructed open channel via a diversion pipe. This will ensure the contaminated runoff will be within the water quality basin and the clean water runoff will be diverted to the detention basin to the south-west end via the constructed open channel (GHD, 2024).	
		The detention basin shall comprise of a vegetated layer to improve quality of stormwater. The vegetated basin is designed to target the management of nutrients during smaller frequent events as the proposed gross pollutant traps (GPT) upstream of the basin are not expected to provide the level of nutrient removal desired (GHD, 2024).	
Water source	Tankered in and stored in water tanks for process water and firefighting purposes	No surface treatment required.	
Access	Internal roadway throughout the facility	A combination of bitumen sealed and concrete road surfaces.	

## 3.2 Waste streams

#### 3.2.1 Waste categories

Waste has the potential to impact human health and/or the surrounding environment. The WMP has been developed to provide a framework for waste management at the ANF. Waste in the context of this WMP refers to all substances requiring reuse, recycling or disposal generated by the operation of the ANF and includes storage, handling and disposal requirements.

#### 3.2.1.1 Non-hazardous waste

Non-hazardous wastes are wastes composed of, or containing, materials which are not harmful to humans and which would not have a serious impact on the environment. Non-hazardous wastes can include putrescible solids and liquids, inert solids, food waste, domestic waste, plastics and concrete (DWER, 2019b).

#### 3.2.1.2 Hazardous waste

Hazardous wastes are defined by the "Landfill Waste Classification and Waste Definitions (December 2019)" (DWER, 2019b) as "the component of the waste stream which by its characteristics poses a threat or risk to public health, safety or the environment (includes substances which are toxic, infectious, mutagenic, carcinogenic, teratogenic, explosive, flammable, corrosive, oxidising and radioactive)".

#### 3.2.1.3 Recyclables

Recycle/ recovery is the conversion of wastes into usable materials and/ or extraction of energy or materials from wastes. Recyclable materials can include paper, cardboard, plastics, glass, metal, wood, tyres, vegetation and organic matter.

#### 3.2.1.4 Liquid waste

For the purposes of this management plan liquid waste will include all effluent and grey water from staff buildings which will be disposed of onsite via a wastewater treatment plant.

#### 3.2.2 ANF waste streams

The various waste categories expected to be handled at the ANF are included in Table 6. This list of waste types is not considered to be exhaustive and will be required to be updated on a regular basis during review of the WMP (Section 4.8).

The primary source of waste from the ANF is expected to be the empty AN bulka bags. The empty bags are compacted in a baling machine and the bales are disposed through the National Big Bag Scheme (BBS). This is a federally funded recycling scheme which must demonstrate all waste collected is 100% recycled and then the recycled products are 100% recyclable.

- Bags are folded up individually and placed into a compactor (approx. 0.5 m x 0.5 m x 0.1 m each).
- The compactor will take 40-45 bags and convert into a bale (approx. 1 m x 1 m x 1 m).
- The bales will then be stored in empty shipping containers (under cover, contained and secured) near the
  administration facility on the southern side (Figure 6).
- Once there are approx. 100 bales these will be removed offsite via B-Double road trains for recycling.
- It is expected that the approx. 45 bags (on average) will be produced per day generating approx. 1 bale per day. As a contingency, there is allowance for up to 62,000 t of waste AN bags to recycling (20,800 bags at 3 kg per bag).

Table 6

Process and non-process waste streams handled at ANF during the operational phase

Waste type	Waste materials
Hazardous process waste	
Controlled wastes	Spills and leakages: – Ammonium nitrate (AN) – Ammonium nitrate emulsion (ANE) – Diesei – Emulsifier
Other hazardous wastes	Batteries, flammable liquids (hydrocarbons and fuels), fluorescent tubes, gas cylinders, cleaning chemicals, pesticides, herbicides, paint, solvents etc.
Non-hazardous process wast	e
Inert wastes	Polypropylene bulka bags
Putrescible waste	Packaging waste (cardboard) General mixed waste
Hazardous non-process wast	e
Controlled wastes	Diesel fuel – waste from spills Thinners, paints and solvents Waste oil and other used chemicals
Other hazardous wastes	Batteries Oil filters
Non-hazardous non-process	waste
Inert wastes	Scrap metal Wooden pallets Mixed recyclables
Putrescible waste	Food waste Office and packaging waste (paper and cardboard) General mixed waste Wastewater and biosolids from toilets and kitchen

## 3.2.3 Potential environmental impacts

As per code of practice Safe Storage of Solid Ammonium Nitrate, AN (Ammonium Nitrate, NH<sub>4</sub>NO<sub>3</sub>) has the potential to cause algal blooms and the eutrophication of inland and coastal waters and it poses an environmental hazard.

If waste is not appropriately managed within the ANF the following potential environmental impacts/ risks may occur:

- Contamination of surrounding soil, groundwater and surface water
- Poor on site waste category segregation resulting in cross-contamination of waste streams
- Poor visual amenity and landscape value
- Waste data collection and tracking information is insufficient to demonstrate effective waste management
- Community and stakeholder dissatisfaction.

# 4. Waste management practices

Best practice waste management processes outlined in Section 4 shall be implemented at the ANF to comply with the relevant legislation and regulations outlined in Section 2.

No waste, generated off Site, shall be accepted at the ANF.

## 4.1 Waste handling and storage

#### 4.1.1 Design considerations

The following will be practiced for the design of the ANF and specifically for the waste laydown areas:

- The ANF will have dedicated waste storage areas which can accommodate sufficient bin/s to manage waste generation
- Waste storage containers will be suitably enclosed, covered and maintained (such as waste oils stored in under cover self-bunded storage tanks) to prevent polluted wastewater runoff from entering the stormwater system
- Each storage area should be segregated from other areas with signage etc.
- Stormwater interception system including diversion drains should be maintained around laydown areas to control discharges, run-offs, or incidental waste spills as per the conceptual drainage plan outlined in the Surface Water Management Plan (GHD, 2024) and illustrated in Figure 2 (Appendix A).

The general engineering standards defined in *Water Quality Protection Note No. 56* "*Tanks for fuel and chemical storage near sensitive water resources*" will be applied at the ANF (DoW, 2018).

Tanks should be designed in accordance with the appropriate Australian Standards. Details regarding aboveground fuel and chemical storage include, but not limited to, the following:

- Bunded compounds should extend sufficiently beyond the plan perimeter of the tank (when projected down to the bund) so that a jet of liquid from any perforation of the tank or process equipment will be contained.
- The bunded compound should be lined with low permeability (less than 10<sup>-9</sup> metres per second (m/s)) material that is not adversely affected by contact with stored fuels or chemicals. Where permitted in Public Drinking Water Source Areas, the bund should be constructed of waterproof reinforced concrete or an approved equivalent.
- The bunded compound should have sufficient capacity to fully contain leakage from storage tanks and not be overtopped during extreme rainfall events. This capacity should equate to no less than 110% of the capacity of the largest contained tank system and at least 25% of the total capacity of all tanks for a multiple tank system that does not have manifolded connections between tanks. Consideration must be given to the volume of any additional objects stored inside the bund.
- The compound should also contain, where it is uncovered, sufficient freeboard to contain incident rainfall from a 1-in-20-year return frequency 72-hour storm event and 110% of tank content.
- The base of the bund should be graded towards a sump to allow for the collection of any liquids from within it.
- Incompatible or reactive chemicals should be stored in separate bunds.

With regard to maintenance, it is noted that primary containment, such as self-bunded palettes, should be maintained at full capacity. This requires regular emptying of rainwater that may have accumulated within those bunded palettes. If rainwater were left in the bunded palettes, the capacity for containment of a spill would be reduced, which could impact on the capacity of the secondary containment, i.e., the flexible bunding.

#### 4.1.2 Waste receptacles

Suitable waste receptacles will be provided for each expected waste stream, as per the Platinum Blasting Services Waste Management Procedure (Appendix B), incorporating the following:

- Different waste streams (hazardous and non-hazardous) will be appropriately separated and suitably stored in designated sealed receptacles provided by the waste management contractor
- Waste oils will be stored in bunded storage tanks
- These receptacles will be collected and emptied off-site at a suitable waste collection facility

- Receptacles will be maintained in good working condition and will be repaired as required
- Diesel fuel will be stored in a self-bunded above ground tank
- In case of putrescible waste, steps will be taken to prevent infestation with pests such as flies, rodents, maggots etc. and to prevent emission of offensive odours
- If a decision is made to recycle a waste stream and recycling waste receptacles to be supplied, all recycling
  waste must be deposited in the designated receptacle and not disposed with the general-purpose waste
- General purpose waste such as putrescible and inert non-hazardous waste will not be deposited in recycling waste receptacles.

All non-process wastes will be temporarily stored in the waste separate/ storage area, pending recycling or disposal to appropriately licensed waste management facility, preferably within a reasonable proximity.

All non-process (hazardous and non-hazardous) waste will be stored in suitable receptacles, provided by the nominated waste management contractor, in dedicated waste management areas. Hazardous non-process waste, such as fuel and oil, will be stored in self-bunded proprietary infrastructure as required, to allow the capture of all potentially contaminated runoff. The sealed waste receptacles will be collected and emptied off-site at a suitable waste management facility.

## 4.1.3 Storage and handling practices

The following practices will be implemented with regard to storage and handling at the ANF:

- Suitable waste storage and collection point locations will be designated with easy, direct and convenient
  access for waste disposal and collection
- Signage clear and appropriate labels on and directions to all waste storage areas will be maintained
- Security and protection against potential vandalism will be ensured
- Good housekeeping practices will be implemented and enforced. Materials will be neatly stored on shelves with appropriate labels
- Safety Data Sheets will be made available near all storage areas, as applicable
- Emergency contact information will be adequately displayed, in case there are any issues with the waste systems/services
- Proper handling, storage and management of controlled waste be made available to all ANF operators.

Further, the following storage and handling practices will be implemented at the ANF to comply with the site Bushfire Management Plan (BMP).

## 4.2 Waste transportation

The following will be implemented for the transport of waste to the Site:

- Controlled waste will be transported by a carrier licensed under the Environmental Protection (Controlled Waste) Regulations 2004
- A waste tracking form (Form CW11) will be completed for transport of any controlled waste, which includes a waste tracking number generated/ provided by DWER (DWER, 2019a)
- All vehicles transporting materials will include appropriate storage compartments to prevent waste materials spilling, discharging, or falling from the vehicle
- The type and quantity of all waste materials being transported from the ANF will be recorded.

## 4.3 Waste management plan

Objectives, targets and proposed emission controls for potential waste streams generated by operation of the ANF include, but may not be limited to, those outlined in Table 7.

#### Table 7 Objectives, targets and proposed emission controls for potential waste streams

Objective	Management Target	Potential impact	Management Actions	Monitoring & frequency	Reporting	Responsibilities
Where practicable apply principles from the WasteMaximi potentia materia Avoidance and Resource Recovery Act 2007 (WARR Act) for waste avoidance and recovery (reuse, reprocessing, recycling)Maximi potentia materia ANF.Maximi potentia materia ANF.Maximi potentia materia ANF.	Maximise avoidance of potential waste materials entering the ANF.	Increased volumes of waste landfilled unnecessarily	<ul> <li>Diesel and Emulsifier are delivered to Site in bulk tankers to eliminate any product packaging waste.</li> <li>Procurement of other required materials via bulk quantities to reduce packaging waste.</li> </ul>	Monitor waste types and quantities as removed from Site	Internal records of waste removed from Site.	ANF Supervisor All staff and contractors
	Maximise recovery of waste materials generated by operation of the ANF.	Increased volumes of waste landfilled unnecessarily	<ul> <li>The primary source of waste from the Site is the empty AN bulka bags.</li> <li>The empty AN bulka bags shall be treated as contaminated waste and shall not be disposed of as general waste articles.</li> <li>The empty bags are compacted in a baling machine and the bales are disposed through the National Big Bag Scheme (BBS).</li> <li>The waste AN bags are stored under tarpaulins until sufficient quantities reached to schedule a collection by the Big Bag Scheme.</li> </ul>	Monitor waste types and quantities as removed from Site	Internal records of waste removed from Site.	ANF Supervisor All staff and contractors
	Minimise disposal of waste materials, generated by the ANF, to landfill.	Increased volumes of waste landfilled unnecessarily	<ul> <li>All responsible ANF staff and contractors to undertake a Site induction and necessary training for handling waste material generated by operation of the ANF.</li> <li>Ensure sufficient, appropriately labelled, waste bins are provided to allow separation of various waste streams onsite and recoverable materials can be recycled.</li> <li>All general waste and recyclable waste will be disposed of by an authorised service provider in accordance with local government requirements.</li> </ul>	Monitor waste types and quantities as removed from Site	Internal records of waste removed from Site.	ANF Supervisor All staff and contractors
Accurately identify all known and potential waste streams associated with the operation of the ANF	Dispose of waste materials, generated by the ANF, appropriately.	Inappropriate disposal of wastes resulting in contamination of waste streams at off site facilities	<ul> <li>Characterise waste streams generated by the ANF, based on the DWER (2019b) Landfill Waste Classifications and Waste Definitions 1996 (As amended 2019) for recovery and disposal at appropriate off site facilities.</li> <li>All waste generated when servicing equipment will be removed from site by the service contractor.</li> </ul>	Monitor waste types and quantities as removed from Site	Internal records of waste removed from Site.	ANF Supervisor All staff and contractors
Undertake reasonable and practical measures to avoid and minimise discharge of hazardous and non-hazardous waste to the environment	Avoid contamination of surface water and groundwater.	Potentially contaminated stormwater from the ANF being discharged from the Site.	<ul> <li>All stormwater with the proposed development area requires pre-treatment before discharging to the environment.</li> <li>Stormwater treatment for the detention basin will be via a treatment train to capture, filter, or treat pollutants as per the Surface Water Management Plan (GHD, 2024) using the following steps:         <ul> <li>Water shall pass through a primary treatment GPT in order to screen solids and some sediments before discharging into the detention basin.</li> <li>Remaining sediments will also settle in the basin. The conceptual locations of GPTs are shown in Figure 2.</li> <li>The detention basin is proposed to control discharge prior to any off facility discharge. This basin is to be vegetated to allow final treatment of stormwater. The vegetation species should be native, have a high nutrient uptake should be able to survive in a dry weather condition, and not increase the bushfire risk as per specifications in the Surface Water Management Plan (GHD, 2024).</li> </ul> </li> </ul>	Daily inspections of control measures to be conducted and immediately rectified as required.	Any waste incidents identified during Site inspections, which have not met the performance criteria, will be documented and corrective actions raised to correct these issues. These will be entered into the ANF Incident Register to track and monitor completion of corrective actions. Incidents shall be reported to DWER in the Annual Environmental Report. Where a waste related pollution incident is a life-threatening incident or pollution emergency it will be reported to Department	ANF Supervisor All staff and contractors
			The stormwater runoff within the hydrocarbon storage containment area (Figure 2) has potential for spill of leaked fuels causing local and downstream environmental impacts.	<ul> <li>All responsible ANF staff and contractors to undertake a Site induction and necessary training for handling waste material generated by operation of the ANF.</li> <li>All hydrocarbon storage tanks and catchment area to be installed on an impervious, bunded surface in tanks as per relevant Australian Standards.</li> <li>Ensure all refuelling is undertaken in approved locations.</li> <li>Manage minor hydrocarbon spills as required using spill kits.</li> <li>Fuel and oil Containment Booms (Land Socks), or similar, to be held on Site in the event of a serious hydrocarbon spill resulting in surface runoff. Containment Booms are to be placed around the perimeter of a spill in order to contain the liquid spilled and assist with stopping its spread.</li> <li>All waste oils and oily materials, including oil filters and rags, used spill kit materials will be collected and stored in properly labelled waste bins an approved undercover waste oil storage area until they are collected by the waste oil recycler for disposal or recycling according to the relevant legislation and guidelines.</li> </ul>	The outlet of the Puraceptor will be kept closed at all times. After rainfall events, water from the bunded area will be sampled and tested before internal transfer to the pit that is connected to the water quality basin. Daily inspections of control measures to be conducted and immediately rectified as required. Waste oils and oily materials removed off site on an as required basis.	of Fire and Emergency Services (DFES)/ Emergency WA by calling 000/ 13 33 37. DFES will call out Department of Water and Environmental Regulation (DWER) for major pollution/ hazardous materials incidents. Where a waste related pollution incident occurs, which causes or threatens to cause a pollution emergency, that is not life- threatening it will be reported to DWER via the 24-hour Pollution Watch hotline as soon as practicable.

Objective	Management Target	Potential impact	Management Actions	Monitoring & frequency	Reporting	Responsibilities
			<ul> <li>The stormwater runoff from the diesel tank bund areas shall be directed to the SPEL Puraceptor and water would be released through the Puraceptor to the detention basin via the pipe system. Puraceptor shall be designed to provide adequate storage and treatment of the catchment area it is servicing as per specifications in the Surface Water Management Plan (GHD, 2024).</li> <li>Hydrocarbon contaminated wastewater will be emptied as required by a licensed waste oil/ separator contractor.</li> </ul>			
		Contamination of stormwater runoff from AN and ANE catchment area	<ul> <li>All responsible ANF staff and contractors to undertake a Site induction and necessary training for handling waste material generated by operation of the ANF.</li> <li>Stormwater from the possible AN and ANE contaminated bunded catchments shall be directed to respective stormwater pits which are directly connected to the WQ Basin (Figure 2) as per the Surface Water Management Plan (GHD, 2024).</li> <li>The water quality within the basin shall be tested after each storm event. In the event that testing of stormwater within the basin identifies that it does not meet the water quality criteria, if this indicates the presence of AN and ANE contamination, a licenced contractor would be engaged to pump out the stormwater storage and dispose of the water at a licenced facility.</li> </ul>	After each rainfall event, a contamination test shall be undertaken for water quality basin to detect the possible contamination. Daily inspections of control measures to be conducted and immediately rectified as required.		ANF Supervisor All staff and contractors Licenced disposal contractor
		Uncontrolled discharge of untreated wastewater to land	<ul> <li>Installation and maintenance of a suitably sized WWTP by an appropriately licenced contractor as per Department of Health and local government requirements.</li> </ul>	Regular maintenance and monitoring of the WWTP by an appropriately licenced contractor.	Internal incident register	ANF Supervisor
	Minimise odour, wind blown waste and health and safety issues.	Reduced health and safety and amenity due to poor house keeping	<ul> <li>Storage areas are to be kept clean, free of rubbish with no combustibles such as pallets, rubber hoses or conveyor belting, aerosol cans, rags, etc. Good housekeeping practices must be in place.</li> <li>Ensure sufficient, appropriately labelled, waste bins are provided to allow separation of various waste streams onsite and recoverable materials can be recycled.</li> <li>Reduce odour issues and access to vermin and birds by keeping waste bins in covered bins or in closed undercover areas.</li> <li>Any windblown waste to be collected in a litter pick up on an as required basis.</li> </ul>	Daily inspections of ANF conducted and issues immediately rectified as required. Windblown waste to be collected on an as required basis.	Internal incident register	ANF Supervisor All staff and contractors
Alignment with the Consultation draft: Waste Avoidance and Resource Recovery Strategy 2030 goals and targets	Maximise avoidance and recovery of waste to contribute to the C&I waste targets: - Avoid: 10% reduction in generation per capita - Recover: Increase recycling rate to 80%	Increased volumes of waste landfilled unnecessarily	<ul> <li>Avoidance: <ul> <li>Diesel and Emulsifier are delivered to Site in bulk tankers to eliminate any product packaging waste.</li> <li>Procurement of other materials via bulk quantities to reduce packaging waste.</li> </ul> </li> <li>Recovery <ul> <li>100% of waste AN bulka bags to be recycled via the National Big Bag Scheme.</li> <li>Ensure sufficient, appropriately labelled, waste bins are provided to allow separation of various waste streams onsite and recoverable materials can be recycled.</li> </ul> </li> </ul>	Monitor waste types and quantities as removed from Site	Internal records of waste removed from Site.	ANF Supervisor All staff and contractors
Monitor and record outcomes of applying the principles of waste avoidance and recovery	Accurate records of all waste generated by the ANF.	Poor/ incomplete records of waste generated by the ANF.	<ul> <li>Maintain accurate records of waste generated and removed from the ANF in an internal waste register.</li> <li>Keep and record waste receipts from waste collection contractors.</li> </ul>	Monitor waste types and quantities as removed from Site	Internal records of waste removed from Site.	ANF Supervisor All staff and contractors

## 4.4 Site induction and training

All responsible ANF staff and contractors to undertake a Site induction and necessary training for handling waste material generated by operation of the ANF including (but not limited to):

- Identification of waste types and associated recycling/ disposal requirements
- Waste/ items to be removed from the ANF for appropriate recycling/ disposal
- AN, ANE and hydrocarbon management
- Record keeping.

## 4.5 Monitoring

All waste types and volumes generated on-site and being transported off-site will be recorded for the purpose of annual reporting.

Monitoring of the ANF will be undertaken by PBS so as to meet the following performance criteria:

- Waste collection sites containing wastes with limited interaction with vermin/ pests
- No cross contamination of waste disposal bins
- All non-hazardous, recyclable, hazardous and liquid wastes removed off site to appropriately approved disposal locations on an as required basis
- Identifying locations where additional bins may be required
- Presence of litter and windblown waste around the ANF cleaned up on a weekly basis
- Record waste types and volumes generated on-site and being transported off-site.

Any waste incidents identified during Site inspections, which have not met the performance criteria, will be documented and corrective actions raised to correct these issues. These will be entered into the ANF Incident Register to track and monitor completion of corrective actions.

Where a waste related pollution incident is a life-threatening incident or pollution emergency it will be reported to Department of Fire and Emergency Services (DFES) by calling 000. DFES will call out Department of Water and Environmental Regulation (DWER) for major pollution/ hazardous materials incidents.

Where a waste related pollution incident occurs, which causes or threatens to cause a pollution emergency, that is not life-threatening it will be reported to DWER via the 24-hour Pollution Watch hotline as soon as practicable.

Nuisance issues and minor waste discharges will be reported to the Shire of Chapman Valley.

## 4.6 Reporting and record keeping

Reports will be prepared, and records kept for all monitoring undertaken at the ANF, as detailed in Section 4.3, and for waste materials handled at the ANF. Potential reports required for the ANF are listed below:

- Internal quality and safety reports
- Environmental audit reports
- Waste and material tracking register, including unacceptable waste
- Incident and non-conformance reporting, detailed in Section 4.7
- Government agencies reporting, such as licence compliance reporting, if required
- Groundwater and surface water monitoring reports comparison of the analytical results with data from the
  previous event and comparison of the analytical results with relevant human health and environmental
  assessment criteria for the current Site use.

## 4.7 Non-conformance and corrective actions

In case an environmental, safety or plant non-conformance (such as an oil spill or release of contaminants) occurs, a report shall be prepared to detail the incidents and non-conformance. PBS has a responsibility to report all major environmental incidents that risk causing environmental harm under the *Environmental Protection Act 1986*.

When a non-conformance has occurred, the following mitigation strategies will be adopted as a minimum:

- All non-conformances and incidents will be corrected as soon as possible, and strategies implemented to reduce the likelihood of the incident reoccurring
- Containment of the contaminant, where possible
- Review of the engineering and administrative controls in place for effectiveness and check maintenance records
- Preparation of an incident / accident report for all incidents and non-conformances.

Where incidents have occurred, PBS will ensure that all reasonable and practical controls are implemented for future operations. This may include reviewing of the storage and handling procedures, location and type of stormwater infrastructure, as well as emergency response procedures, and implementing additional and/or alternative controls to achieve the required outcomes.

## 4.8 **Review and improvement**

Waste management review meetings are proposed to occur quarterly for the ANF. To ensure the WMP is working effectively and to identify any opportunities for improvement, review of current management plans should be undertaken on an annual basis. The review and assessment should consider all stages of waste management from the source to destination. A review should also be undertaken in the following circumstances:

- New information on a waste type becomes available that would alter its management requirements
- New/ unforeseen waste streams are stored, handled, or generated at the ANF that require management
- There are significant changes to the process and/or operations at the ANF
- If monitoring and reporting indicates that management targets are not being achieved.

# 5. References

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- DWER. (2019a). Controlled Waste Tracking System (CWTS) Access Form Industry Environmental Protection (Controlled Waste) Regulations 2004 FORM CW11. Department of Water and Environmental Regulation. Retrieved from https://www.wa.gov.au/system/files/2022-05/Form-CW11-Controlled-waste-trackingsystem-access-form-industry.pdf
- DWER. (2019b). Landfill Waste Classifications and Waste Definitions 1996 (As amended 2019). Perth: Department of Water and Environmental Regulation.
- GHD. (2024). Project Terra Ammonium Nitrate Facility Surface Water Management Plan. Unpublished report prepared for Blue Diamond Australia.
- WALGA. (n.d.). Commercial and Industrial Waste Management Plan Guidelines. Western Australian Local Government Association .

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# Appendix A Figures



Site context

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Data source: Lanegate: Roads (2024), Catastre (2024); CHD: Preject Terra (2004), Project Terra (asse area (2025), project Astra (2024); DWER: (P. 7) World Topograp

FIGURE 5



# Appendix B Platinum Blasting Services waste management procedure

#### **1.0 Application**

To provide for the safe management and disposal of all contaminated materials or excess materials within Emulsion Manufacturing Plant are, as required by Legislation.

#### 2.0 Key hazards

The key hazards associated with undertaking this task are:

- Mixing incompatible chemicals and waste
- Inadequate governance of waste handling and waste disposal contractor management

#### 3.0 References

- Australian Standard 2187.2 The Storage, Handling and Use of Explosives
- Australian Standard 4326 The Storage and Handling of Oxidizing Agents
- Australian Standard 1940 The Storage and Handling of Combustible Liquids.
- Australian Dangerous Goods Code (ADG7)
- Controlled Waste Disposal
- Hydrocarbon and Chemical Spill Response
- Environmental Compliance Register
- Waste Management
- Product specific Safety Data Sheets (SDS)

#### 4.0 Requirements

Before considering the collection and disposal of any waste materials refer to the product SDS for specific product information relating to the safe handling procedures.

Legislative and regulatory security and accountability requirements apply to wastes and residues.

All waste products shall be prevented from entering into natural water system, wetlands, stormwater and drainage system or disposed of with general waste.

All waste shall be disposed of as per Controlled Waste Disposal.

All SSAN waste shall be recorded monthly on Waste Generation form.

Waste materials will be stored in appropriately labelled waste containers in clearly defined areas allocated for that particular waste storage.

All Ammonium Nitrate waste must be collected using the appropriate personal protective equipment and authorised hand tools including shovels, brooms and dust pans. It is recommended that no ferrous metal objects be used in the waste material collection process.

#### 4.1 Ammonium Nitrate.

All Ammonium Nitrate waste must be placed into the approved Ammonium Nitrate Waste bins properly coloured (White) and labelled prior to the disposal of the product. These bins are not approved to be used to store any other product

All waste bins that are full and awaiting disposal must be secured using a security tag which is to be removed immediately prior to the product disposal of when the bins are unsupervised.

All other methods of waste / contaminated Ammonium Nitrate disposal must be approved by the Plant Supervisor prior to the disposal of any material in this manner.

An <mark>Ex</mark> ample of a	n Approved Ammonium Nitrate Waste Bin	
Product	Ammonium Nitrate	
Bin Colour	White	
Bin Stripe	Nil	TEL TO HERE
Labels	Black lettering on a white background	

#### 4.2 Combustible Liquids (Emulsion/Fuel Oil/Diesel).

All hydrocarbon (emulsion/fuel oil/diesel) waste produced must be placed into the approved Hydrocarbon Waste bins properly coloured (Brown) and labelled prior to the disposal of the product. These bins are not approved to be used to store any other product

Re-work of emulsion is transferred into IBC's for recovery in the production process when production permits. Not all of the re-work emulsion can be recovered from the IBC's and the residue emulsion product is deemed a controlled waste. The IBC's containing the waste emulsion are isolated in a designated storage area before being transferred to a licensed facility for disposal. The waste IBC's are clearly labelled "Waste Emulsion" to avoid cross contamination with other products.

Small spills may be covered with a suitable non-combustible absorbent material (vermiculite or similar) before the product is collected and placed in suitable storage container.

Large storage including waste collection areas should be bunded to contain the effects of any product spills.

Where possible the material should transferred into the storage container in a method which reduces the potential for any static electricity build up and / or discharge.

Combustible liquid wastes must not be allowed to accumulate, and must be removed by a specialist hazardous waste disposal contractor.

Solid combustible waste (e.g. rags soaked with combustible liquids) may be kept in the appropriate waste disposal container allocated for the product.

Recycling of the any waste combustible liquid is to be considered and implemented if possible, after a detailed and formal risk assessment is completed.

#### An Example of a Hydrocarbon Waste Bin

Product	Diesel (includes rags)	
Bin Colour	Brown	
Bin Stripe	Nil	
Labels	Brown lettering on a white background	

#### 4.3 Oils and Greases

All oil and grease waste generated during the maintenance of explosives equipment must be placed into the approved Oils and Greases Waste bins properly coloured (Brown) and labelled prior to the disposal of the product.

This will include all rags and other materials used to handle and clean up spills of grease and oils. These bins are not approved to be used to store any other product

Surface oil spills are to be isolated and absorbed with an appropriate absorbent material. This material is then to be placed in a 'Waste grease and oil' container.

Where possible, old oils (not contaminated by absorbent material) should transferred from the catchment container into the storage container in a method which reduces the potential for any static electricity build up and / or discharge.

Large storage including waste collection areas should be bunded to contain the effects of any product spills.

Disposal of waste oils and other combustible liquids must be carried out in accordance with the relevant site procedures (waste oil facilities) and / or relevant local legislation outlined in Controlled Waste Disposal.

Combustible liquid wastes must not be allowed to accumulate, and must be removed by a specialist hazardous waste disposal contractor.

Recycling of any waste combustible liquid is to be considered and implemented if possible, after a detailed and formal risk assessment is completed.

An Example of a	n Oils and Greases Waste Bin	
Product	Oils and Greases	
Bin Colour	Brown	COLUMN TO A COLUMN
Bin Stripe	Yellow	TILLETO HERE
Labels	Brown lettering on a yellow background	

#### 4.4 General Waste

General waste is to be placed in a clearly coloured and labelled 'General Waste' bin.

General waste shall be collected and managed in accordance with the site specific waste management procedures.

General waste will be collected from site by approved waste management sub-contractors or managed onsite as per the Waste disposal procedure on site.

An Example of a (	General Waste Bin	The second
Product	General Waste	A STORE
Bin Colour	Green	
Bin Stripe	NI	<u> </u>
Labels	Green lettering on a white background	

#### 4.5 Recycled Waste

Waste which can be safely recycled is to be placed in a clearly coloured and labelled 'Recycle Waste' bin.

Recyclable waste shall be collected and managed in accordance with the site specific waste management procedures.

Recyclable waste will be collected from site by approved waste management sub-contractors or managed onsite as per the Waste disposal procedure on site.

#### An Example of a Recycled Waste Bin

#### WASTE MANAGEMENT

Product	Recycle Waste	
Bin Colour	Blue	
Bin Stripe	NII	
Labels	Blue lettering on a white background	

#### 4.6 Packaging

The empty bulk bags of ammonium nitrate shall be treated as contaminated waste and shall not be disposed of as general waste articles.

Ammonium Nitrate bulks bags (including inner linings) shall have the ammonium nitrate product removed and stored on site until the removal of the bags can be arranged by an appropriate licensed contractor as relevant local legislation outlined in Controlled Waste Disposal.

Hazardous material packaging shall be disposed of as a product waste and is to be stored in the appropriate coloured and labelled waste bin for that product.

Do not progress with the disposal of any SSAN material unless authorised to do so.

#### 4.7 Off Site Waste Disposal

It is the responsibility of the Plant Supervisor to ensure that waste is controlled and removed from site by a licensed waste contractor. It is a requirement to demonstrate that the waste is going to a facility licensed to accept that type of waste.

#### 4.8 General Requirements

It is the responsibility of all Platinum Blasting Services personnel to adhere to this Procedure.

It is the responsibility of the Plant Manager/Supervisor to ensure that all persons adhere to this Procedure.

Any defect and hazard that is identified during any activity involving Ammonium Nitrate handling equipment, is to be reported to the Plant Supervisor immediately.

It is the responsibility of all persons involved to use the appropriate Risk Management tools to assess any hazards and implement any necessary controls for any event that may be undertaken where there is risk of personal injury or equipment damage.

#### 5.0 Competency required

Any person who will utilise this procedure and have access to these materials, must be competent or in training for the following:-

- Relevant State Security Sensitive Ammonium Nitrate Police Check.
- Competent Person (as per AS2187)

#### 6.0 Personal Protective Equipment (PPE) / Special equipment

- Approved Hi Visibility Clothing
- Approved Safety Footwear
- Approved Eye Protection
- Approved Hand Protection
- Approved PPE as specified by the product MSDS

#### 7.0 Special Equipment

- Spill kits
- Product specific, colour coded material waste bins
- SDS Registers

#### 8.0 Records

- Personal Risk Management (MySafe)
- SSAN Material Stock documents
- Waste Generation form
- Stock Transfer dockets



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