Environmental Emergency Response Plan

Royal Darwin Hospital Waste Treatment Facility

Top End Health Service

Building Better Care, Better Health, Better Communities Together

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NORTHERN TERRITORY GOVERNMENT

Document control

To be able to track the agreed changes to the *Project Plan*, and record its distribution throughout the document's development and subsequent revision(s), a document version control process is essential. Version control provides for unique identification of each subsequent version of a document. The version number changes as the document is revised allowing released versions of a document to be easily distinguished from draft versions.

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Acronyms	Full form
ASAP	As soon as possible
AIIMS	Australasian Inter-Service Incident Management System
ADH	Australian Height Datum
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
AS	Australian Standard
AS/NZS	Australian/ New Zealand Standard
BWI	Biohazard Waste Industry
BoM	Bureau of Meteorology
DoH	Department of Health
NRETAS	Department of Natural Resources, Environment, the Arts and Sport
EMC	Emergency Management Commissioner
Emergency Management RDH PRH Plan	Emergency Management Plan for the Royal Darwin Hospital and Palmerston Regional Hospital

ENL	Emergency Notifications List
EPA	Environment Protection Authority
EPL	Environment Protection License
EERP	Environmental Emergency Response Plan
HIMT	Hospital Incident Management Team
IAEA	International Atomic Energy Agency
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measures
NHMRC	National Health and Medical Research Council
NOHSC	National Standard for Occupational Noise
NTC	National Transport Commission
NT	Northern Territory
OHS&E	Occupational Health Safety & Environment
PRH	Palmerston Regional Hospital
PPE	Personal Protective Equipment
PWC	PricewaterhouseCoopers
PA	Public Announcement System
RDPH	Royal Darwin and Palmerston Regional Hospitals
RDH	Royal Darwin Hospital
SDS/ MSDS	Safety Data Sheets/ Material Safety Data Sheets
SMS	Short Message Service
TEHS	Top End Health Services
WMAA	Waste Management Association of Australia
WMF	Waste Management Facility

If an emergency response is required immediately, please refer to the response activities tabled in the document, these are located in Section 8

Contents

1. Introduction

1.1. Purpose and Scope

This Environmental Emergency Response Plan (EERP) provides procedures for Top End Health Services for responding to emergencies associated with the operation of the Waste Management Facility (the Facility) at Royal Darwin Hospital (RDH) that may cause environmental harm. The types of emergencies covered are outlined further in Section 5 of this plan.

The WMF operates under an Environment Protection License (EPL246 – 01) issued to the Department of Health (DoH) by the Environment Protection Authority (EPA) for operation of the Facility in accordance with the Northern Territory (NT) Waste Management and Pollution Control Act. The licence specifically authorises the following scheduled activities:

- Collecting, transporting, storing, re-cycling, treating or disposing of a listed waste (as per Table 1) on a commercial or fee for service basis, other than in or for the purpose of a sewage treatment plant.
- Operating premises, other than a sewage treatment plant, associated with collecting, transporting, storing, re-cycling, treating or disposing of a listed waste (as per Table 1) on a commercial or fee for service basis.

Table 1: Listed Wastes Authorised to be Handled at the Facility

Listed Wastes Authorised to be Handled						
Listed Waste	Collection	Transport	Storage	Treatment	Recycling	Disposal
Clinical and related wastes	✓	✓	✓	✓	X	X
Containers that are contaminated with residues of a listed waste	✓	✓	✓	✓	X	X
Waste pharmaceuticals, waste drugs and waste medicines	✓	✓	X	X	X	X
(✓) = Activity Authorised by this license **(X) = Activity not authorised by this license**						

It is a condition of the licence that this EERP is in place for the activities authorised by the licence, as such the scope of this EERP covers the above activities that are within the control of TEHS associated with the facility, rather than broader waste management activities undertaken on the RDH campus. These activities include:

- The collection of clinical and cytotoxic waste from the RDH, Palmerston Regional Hospital (PRH) and Darwin Private Hospital.
- Receipt of clinical and cytotoxic waste form other TEHS and private medical facilities and clinics within the NT.
- Storage of clinical waste prior to treatment and storage of cytotoxic waste prior to transport to Adelaide for incineration at a licenced private waste facility.
- Treatment of clinical waste through sterilisation and grinding prior to disposal to landfill.
- Cleaning of clinical waste storage bins prior to their return to waste generators.
- Cleaning of trucks used for waste collection and bin transport.

This Plan covers all RDH based workers who are required to handle, transport, process and/or store hospital medical waste within the context of the Waste Management /Steriliser Building.

All relevant workers have a legal obligation to follow process described in this Plan and to report where the Plan has not been, or cannot be complied with, to the RDPRH Yard, Waste Management Supervisor as soon as possible. The Plan does not relate to any other RDH workers or campus buildings.

1.2. Facility Overview

The RDH Waste Management Facility provides an important service in the safe treatment, storage and disposal of clinical and related wastes generated at Royal Darwin Hospital (RDH), Palmerston Regional Hospital (PRH), Darwin Private Hospital (DPH), Menzies School of Health Research, as well as community health centres and other healthcare facilities and health—related businesses across the Top End of the Northern Territory (NT). It includes an autoclave (steriliser) and grinding system that treats waste prior to disposal to landfill.

The facility operates from 6:30am to 2:30pm Monday to Friday (excluding public holidays) and from 6:00am to 10:00am on Saturdays.

The autoclave deactivates all bacteria, viruses, fungi and spores using high temperature steam. The sterilised waste is then shredded, compacted and is safe for disposal. Waste treated by the autoclave includes sharps and "materials saturated with or containing free-flowing or expressible blood or body fluids" and also containers contaminated with clinical waste residues (see categories of waste defined in Section 4). This is the only facility of its type in the NT. The autoclave however, is not suitable for treating clinical and related waste types defined as anatomical, cytotoxic and pharmaceutical wastes. Cytotoxic wastes are stored in the secure refrigeration unit within the Waste Management Facility building prior to transport to an approved incineration facility in Adelaide. Pharmaceutical wastes are stored in their respective departmental waste storage areas until ready for transport. They are then collected RPD Waste Management staff who coordinate transport to an approved incineration facility in Adelaide.

The facility also includes an automated bin washing facility for cleaning clinical waste bins once they have been emptied of their contents for treatment. Liquid waste from the bin washing process and condensate from the sterilisation process drain to a collection pit which then passes to a triple interceptor prior to disposal to sewer via a septic system that is pumped out by a licensed waste contractor.

The layout of the facility is represented in Figure 1, and its location within the RDH Campus is shown in Figure 2.

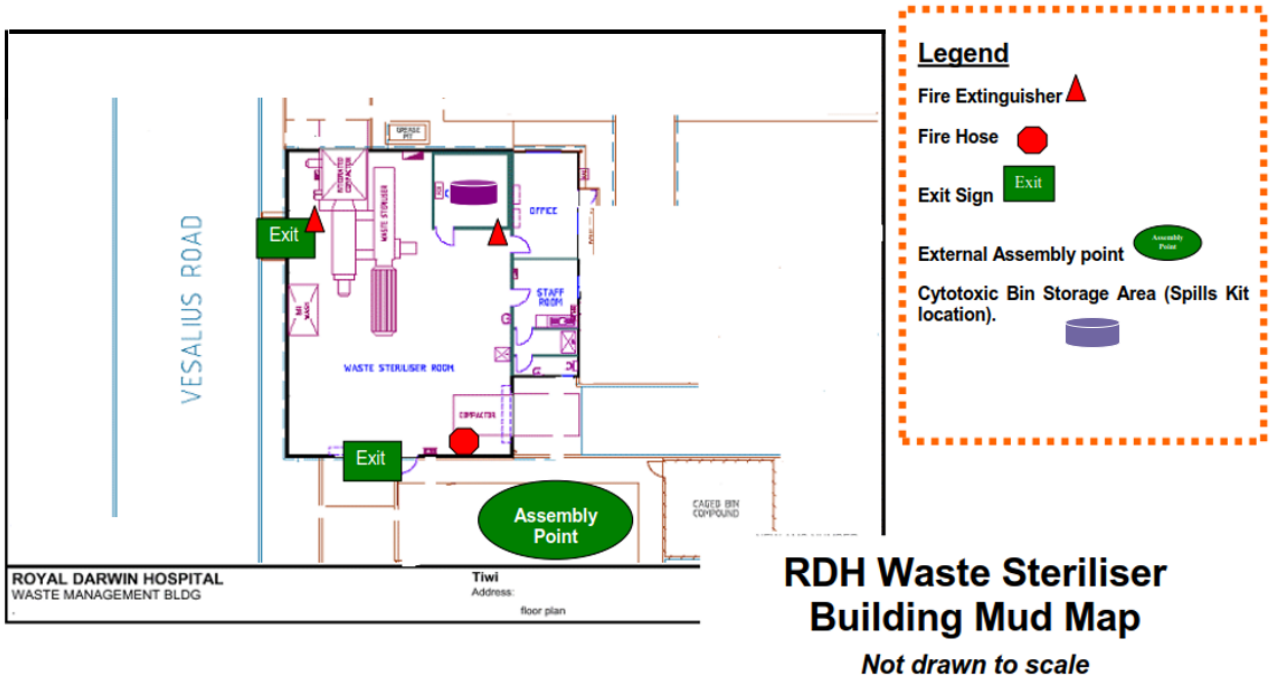


Figure 1: RDH Waste Building Layout

The floor of the facility is made of impervious concrete and drains to the collection pit.

The facility contains a refrigerated bin storage room that can be securely located which is used for the storage of cytotoxic waste bins prior to transport and if necessary, also for the storage of any bins containing untreated clinical waste that has not been processed at the end of each day.

A refrigerated self-powered shipping container with the capacity to hold 30 x 240L bins is located on the campus between Building 15 Renal Unit and Building 19 Entomology Unit for emergencies and back up storage, including in the event of a prolonged power failure.

1.3. Relationship with Other Plans

TEHS have developed and implemented an Emergency Management Plan for the Royal Darwin Hospital and Palmerston Regional Hospital (Emergency Management RDH PRH Plan). The Emergency Management RDH PRH Plan details the agreed emergency management arrangements for both hospitals to prepare for, respond to and recover from emergencies that may affect RDPH campus buildings and service delivery, including the RDH Waste Management Facility Building and waste management services that support both hospitals. It requires that each work area/ward has appropriate operational sub-plans/procedures that detail the work areas responsibilities and response activities to specific emergencies as identified in the plan; and for certain hazards covered by the plan (e.g. Mass Casualty Incidents and Tropical Cyclones) individual specific plans have been developed.

This Environmental Emergency Response is not intended to replace the need for any sub-plans required under the Emergency Management RDH PRH Plan, and is to compliment and align with the Emergency Management RDH PRH Plan and plans that fall within the framework that it sets out, with the a specific focus on the types of emergency situations that have potential to cause environmental harm.

2. Facility Location

2.1. Site Location

RDH is located on the outer edge of Darwin Harbour, approximately 12 kilometres (km) north-north-east of the City of Darwin and occupies an area of approximately 44.99 hectares (ha). The site is located at Town of Nightcliff Lot 9731, 105 Rocklands Drive, Tiwi Northern Territory (NT) 0820.

The RDH Waste Management Facility is a single dedicated building located within the RDH Campus adjacent to the “Services and Stores” building (see Figure 2).

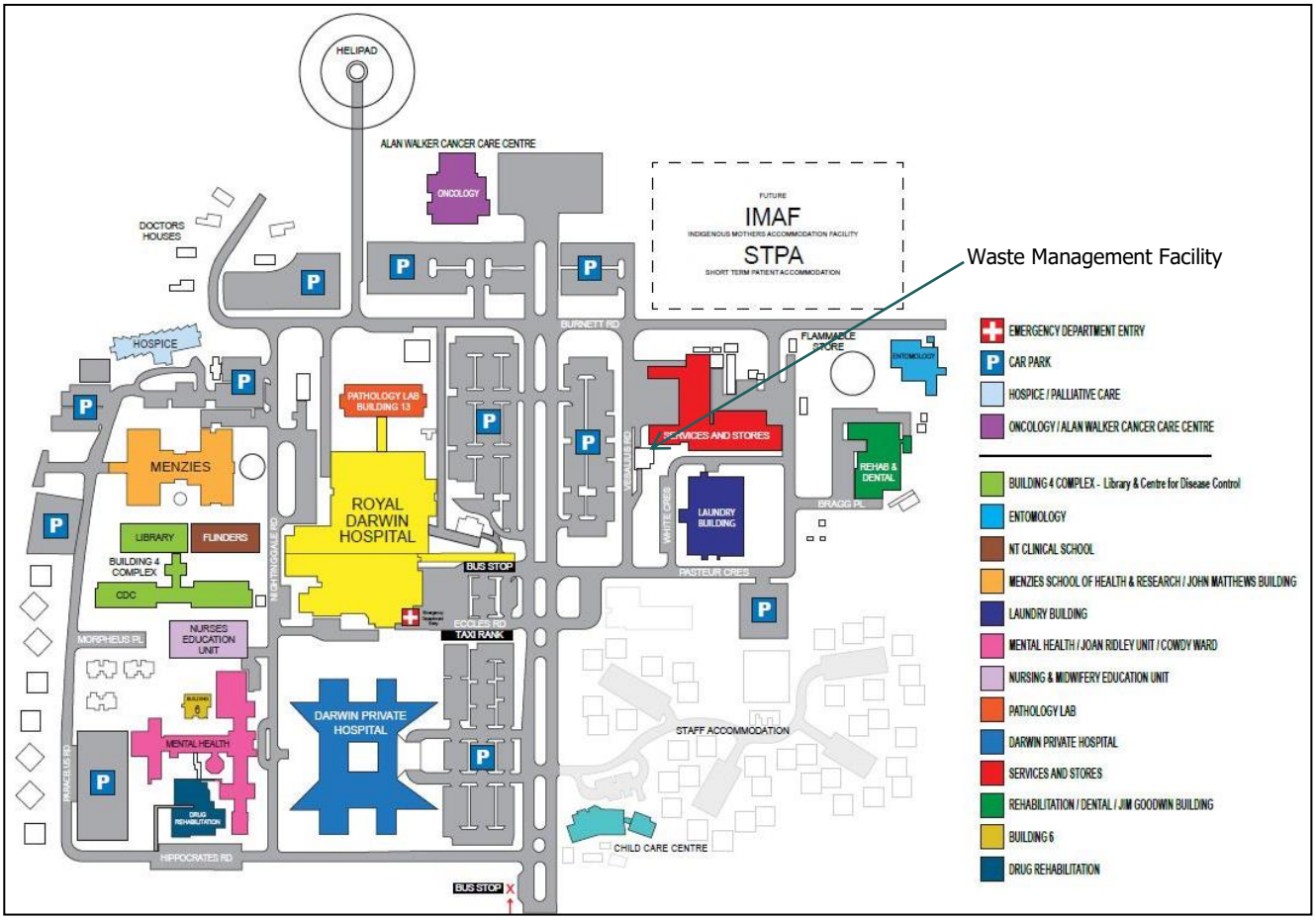


Figure 2: Location of Waste Management Facility within RDH Campus

2.2. Topography

The topography in the vicinity of the Site undulates with elevations between approximately 9m and 17m Australian Height Datum (AHD) and generally slopes down west-south-west toward the Casuarina Coastal Reserve.

The area to the north-east of RDH is at a higher elevation than the RDH campus and the area to the west is at a lower elevation than the RDH grounds with the majority of the campus with elevations between 12m and 22m AHD mostly gently sloping to the southwest.

The RDH Waste Management Facility is in the eastern portion of the site, sits at an elevation of approximately 20 m (AHD) and is surrounded by relatively flat grounds.

2.3. Surrounding Land Use

RDH is surrounded by the following land uses (and zones):

- North – Casuarina Coastal Reserve (zoned "Conservation") and the Gudang Dalba indigenous hostel are located directly adjacent to RDH. An area zoned "Future Development" is located approximately 250 m north-east of RDH and Lee Point Village Resort is located approximately 1 km north-north-east of RDH.

- East – The suburb of Lyons is located directly adjacent to RDH and the suburb of Muirhead is farther afield to the east. Both suburbs mainly consist of “single dwelling” residential housing, with some smaller areas of “multiple dwelling“ residential housing.
- South – The suburb of Tiwi is located directly adjacent to RDH and the suburbs of Wanguri, Nakara and Brinkin are farther afield to the south. These suburbs consist of “single dwelling” residential housing, with some smaller areas of “multiple dwelling” and “medium density” residential housing, “public open space”, “organised recreation” areas and the following educational facilities:
    - Top End Early Learning Centre, directly adjacent, south of RDH
    - Goodstart Early Learning centre, approximately 500 m south of RDH
    - Dripstone Middle School, approximately 800 m south of RDH
    - Henbury School, approximately 900 m south of RDH
    - Nakara Primary school, approximately 1,200 m south of RDH
    - Wanguri Primary School, approximately 1,500 m south of RDH
    - Holy Spirit Catholic Primary School, approximately 1,500 m south of RDH
    - Dripstone Children’s Centre, approximately 1,600 m south-south-west of RDH
    - Charles Darwin University, approximately 1,700 m south-south-east of RDH

  Casuarina Square Shopping Centre and the Casuarina Swimming Centre are also located approximately 1,300 m and 1,700 m (respectively) south of RDH.
- West – Casuarina Coastal Reserve is located directly adjacent to the west of RDH and Darwin Harbour is approximately 1.1 km further to the west.

Zoning within the NT Planning Scheme of land surrounding the RDH campus is illustrated in Figure 3.

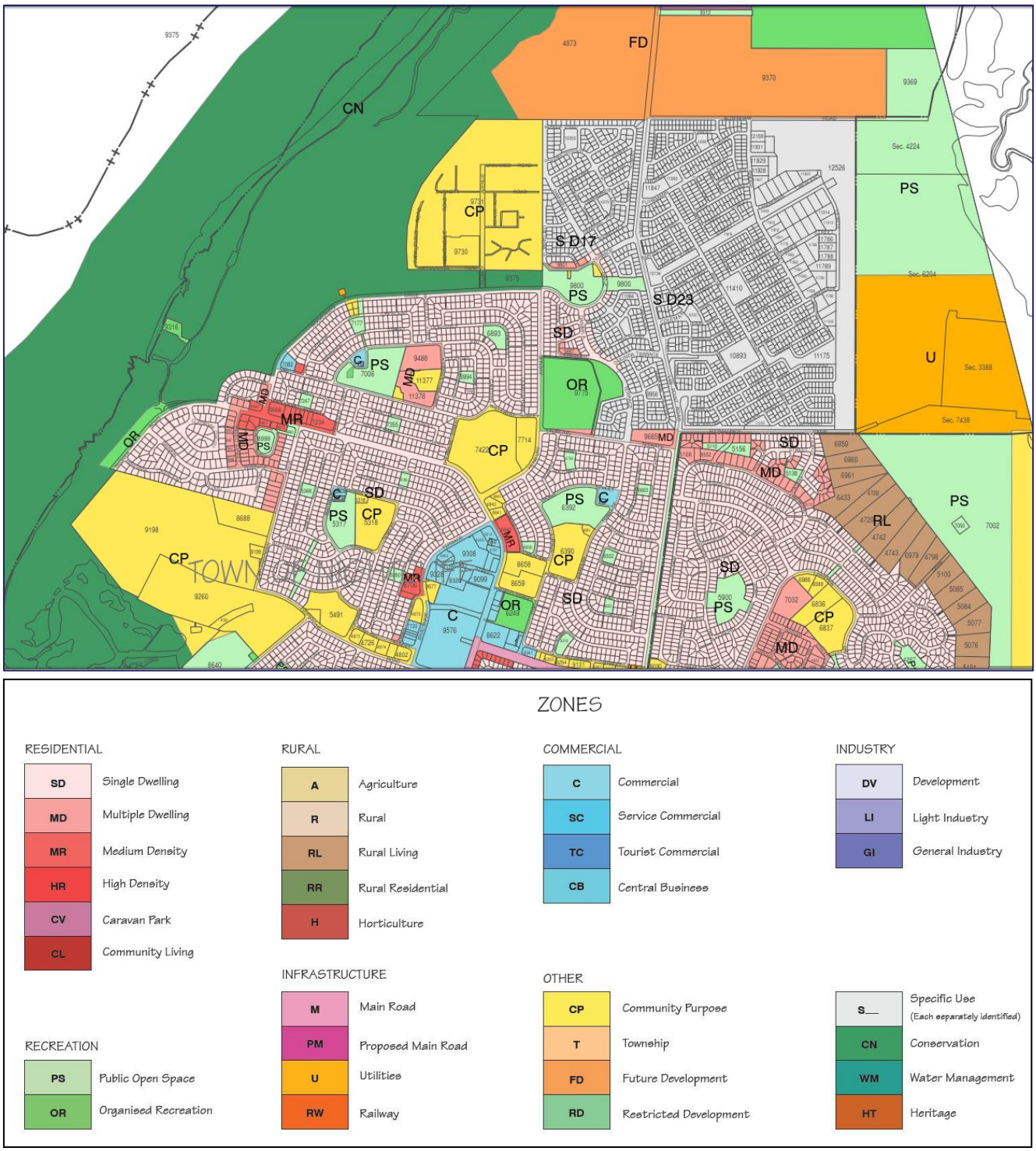


Figure 3: Zoning surrounding RDH taken from NT Planning Scheme *Darwin* Map

2.4. Climate

The Darwin region experiences a monsoonal climate with distinct wet and dry seasons. Based on the Bureau of Meteorology (BoM) Darwin Airport weather station records from 1941-2019, Darwin receives, on average 1,727 millimetre (mm) of rainfall annually, with nearly all of that falling during the months of December to April. Total annual rainfall for Darwin Airport in 2019 was 1,076.4 mm is 62% of the long-term average of 1,722.9 mm; the second-lowest annual rainfall recorded since 1941 and the lowest annual rainfall recorded since 1946.

Rainfall records are reported specifically for RDH by the BoM from 1995-2019. Total annual rainfall for 2019 was 1,063.3 mm, 61 % of the long-term annual average of 1,737.8 mm.

The mean daily maximum temperature for Darwin Airport in 2019 was 33.0 °C, 0.9 °C above the long-term average of 32.1 °C. The highest daily maximum temperature in 2019 was 38.2 °C on 21 October (Darwin Airport's second warmest day on record). The lowest daily maximum temperature in 2019 was 26.2 °C on 4 June. Darwin Airport had a record 45 days of 35 °C or above in 2019, including a record run of 11 consecutive days in December.

The mean daily minimum temperature for Darwin Airport was 23.2 °C, equal to the long-term average. The coldest morning was 12.7 °C on 25 June, and the warmest morning was on 27 Dec when the minimum temperature was 30.2 °C (the highest daily minimum ever recorded at Darwin Airport).

Mean maximum temperatures, as recorded during the period from 1941 to 2011, vary between 30.5 °C in July and 33.3 °C in November while mean minimum temperatures vary between 19.3 °C in July and 25.3 °C in November/December. Mean daily evaporation ranges from 5.7mm in February to 8.0mm in October (BoM, 2015b).

No rainfall data is reported by the BOM for RDH site.

2.5. Hydrology and Hydrogeology

2.5.1. Hydrology

It is anticipated that stormwater runoff and overland flow at RDH would generally drain following local topography and/or into existing drainage channels; south and west towards Casuarina Coastal Reserve and ultimately Darwin Harbour. Flows are expected to be at a maximum during the wet season. The closest watercourse is on the southern boundary of RDH which runs west then north, discharging to Darwin Harbour. Further afield are Rapid Creek, approximately 2.3 km south-west and Buffalo Creek, approximately 2.4 km east.

The Waste Management Facility includes drainage infrastructure for a small amount of incidental wastewater from the autoclave waste sterilisation treatment system. Release of wastewater from the process is directed to sewer only with no release to stormwater due to the above and the area containing the system being bunded and drained to floor waste with no ponding on the floor.

2.5.2. Hydrogeology

A general review of regional hydrogeological settings, groundwater occurrence and groundwater quality for the Darwin region is presented in Verma (2002). Regional aquifers generally occur within the Cretaceous and Proterozoic sediments and rocks. Verma (2002) notes that the Burrell Creek Formation typically contains minor aquifers and the Cretaceous Bathurst Island Formation is not classified as an aquifer because bores in this area often become dry during the Dry season due to water level fluctuations. As indicated in Haig and Townsend (2003), aquifer recharge in the Darwin Harbour catchment occurs during wet seasons arising from the direct infiltration of water into the regional aquifer(s) during December through to May. Although in some years, recharge can begin as early as October and end as late as June.

Reference to published groundwater and hydrogeological mapping indicates that the Burrell Creek formation underlying the site is a fractured weathered rock with minor groundwater resources. It is classified as a Local Scale Aquifer.

Groundwater information obtained from the NRETAS bore records indicates that the closest current bore is installed in the south-west corner of RDH, approximately 500 m to the south-west of the Waste Management Facility (https://nrmaps.nt.gov.au/nrmaps.html accessed 2/9/20). Drilling records indicate first water strike occurred at 4 m below ground level.

No groundwater quality data is available for the site, however it is expected to not be saline (1:250,000 Hydrogeological Map of Darwin Sheet SD 52-4).

3. Legislative and Other Requirements

The NT Health Care Sector has a 'Duty of Care' to protect public health and the environment in relation to Clinical and Related Waste and must also comply with applicable legislation, standards and guidelines. It is important that the sector ensures that there is no adverse health and environmental consequences from activities associated with waste handling, treatment and disposal.

Specific to the environment, the two primary duties that apply to everyone in the Northern Territory are:

- **general environmental duty** – which means a person must not carry out any activity that causes or is likely to cause environmental harm, unless measures to prevent or minimise the harm have been taken; and
- **duty to notify of environmental harm** – to inform the administering authority and landowner or occupier when an incident has occurred that may have caused or threatens serious or material environmental harm.

The development of the Environmental Emergency Management Plan has been undertaken with consideration to these duty of care obligations and with the applicable requirements of the legislation, codes of practice, standards and guidelines listed in Tables 2, 3, 4, 5 and 6.

This plan must compliment Territory Emergency Management arrangements specifically, the *Emergency Management Act 2013* (NT), the Territory Emergency Plan, Northern Region Medical Group Emergency Response Plan, TEHS Emergency Management Policy/Guidelines and the *Work Health and Safety Act* (Regulation 43).

Table 2: Northern Territory Legislation Relevant to the Operation of the Facility

Northern Territory Legislation	
Building Act 1993 and regulations	Provides for the establishment of technical standards for buildings, the registration of building practitioners and certifiers, the regulation of building matters, the granting of building and occupancy permits, and the establishing of a building appeal process.
Dangerous Goods Act 1998 and regulations	Provides for the safe storage and handling of dangerous goods. Clinical and related wastes are classified as hazardous waste under this Act.
Environmental Offences and Penalties Act 1996 and regulations	This Act establishes and describes penalties for certain offences relating to the protection of the environment. The Regulations schedule which particular Acts prescribe such offences.
Emergency Management Act 2013	This act provides the legislative framework for the three-tier emergency management system of local, regional and territory plans used in the Northern Territory
Notifiable Diseases Act 1981	This Act requires doctors and laboratories to notify diseases, which are scheduled under the Act, immediately to the Department of Health's Centre for Disease Control
Planning Act 1999 and regulations	Provides for appropriate and orderly planning and control of the use and development of zoned land. For example, RDH is zoned as "Community Purposes", which under the NT Planning Scheme,

	provides for community services and facilities such as hospitals and related facilities such as the autoclave.
Medicines Poisons and Therapeutic Goods Act 2012 and regulations	Regulates the manufacture, supply, use. Handling and disposal of medicines, poisons and therapeutic goods.
Public and Environmental Health Act 2011 Public Health (General Sanitation, Mosquito Prevention, Rat Exclusion and Prevention) Regulations	Establishes public health nuisances as offences. Defines them as anything that puts, has put or will put at risk or damages, has damaged or will damage public health. Public health means the physical, mental and social wellbeing of the community. Relates to dust, fumes, vapour or other emissions, water, and refuse. Part II of these regulations relates to general sanitation (including food waste, protection of water supplies, and installation of septic tanks). Part lll pertains to mosquito prevention.
Radiation Protection Act 2004 and regulations	Provides for the safe control of all radiation sources to protect the public and environment from radiation impacts. The use, transport, handling and disposal of radiation sources and related equipment require licensing and certification under this Act.
Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) 2011 Act and regulations	Regulates the transport of dangerous goods by road and rail. Most clinical and related waste falls under the UN Recommendations on the Transport of Dangerous Goods Classification Class 6: Toxic and Infectious Substances. Radioactive waste, which is Class 7: Radioactive Substances is regulated under the Radiation Protection Act (NT) and Australian Radiation Protection and Nuclear Safety Act 1998 (Commonwealth).
Waste Management and Pollution Control 1998 Act	Provides for protection of the environment by encouraging effective waste management and pollution prevention and control practices; including noise, air and water pollution. Establishes environmental nuisances as an offence. Any water discharge or waste management must comply with relevant sections of the Act. Environment Protection Authority (EPA) approval may also be required. Under Schedule 2 of the Act: Clinical Waste is a listed waste and Activities that Require Approval or License includes Collecting, transporting, storing, re-cycling, treating or disposing of a listed waste on a commercial or fee for service basis, other than in or for the purpose of a sewerage treatment plant.
Water Supply and Sewerage Services Act 2000	Provides for the protection of the NT's water supply system, or any water source from which water is drawn for human consumption. Any abstraction or diversion of water from the NT's supply system must not be undertaken unless authorized by the appropriate authorities. Penalties are in place for pollution of any water supply or source. Under section 47(6) of this Act, RDH is required to have a Trade Waste Agreement with Power and Water Corporation. This Act defines "trade waste" as "liquid or liquid borne waste generated from any industry, business, trade, manufacturing process of similar that is approved for discharge to sewer but does not include wastewater

	from a toilet, shower, hand basin or similar fixture". Waste water discharged from the autoclave to sewer is classed as trade waste and is included in the RDH Trade Waste Agreement with Power and Water.
Work Health and Safety (National Uniform Legislation) Act 2011	Aims to secure the health and safety of workers and workplaces. This includes a primary duty of care requiring employers to, so far as is reasonably practicable, ensure the health and safety of workers and others who may be affected by the carrying out of work e.g. ensuring that healthcare staff are not exposed to the risks presented by clinical and related wastes.

Table 3: Commonwealth Legislation Relevant to the Operation of the Facility

Commonwealth Legislation	
National Environment Protection Council Act 1994	Section 14 of this Act and the equivalent provision of the corresponding Act of each participating State and Territory provides for the making of National Environment Protection Measures (NEPMs) by the National Environment Protection Council (NEPC) and the matters to which they may relate. The NEPM relating to the Movement of Controlled Waste between States and Territories relates to the matters set out in paragraphs 14(1)(a), (b), (e), and (f) of this Act. Clinical and related waste is a “controlled waste" under this NEPM, and as such. its handling and transport must comply with the provisions in this NEPM.
National Greenhouse and Energy Reporting Act 2007	introduces a single national reporting framework for the reporting and dissemination of information about the greenhouse gas emissions, energy consumption, and energy production of businesses that meet a particular emission threshold.
Therapeutic Goods Act 1989	Regulates the manufacture, supply, use, handling and disposal of medicines, poisons and therapeutic goods.
Australian Radiation Protection and Nuclear Safety Act 1998 and regulations	Regulates the use, transport, handling and disposal of radiation sources and related equipment.

Table 4: Northern Territory Department of Health Guidelines Relevant to the Operation of the Facility

NT Department of Health Guidelines	
RDH Infection Control Manual - Infection Control Policy and Procedures	This Manual outlines RDH's policies, procedures and precautions for infection control to be carried out by Hospital staff. This includes the management of clinical and related waste (see Section 15 of the Manual). Appendix 2 of this Manual contains the RDH Waste Management Plan, which aims to assist managers and personnel of RDH to implement waste management standards and comply with

	relevant NT legislation and national guidelines. The Plan also provides a basis for achieving continuous improvement in waste management at RDH.
Standardised Guideline for Network-Waste Management	This Standardised Guideline is a summary of the waste management procedures expected of staff in safely handling all waste streams generated by healthcare facilities in the NT.
Clinical and Related Waste Management TEHS Guideline	This guideline provides assistance to healthcare workers on methods of managing all streams of waste generated by TEHS healthcare facilities in a safe manner.
Cytotoxic Medication Management TEHS Guideline	This guideline provides information on the safe handling of cytotoxic medications and related waste and maintenance of patient, staff and environmental safety in TEHS adult cancer treatment settings and TEHS hospitals.

Table 5: National Codes of Practice Relevant to the Operation of the Facility

National Codes of Practice	
Industry code of Practice for the Management of Biohazardous Waste (incl. clinical & related Waste); Biohazard Waste Industry a Division of the Waste Management Association of Australia; 7th Edition, July 2014	This Code aims to progress towards Environmental Best Practice and achieving consistency in Industry practice through uniform guidelines on the classification, handling, transportation, treatment and disposal of clinical and related waste in Australia.
Australian Guidelines for the Prevention and Control of Infection in Healthcare 2010, National Health and Medical Research Council (NHMRC)	These guidelines provide recommendations that outline the critical aspects of infection prevention and control. The recommendations were developed using the best available evidence and consensus methods by the Infection Control Steering Committee. They have been prioritised as key areas to prevent and control infection in a healthcare facility. It is recognised that the level of risk may differ according to the different types of facility and therefore some recommendations should be justified by risk assessment. When implementing these recommendations all healthcare facilities need to consider the risk of transmission of infection and implement according to their specific setting and circumstances.
National Environment Protection (Movement of Controlled Waste between States and Territories) Measure (NEPM), as varied November 2010, National	This NEPM ensures that controlled wastes moved between States and Territories are properly identified, transported, and handled in ways that are consistent with environmentally sound practices. These management systems include tracking systems to ensure controlled wastes are directed to and reach appropriate facilities, prior notification systems to assess the appropriateness of proposed

Environment Protection Council (NEPC)	movements of controlled wastes in terms of transportation and a facility selection process, and the licensing and regulation of generators, transporters and facilities so that tracking and notification functions are compatible with participating State and Territory requirements.
Australian Code for the Transport of Dangerous Goods by Road & Rail 1997, 7th Edn, National Transport Commission (NTC)	This Code sets out the requirements for transporting dangerous goods by road or rail. The Code has no force by itself, but is given force in each Australian State and Territory by laws that incorporate the Code as law by stating that it applies as law i.e.. in the NT, the relevant Act is the Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act (NT) and regulations. Clinical and related waste falls under the UN Recommendations on the Transport of Dangerous Goods Classification Class 6: Toxic and Infectious Substances; except for radioactive waste, which is Class 7: Radioactive Substances.
Code of Practice for the Safe Transport of Radioactive Material, Radiation Protection Series Publication No. 2, 2008 Edition, Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)	The regulation of the transport of radioactive material in Australia is based on international requirements published by the International Atomic Energy Agency (IAEA). The regulatory frameworks of the Commonwealth, State and Territory jurisdictions currently apply the Code of Practice for the Safe Transport of Radioactive Material which, in turn, adopts the IAEA's Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised) (No. TS-R-1 (ST—1, Revised)). The Code establishes requirements for adoption by Commonwealth, State and Territory jurisdictions that will maintain a system for the safe transport of radioactive material by road, rail and waterways.

Table 6: Standards Relevant to the Operation of the Facility

Standards
Australian/New Zealand Standard AS/NZS 3816:1998. Management of clinical and related wastes
Australian Standard AS 4031:1992/Amdt 1-1996. Non-reusable containers for the collection of sharp medical items used in health care areas
Australian/New Zealand Standard AS/NZS 4261:1994/Amdt 1-1997. Reusable containers for the collection of sharp items used in human and animal medical applications
Australian/New Zealand Standard AS/NZS 4478:1994. Guide to the reprocessing of reusable containers for the collection of sharp items used in human and animal clinical/medical applications
AS 4939—2001- Non-reusable personal use containers for the collection and disposal of hypodermic needles and syringes
Australian Standard AS 1210:1997. Pressure vessels
Australian Standard AS 1657-1992, Fixed platforms, walkways, stairways and ladders — Design, construction and installation

Australian Standard AS1319—1994, Safety signs for the Occupational Environment
National Standard for Occupational Noise [NOHSC:1007(2000)]
Australian Standard 4083-2010 planning for emergencies – health facilities,
World Health Organisation- Safe management of wastes from health-care activities 2014

4. Waste Stream Descriptions

This EERP deals only with the management of waste handled through the Waste Management Facility. That is, clinical waste types treated by the autoclave, as well as anatomical, cytotoxic and pharmaceutical wastes stored in the refrigerated unit within the facility prior to transport to Adelaide.

This EERP does not include the management of chemical, radioactive, and non-clinical liquid waste; as well as general, recyclable, and confidential waste, which are handled through separate respective waste streams, as outlined in the RDH Waste Management Plan.

Descriptions of the different waste streams generated through activities at the RDH, PRH and other health facilities serviced by the RDH Waste Treatment Facility, including those not handled by the facility are provided in the sections below.

4.1. Clinical Waste

Clinical waste is any material that **is saturated with or containing free-flowing or expressible blood or body fluids.** "Free flowing" is defined as blood, blood products or body fluid that is flowing, dripping, oozing, liquid or able to be squeezed from a material, and includes:

- Human body fluids such as saliva, mucus, pleural fluid, cerebrospinal fluid, pericardial fluid and any other fluid that is visibly contaminated with blood, and all body fluids generated from circumstances where there is a potential for the presence of infectious agents, are included in this category;
- Urine, faeces and vomitus are not generally included as clinical waste, unless they originate from a person with a known infectious disease or are visibly contaminated with blood;
- Infectious waste such as laboratory cultures and microbiological stocks; and
- waste including excreta and other materials that have been in contact with patients infected with highly infectious diseases in isolation wards

Clinical Waste is identified by the colour YELLOW and the International Biohazard Symbol, printed in black. As displayed below.

4.2. Related Waste - Sharps

Discarded sharps are objects or devices having sharp points, protuberances or cutting edges that are capable of causing skin penetrating injury to humans. Examples include hypodermic or other needles, scalpel blades, lancets, scissors, retractable safety devices, ampoules, trocars, IV giving sets with exposed spikes, bottles containing trace pharmaceuticals, syringes containing pharmaceuticals, and syringes containing S8 drugs.

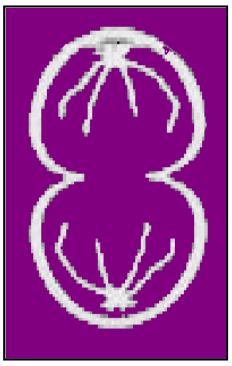
4.3. Related Waste - Anatomical

Anatomical waste consists of recognisable organs, bones and gross body parts such as limbs/digits and must be disposed of by incineration.

4.4. Related Waste - Cytotoxic

Cytotoxic waste is material that is, or may be, contaminated with a cytotoxic drug during the preparation, transport or administration of an antineoplastic agent.

Cytotoxic Waste is identified by the colour purple and the International Symbol printed in white as displayed below.



4.5. Related Waste - Pharmaceutical

A pharmaceutical product means a restricted drug under the Northern Territory of Australia, Poisons and Dangerous Drugs Act.

Pharmaceutical products are those that:

- Are expired or have contaminated packaging;
- Have been returned by patients or discarded by the public;
- Are no longer required by the public; and
- Waste generated during the manufacture of pharmaceutical products including filters.

4.6. Related Waste - Chemical

Includes waste that is generated from the use of chemicals in clinical areas (medical, dental and laboratory procedures) and non-clinical areas (gardening, engineering and housekeeping).

- Chemical waste includes mercury compounds, pesticides and herbicides but does not include pharmaceutical waste and Cytotoxic waste for which specific procedures apply.
- Chemical waste must be disposed as detailed in the Material Safety Data Sheet (MSDS) for each individual hazardous substance.

- Waste contractors must hold a current EPA licence for the disposal of hazardous waste as required by legislation.

4.7. Related Waste - Mercury / Amalgam

- Mercury or amalgam must NOT be disposed of with any other type of waste.
- Amalgam for disposal can be stored in an airtight container under water or photographic fixer to prevent fumes from escaping if the lid is removed. Removal of lids should be avoided where possible.

4.8. Related Waste - Confidential

Confidential waste is paper waste that contains sensitive information that could identify a patient/staff member or administrative issues for the Department of Health.

- Mass confidential waste is disposed into blue 240 litre wheelie bins with a slit in the lid which will be sent for shredding at an off-site waste contractor's secure waste facility.
- Office shredders can be utilised in appropriate areas for smaller amounts.

4.9. General Waste

General waste is any waste not included in the categories above and is not capable of being composted, recycled, reprocessed or re-used. This stream includes cotton swabs, incontinence pads, nappies, paper towel, paper products Intravenous/renal dialysis lines that have been flushed or emptied of whole blood.

- All general waste is placed in clear or black bags within a solid sided bin with a foot operated lid.
- Waste bags are not to be dragged along the floor nor carried against the body.
- General waste is transported off-site for disposal at the local council waste management facility.

Note: If IV additive labels can be removed then IV bag/line can be disposed of into general waste. If the IV label cannot be removed the bag/line must be disposed into clinical waste due to confidentiality reasons.

5. Potential Environmental Emergency Situations

RDH and PRH categorise emergency situations into different broad categories with colour codes based on the type of incident as outlined in Table 7.

Table 7: Categories of Emergency Situations used at the RDH.

Identified Emergency	Colour Code
Fire/Smoke	Code Red
Medical Emergency	Code Blue
Bomb Threat	Code Purple
Infrastructure and other internal emergencies	Code Yellow
Personal Threat (including Illegal Occupancy)	Code Black
External emergency (cyclone, mass casualties)	Code Brown
Evacuation	Code Orange

It should be noted that not all incident types will have incidents that potential to cause environmental harm, and the potential emergency situations considered in this plan have been selected primarily based on those that have the potential to cause environmental harm associated the RDH Waste Management Facility Building and the associated activities licensed under EPL 246-01.

An Environmental Risk Assessment was undertaken to assist in identifying emergency situations associated with the Facility's operation that have the potential to result in damage to flora or fauna, ecosystems, waterways, soil or wider elements of the environment, taking into account the physical environmental aspects of the Facility's location and surrounding environmental receptors and land users as detailed in Section 2. A copy of the Environmental Risk Assessment and Risk Matrix are included in Appendix A.

Emergency situations causing damage to infrastructure or resulting in harm to RDH staff or patients, site visitors or the wider Darwin population that do not have potential environmental consequences have not been included in this plan.

The events listed in Table 8 are not intended to be exhaustive, but represent those likely to occur based on the Facility's geographic and physical setting and the nature of the facilities operation which may detrimentally impact the flora or fauna, ecosystems, waterways, soil or wider elements of the environment directly on the RDH grounds or in more serious events the wider environment.

Table 8: Emergency with the potential to cause environmental harm covered by this plan

Emergency Event	**RDH Colour Code**		**Response Plan in Location in EERP**
Emergency Evacuation	Code Orange		Section 8.1
Tropical Cyclone or Major Storm Event	Code Brown		Section 0
Earthquake	Code Brown		Section 8.3
Fire or Smoke	Code Red		Section 8.4
Catastrophic Autoclave Failure*	Code Yellow	Operational Disruption	Section 8.5
Clinical Waste Spill at Facility	Code Yellow		Section 0
Clinical Waste Spill During Collection or Transport	Code Yellow (on-site)	Code Brown (off-site)	Section 8.7
Cytotoxic Waste Spill at Facility	Code Yellow		Section 8.8
Cytotoxic Waste Spill During Collection or Transport	Code Yellow (on-site)	Code Brown (off-site)	Section 8.9
Hazardous Waste Identified in Clinical Waste Stream	Code Brown		Section 1.1
Power Failure*	Code Yellow	Operational Disruption	Section 8.11
Drainage System Leak or Blockage*	Code Yellow	Operational Disruption	Section 0

* Some events may only be classed as an Operational Disruption event, rather than a Code Yellow Internal Emergency, generally this will be determined by Engineering Services once they have been notified of the event.

6. Responsibilities

6.1. General Responsibilities

The responsibilities of staff and contractors in relation to the Waste Management Facility are outlined below.

In general, employers and contractors are responsible for:

- Providing appropriate information
- Providing education

- Providing training
- Ensuring safe work environment is developed and maintained

In general employees and contractors are responsible for:

- Compliance with health and safety instructions
- Correct use of all personal protective equipment
- Avail themselves of relevant information and training programs

The RDH Infection Control Manual states that:

- Managers of each unit have a responsibility to ensure correct management of clinical waste is being undertaken including the proper segregation of waste types.
- The Infection Control Unit reviews the effectiveness of waste management in consultation with all levels of waste collection, handling and disposal.
- The Infection Control Unit is responsible for initial waste management education for every employee at orientation and that on-going education is also provided in response to problems being identified.
- Every employee has a responsibility to provide a safe workplace and safe systems of work in accordance with the Work Health and Safety (National Uniform Legislation) Act 2011.

6.1.1. Campus Facilities Manager

The Campus Facilities Manager is responsible for overseeing the overall management of facilities across the RDH Campus; including the Waste Management Facility. The Campus Facilities Manager also ensures the regulatory compliance of all facilities, such as applications for Environment Protection Licenses and Trade Waste Agreements as well as the on-going monitoring, reporting, auditing and compliance of facilities in relation to these licenses and agreements.

The Campus Facilities Manager is the primary contact for all public and government enquiries regarding RDH facilities.

6.1.2. Grounds and Waste Management Supervisor

The Grounds and Waste Management Supervisor is responsible for overseeing the day-to-day operations of the Waste Management Facility. This includes overseeing operations and on-going maintenance of the autoclave and other equipment and plant within the Facility. Managing the collection and transfer of waste, from its source to the Facility and collection and transport of waste from the facility to landfill or to Adelaide for incineration.

The Grounds and Waste Management Supervisor ensures that staff are trained in their tasks and that they are performing their tasks effectively and in accordance with policies and procedures; including those outlined in this EERP.

The Grounds and Waste Management Supervisor is responsible for delegating monitoring and reporting requirements and for ensuring that all environmental inspections, monitoring and reporting are completed to the best possible standard. This includes the recording of all required data and information for the Environment Protection License and Trade Waste Agreement and any other regulatory requirements.

The Grounds and Waste Management Supervisor also ensures the on-going management of any identified hazards and risks, together with the introduction of processes for the elimination and/or control of these risks by:

- Carrying out a review of a hazard and/or risk when it is identified.
- Ensuring that each new employee receives induction training and as necessary, refresher training, for the management of occupational health and safety.

- Consulting with employees to enable employees to contribute to the making of decisions affecting their health, safety and welfare at work, and recording those arrangements.

6.1.3. All Generators of Clinical Waste

All employees of RDH, as well as other healthcare facilities and generators of clinical waste must segregate the waste at its source to ensure only clinical waste is sent to the Waste Management Facility in the appropriate containers and is not mixed with general or other waste not permitted for treatment and storage at the Facility.

6.1.4. All Contractors Transporting Clinical Waste

All contractors transporting waste to and from the Facility must ensure they have the required licenses and comply with all relevant legislation; see Section 3 *Legislative and Other Requirements*.

6.2. Responsibilities Under this Plan

Responsibilities for staff and contractors specific to this plan are outlined in Table 9.

Table 9: Responsibilities under this plan.

Role(s)	**Responsibility**
Approval of this Plan	TEHS A/Executive Director of Strategy and Planning- Infrastructure Support.
Implementation of this plan	TEHS, RDH and PRH Emergency Management Team under the direction of the RDPH Emergency Management Commissioner (EMC)
Review and amendment of this plan	Principal Emergency Management Advisor (RDH) or Emergency Management WHS Consultant (PRH)
Readiness and response activities of RDH support services: hotel services (laundry, catering, housekeeping) , switchboard, registry and, stores and ongoing essential support services during incident	Director of Infrastructure & Support Services
Readiness of Engineering Department and campus (infrastructure and essential services) and ongoing support services during incident Readiness of security services Classification of events involving waste treatment equipment, and utilities/services as Operational Disruption events or Code Yellow – Internal Emergency	Director Hospital Engineering Services/ Engineering Manager
Dissemination of information	Emergency Management Committee Members
Readiness and response activities for work area	Security Manager (Chief Warden RDH during 'office hours')

Instructing the opening of the secondary entry/exit point accessible from Lyons for essential services staff access in the event that the main access (Rocklands Drive) is blocked to traffic	Hospital Incident Controller
Initial response activities for Code Red, Code Purple, Code Black and Code Orange, until arrival of an Incident Manager.	Chief Warden
Advising of return to work where an incident has required the 'release of duty' of staff	Grounds and Waste Management Supervisor
All staff and contractors	Reporting events that have caused or are likely to cause environmental harm

The severity of potential environmental consequences resulting from emergency situations have been graded using the categories in Table 10, with the associated RDH staff or teams responsible managing the response listed against each category.

Table 10: Categorisation of potential environmental consequences and associated RDH response.

Category	Environmental Consequence	RDH Responsible Party
5	Destruction of sensitive environmental features, habitat loss, species loss or irreversible damage to world heritage sites or ecosystems. Regulatory & high-level Government intervention/action required	Crisis management team, Incident management team, Emergency response team, Field response team
4	Long-term impact of regional significance on sensitive environmental features requiring intervention or support to assist ecosystem, habitat or species recovery. Regulatory intervention/action.	Incident management team, Emergency response team, Field response team
3	Short term impact on sensitive environmental features, reversible damage to ecosystems, species or habitat requiring monitoring intervention not necessary but may assist. Triggers regulatory investigation	Emergency response team, Field response team
2	Impact on fauna, flora and/or habitat but no negative effects on ecosystem. Requires immediate regulator notification.	Field response team
1	Negligible impact on flora/fauna, habitat, aquatic ecosystem or water resources. Crisis reporting as per routine protocols/not required.	General staff or local team

7. Emergency Contacts

Contact details for relevant internal and external contacts in the event of abnormal or emergency situations are provided in Table 11.

Table 11: Emergency Contacts

Emergency Contact Details				
Name	**Availability**	**Purpose**	**Position**	**Number**
Jodi Nobbs	**Business Hours**	N/A	A/Executive Director Strategy and Planning- Infrastructure & Support Services, - Top End Health Service	T: 08 8922 6901 M: 0428 689 401 Email: Jodi.nobbs@nt.gov.au
James Akunoori	**Business Hours**	N/A	Grounds and Waste Management Supervisor -RDH and PRH	T: 08 8922 8129 M: 0401 116 247 Email: James.akunoori@nt.gov.au; RDHWasteManagement.DoH@nt.gov.au
Department Media Liaison Officer	**Business Hours**	General Public Enquiries	Department Media Liaison Officer - Royal Darwin Hospital	T: 08 8922 8833 M: -0436 933 810 Email: - TEHSCommunications@nt.gov.au
Senior Director Infrastructure and Support Services	**Business Hours**	N/A	Senior Director Infrastructure & Support Services, Infrastructure Services - Top End Health Service	T: 08 892 26901 M: - 0428 689 401 Email: - Jodi.nobbs@nt.gov.au
TEHS Emergency Management Response	**Business Hours/ After Hours**	All Emergencies	TEHS Emergency Management Response	T; N/A M: N/A Email- EmergencyManagementTEHS.DoH@nt.gov.au
RDH Engineering	**Business Hours/ After Hours**	Machinery Issues	Engineering Services - Royal Darwin Hospital	T: 08 892 28093/ 08 892 28194 (Business Hours) or RDH Switchboard 28888/ *** (After-hours) M: - Email: - EngineeringServicesRDH.THS@nt.gov.au
Engineering Services	**Business Hours/ After hours**	Machinery Issues	Engineering Services - Royal Darwin Hospital	T: 28556 (Business Hours) or RDH Switchboard 999 (After-hours) M: - Email: - EngineeringServicesRDH.THS@nt.gov.au
Waste Management Supervisor	**Business Hours/ After Hours**	Arrangements for emergency clinical waste	Grounds and Waste Management Supervisor -RDH and PRH	T: 08 8922 8129 M: 0401 116 247 Email: James.akunoori@nt.gov.au
Waste Management Office	**Business Hours/ After Hours**	Arrangements for waste, inspections and internal complaints	Waste Management Office - Royal Darwin Hospital	T: 08 8922 8129 M: 0401 116 247 Email: RDHWastemanagent.DoH@nt.gov.au

Emergency Contact Details				
Name	**Availability**	**Purpose**	**Position**	**Number**
RDH Switch Board	**After Hours**	General waste breakdowns, external and internal complaints	RDH Switch Board	T: 08 8922 8888 (After Hours) M: N/A Email: SwitchboardRDH.THS@nt.gov.au
TEHS Hospital Resource Centre	**After Hours**	N/A	TEHS Hospital Resource Centre - Royal Darwin Hospital	T: 08 892 28126 (After Hours) M: 0401 116 415 Email: HRC.RDH@nt.gov.au
Pollution Hotline	**Emergency Contact**	Pollution Incident	Pollution Hotline - NT EPA	T: 1800 064 567 M: - Email: Environmentops.nretas@nt.gov.au
PWC	**Emergency Contact**	Pollution Incident	PWC	T: 08 8995 5808, 1800 245 092 Opt-1 M: 0401 118 123 Email: - customerservice@powerwater.com.au
NT Fire and Emergency Services	**Emergency Contact**	Emergency	NT Fire and Emergency Services	T: 000, 08 8999 3473 M: N/A Email: N/A
NT WorkSafe	**Emergency Contact**	Any Serious Injury, Illness, Dangerous Incident or Death in a Workplace	NT WorkSafe	T: 1800 019 115 M: N/A Email: N/A
Director Hospital Engineering Services	**Emergency Contact**	N/A	Director Hospital Engineering Services - Royal Darwin Hospital	T: - M: 0417 879 971 Email: -Neil.Bond@nt.gov.au
Engineering Services Switchboard	**Emergency Contact**	General Waste Breakdown and Inspection Arrangement	Engineering Services Switchboard - Royal Darwin Hospital	T: 08 892 28556 M: N/A Email: - EngineeringServicesRDH.THS@nt.gov.au
RDH Security	**Emergency Contact**	Site Security	RDH Security - Royal Darwin Hospital	T: 08 892 28140 M: N/A Email: SecurityRDH.THS@nt.gov.au

8. Emergency Procedures

This section outlines the potential environmental impacts, emergency preparedness measures (including prevention measures where relevant), and the steps to be undertaken during an emergency event for the specific types of emergency events covered by this plan his section outlines the procedures.

RDPH Emergency Management Plans have four stages of activation shown in Table 12 (excluding the Code Brown External Emergency Cyclone Plan which has six). For some emergency situations that occur suddenly within the facility (e.g. fire within the facility or spill) there may not be an alert or standby stage, in which case facility staff would need to act to initiate the response stage where safe to do so to prevent or minimise environmental harm. In most instances where the emergency is triggered from another part of the campus or due to external events however, the alert and standby stages will apply.

Table 12: Stages of Activation During an Emergency

Stage	Description	Additional Information
ALERT	Emergency possible – increase level of preparedness	No operational actions are required however the situation should be monitored by someone able to assess the potential threat Services may review their preparedness and confirm as ready
STANDBY	Emergency imminent – prepare for implementation of response	Operational state prior to response – heightened level of situational awareness Services may undertake preparedness activities but not activated May include the decision whether or not to establish and incident management team and Health Emergency Coordination Centre
RESPONSE	Emergency situation exists – implement response according to plans	Resources are mobilised, personnel are activated and operational activities are commenced Incident management team operational Actions underway to plan for business continuity and recovery operations
STAND DOWN	Emergency abated – return to usual business	There is no longer a requirement to respond to the event and the threat is no longer present Transition from response to 'back to normal core business' and/or business continuity arrangements Undertake hot debriefing (asap), cold debrief (within 2 weeks) and review of incident

The activation triggers, authority to activate and notification processes as outlined in Emergency Management RDH PRH Plan are included as Appendices B, C and D respectively and are reflected in the procedures included in this section.

For emergency events that involve the failure of, or require the shutdown of the autoclave, refer to Appendix E for further detail on procedures for shutting down the autoclave.

8.1. Emergency Evacuation (Code Orange)

An emergency evacuation may occur due to the emergency types listed below which may have additional procedures that apply as detailed in the sections specific to the types of emergency covered by this or other TEHS emergency response plans and sub-plans.

- Bomb Threat – Code Purple
- Personal Threat – Code Black
- Internal Emergency – Code Yellow
- External Emergency – Code Brown

8.1.1. Potential Environmental Impacts

Potential environmental impacts that need be considered in this type of emergency situation include:

- Treated or un-treated waste released to the environment due to:
    - unauthorised access or fauna incursion resulting in spill.

    - unsupervised treatment processes resulting in spill or leak.
- Release of noxious odours or pathogens due to:
    - Untreated clinical waste or cytotoxic waste not stored at the corrected temperature for prolonged period.

8.1.2. Preparedness

The following measures are to be in place in preparation for this type of event:

General Measures (under normal operating circumstances):

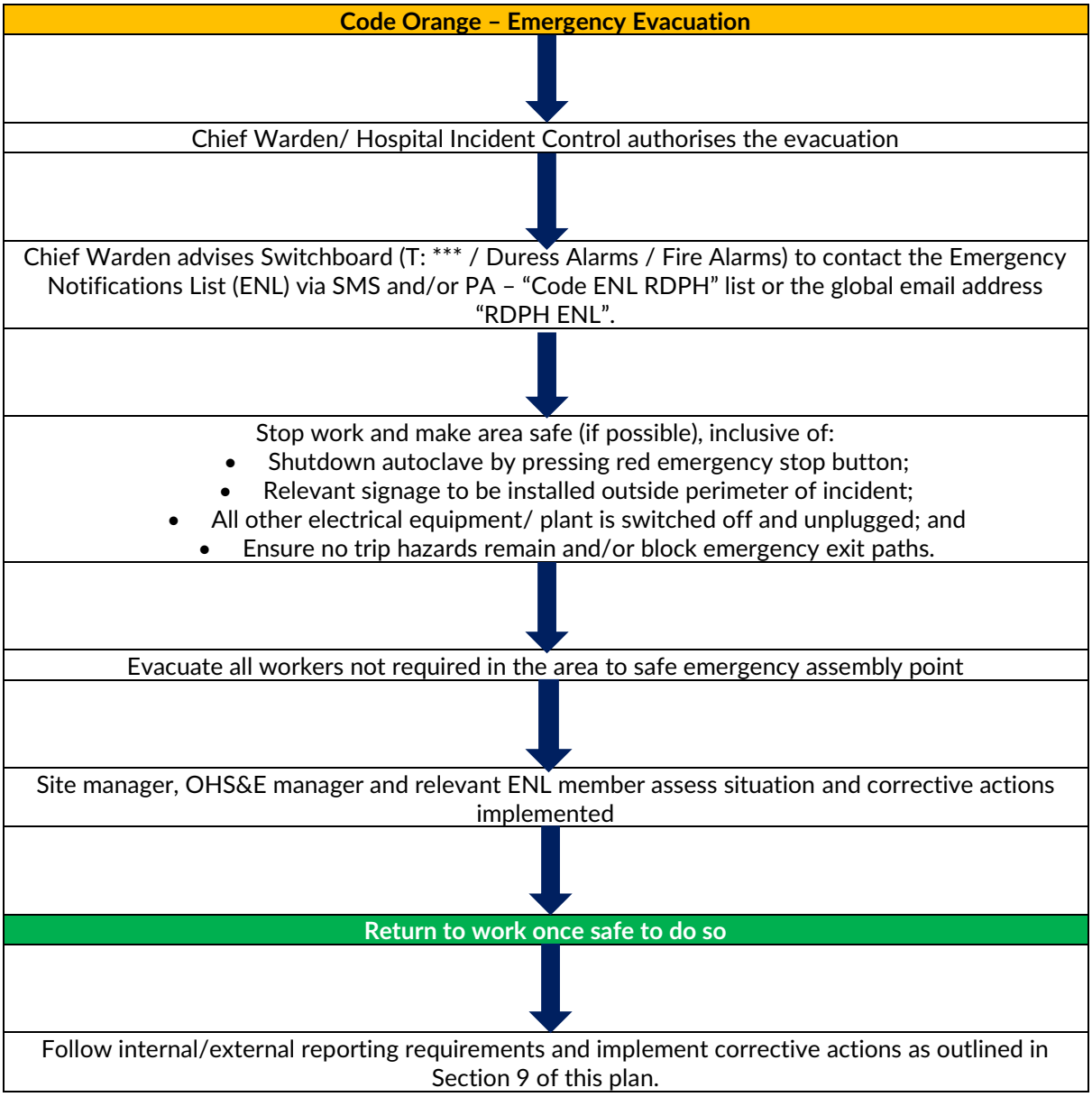
- Ensure all staff and contractors receive information on emergency evacuation requirements during inductions.
- Ensure all staff (and where relevant - contractors) receive training in emergency evacuation procedures and drills undertaken regularly.
- Maintain good house-keeping and security practices to minimise the amount of work required to secure the facility in the event of an evacuation.
- Ensure treatment and waste storage equipment and drainage systems are regularly maintained in accordance with the manufacturers requirements.

Standby Measures (where an emergency is imminent):

- Shut down autoclave using red emergency stop button.
- Shutdown any other processes that may be in progress and turn off equipment where it may cause a hazard if left unattended.
- Ensure bins containing untreated or treated waste are securely stored.
- Ensure evacuation pathways are clear.

8.1.3. Response Procedure

In the event that an Emergency Evacuation is required the steps outlined in the procedure below are to be followed.



8.2. Tropical Cyclone or Major Storm Event (Code Brown)

8.2.1. Potential Environmental Impacts

Potential environmental impacts that need be considered in this type of emergency situation include:

- Release of cytotoxic waste and treated and untreated clinical waste to the environment where the building is damaged by wind or inundated by intense rainfall potentially causing land, groundwater or surface water contamination and death or injury to flora and fauna where waste enter a downstream ecosystem.
- Release of contaminated water to the environment resulting from inundation of the drainage system due to heavy rainfall or localised flooding.
- Back-up of untreated waste where the facility is not able to operate for an extended period of time, resulting in impacts that may arise from unsuitable storage such as release of pathogens to air, increased risk of waste being released to the environment due to spills or vermin, and transmission of zoonotic pathogens to fauna.

8.2.2. Preparedness

General Measures (under normal operating circumstances):

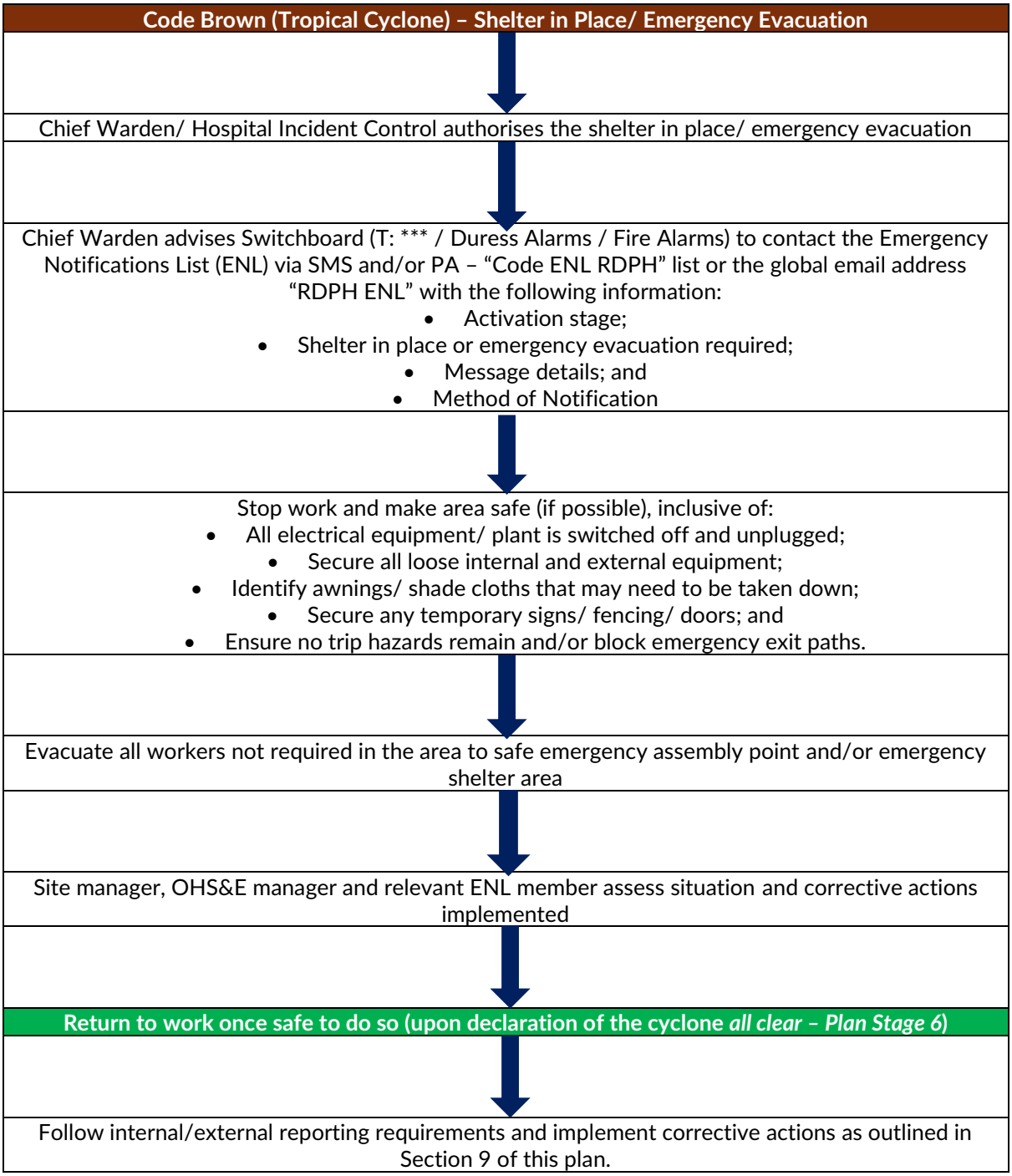
- Ensure all staff and contractors receive information on emergency preparedness and response requirements during inductions.
- Ensure all staff (and where relevant - contractors) receive training in emergency evacuation procedures and drills undertaken regularly.
- Maintain good house-keeping and security practices to minimise the amount of work required to secure the facility in the event of an emergency storm or tropical cyclone event.
- Ensure waste treatment and storage equipment and drainage systems are regularly maintained in accordance with the manufacturers requirements.
- Ensure empty waste bins are not stored outside during cyclone season.
- Ensure suitable spill kits are available and that their contents are regularly checked and replenished.

Standby Measures (where an emergency is imminent):

- Shut down autoclave using red emergency stop button.
- Shutdown any other processes that may be in progress and turn off equipment where it may cause a hazard if left unattended.
- Ensure all other non-essential electrical equipment is switched off and unplugged (contact Engineering Services to have the facility isolated).
- Ensure bins containing untreated or treated waste are securely stored.
- Secure all loose internal and external equipment.
- Identify awnings/ shade cloths that may need to be taken down.
- Secure any temporary signs/ fencing/ doors.
- Ensure no trip hazards remain and/or block emergency exit paths

8.2.3. Response Procedure

In the event that an Emergency Evacuation is required the steps outlined in the procedure below are to be followed.



8.3. Earthquake (Code Brown)

8.3.1. Potential Environmental Impacts

Potential environmental impacts that need be considered in this type of emergency situation include:

- Release of cytotoxic waste and treated and untreated clinical waste to the environment where the building is damaged potentially causing land, groundwater or surface water contamination and death or injury to flora and fauna where waste enters a downstream ecosystem.
- Release of contaminated water to the environment resulting from damage to the drainage system.
- Back-up of untreated waste where the facility is not able to operate for an extended period of time, resulting in impacts that may arise from unsuitable storage such as release of pathogens to air, increased risk of waste being released to the environment due to spills or vermin.
- Fire or explosion caused by damage to building, equipment or nearby services (refer to section on for impacts associated with fire and explosion).

8.3.2. Preparedness

General Measures (under normal operating circumstances):

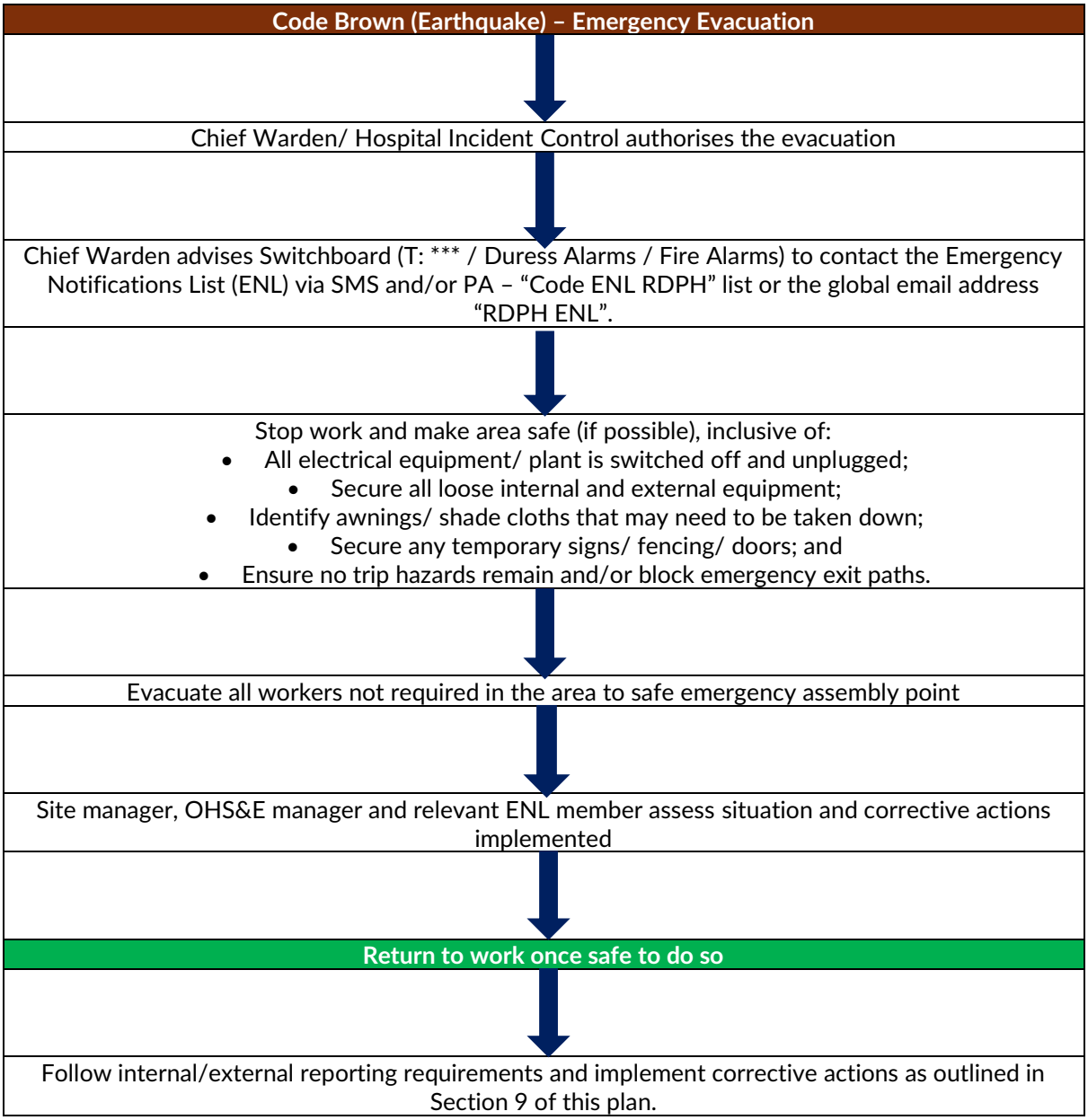
- Ensure all staff and contractors receive information on emergency preparedness and response requirements during inductions.
- Ensure all staff (and where relevant - contractors) receive training in emergency response procedures and drills are undertaken regularly.
- Maintain good house-keeping and security practices to minimise the amount of work required to secure the facility in the event of an emergency.
- Ensure waste treatment and storage equipment, and drainage systems are regularly maintained in accordance with the manufacturers requirements.
- Ensure suitable spill kits are available and that their contents are regularly checked and replenished.

Standby Measures (where an emergency is imminent) - It is unlikely that sufficient warning will be available to initiate standby measures prior to an earthquake, however an earthquake may cause building damage other types of emergency events that may trigger an evacuation in which case the following standby measures should be implemented:

- Shut down autoclave using red emergency stop button.
- Shutdown any other processes that may be in progress and turn off equipment where it may cause a hazard if left unattended.
- Ensure bins containing untreated or treated waste are securely stored.
- Ensure evacuation pathways are clear.

8.3.3. Response Procedure

In the event that an Emergency Evacuation is required the steps outlined in the procedure below are to be followed.



8.4. Fire or Smoke

8.4.1. Potential Environmental Impacts

Potential environmental impacts that need be considered in this type of emergency situation include:

- Release of toxins to atmosphere.
- Release of cytotoxic waste and treated and untreated clinical waste to the environment where the bins are damaged by fire potentially causing land, groundwater or surface water contamination and death or injury to flora and fauna where waste enter a downstream ecosystem.
- Release of contaminated water to the environment where fire-fighting water comes into contact with waste.
- Back-up of untreated waste where the facility is not able to operate for an extended period of time, resulting in impacts that may arise from unsuitable storage such as release of pathogens to air, increased risk of waste being released to the environment due to spills or vermin.

8.4.2. Preparedness

General Measures (under normal operating circumstances):

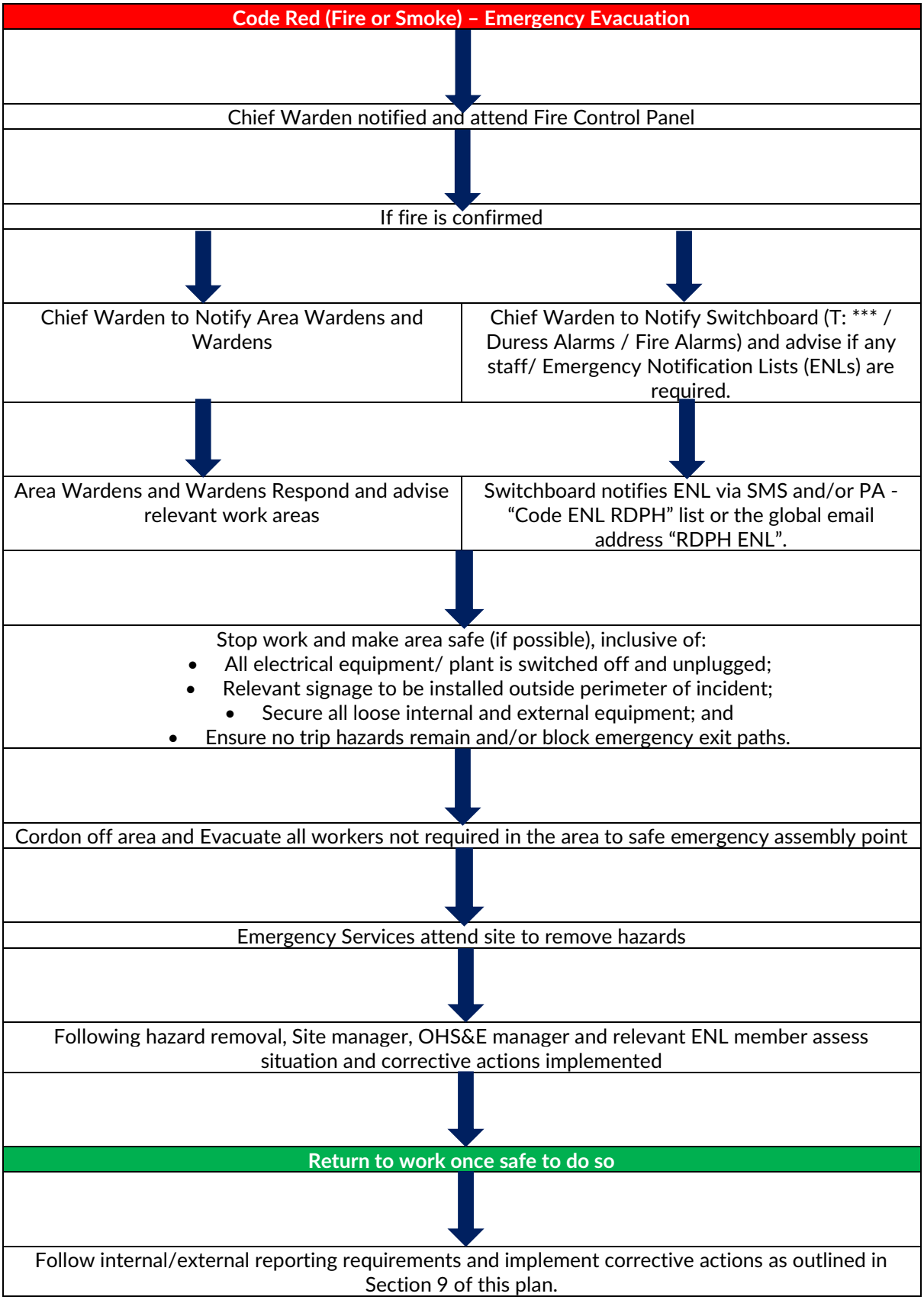
- Ensure all staff and contractors receive information on emergency preparedness and response requirements during inductions.
- Ensure all staff (and where relevant - contractors) receive training in emergency response procedures and drills are undertaken regularly.
- Maintain good house-keeping and security practices to minimise the risk of fire and the amount of work required to secure the facility in the event of an emergency.
- Ensure fire alarms, extinguishers, hoses and sprinkler are regular inspected, maintained and tested.
- Ensure waste treatment and storage equipment, and drainage systems are regularly maintained in accordance with the manufacturers requirements.
- Ensure suitable spill kits are available and that their contents are regularly checked and replenished.

Stand By Measures – where Code Red emergency has been raised in another part of the campus and evacuation is imminent. (For code red emergency in work area initiate response procedures):

- Shut down autoclave using red emergency stop button.
- Shutdown any other processes that may be in progress and turn off equipment where it may cause a hazard if left unattended.
- Ensure bins containing untreated or treated waste are securely stored.
- Ensure evacuation pathways are clear.

8.4.3. Response Procedure

In the event that an Emergency Evacuation is required the steps outlined in the procedure below are to be followed.



8.5. Catastrophic Autoclave Failure

8.5.1. Potential Environmental Impacts

Potential environmental impacts that need be considered in this type of emergency situation include:

- Release of treated and/or untreated clinical waste to the environment where the building is damaged potentially causing land, groundwater or surface water contamination and death or injury to flora and fauna where waste enters a downstream ecosystem.
- Release of contaminated water to the environment resulting from damage to the drainage system.
- Back-up of untreated waste where the facility is not able to operate for an extended period of time, resulting in impacts that may arise from unsuitable storage such as release of pathogens to air, increased risk of waste being released to the environment due to spills or vermin.

  Fire or explosion caused by autoclave failure (refer to section on for impacts associated with fire and smoke).

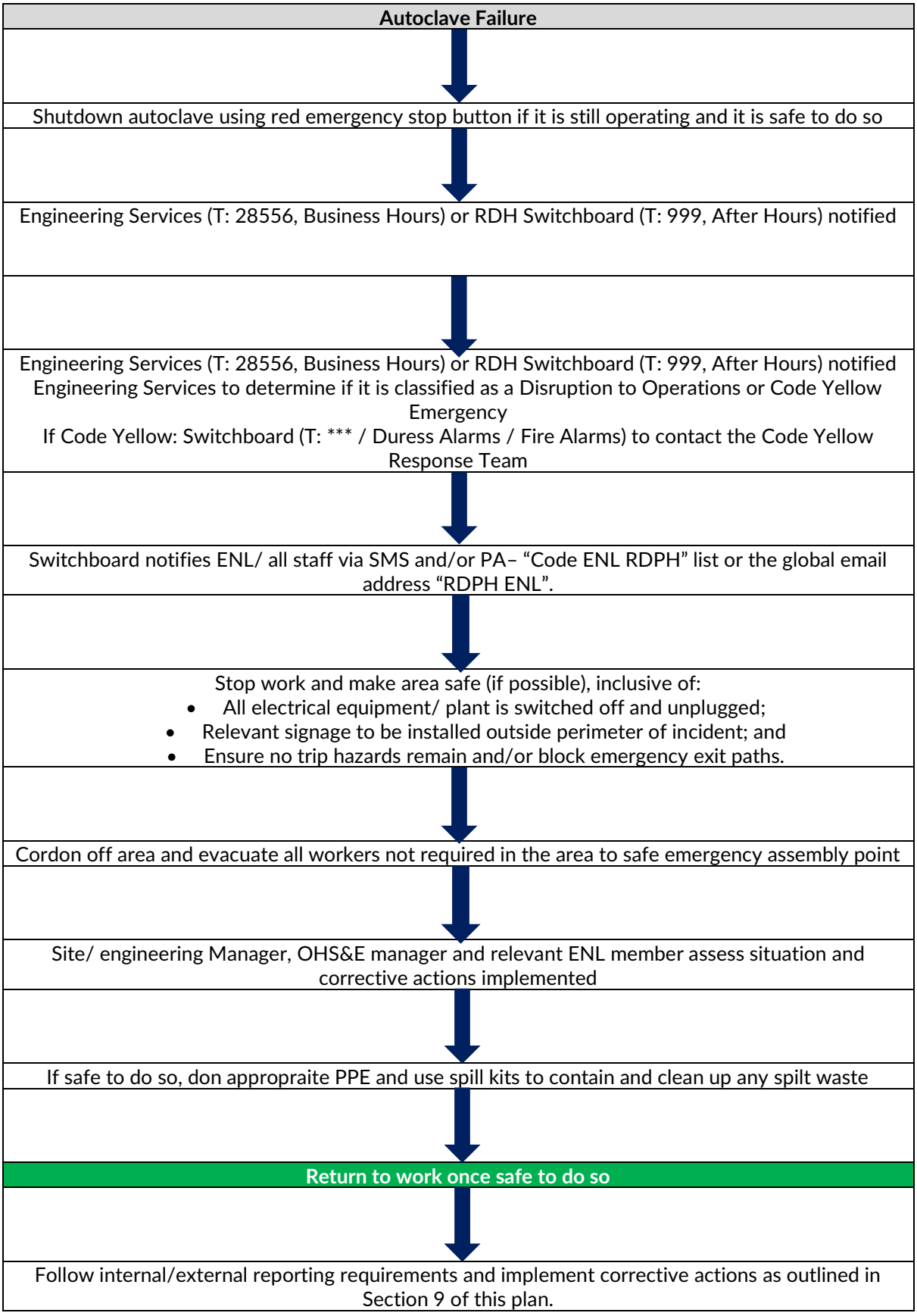
8.5.2. Preparedness

General Measures (under normal operating circumstances):

- Ensure all staff and contractors receive information on emergency preparedness and response requirements during inductions.
- Ensure all staff (and where relevant - contractors) receive training in emergency response procedures and drills are undertaken regularly.
- Maintain good house-keeping and security practices to minimise the amount of work required to secure the facility in the event of an emergency.
- Ensure waste autoclave is operated and maintained and inspected in accordance with the manufacturer's recommendations and all faults and issues reported to engineering for investigation/rectification.
- Ensure drainage systems and storage equipment are regularly inspected maintained.
- Ensure suitable spill kits are available and that their contents are regularly checked and replenished.

8.5.3. Response Procedure

In the event that a catastrophic autoclave failure occurs, the steps outlined in the procedure below are to be followed.



8.6. Clinical Waste Spill (at Facility)

8.6.1. Potential Environmental Impacts

Potential environmental impacts that need be considered in this type of emergency situation include:

- Release of treated and/or untreated clinical waste to the environment causing land, groundwater or surface water contamination and death or injury to flora and fauna where waste enters a downstream ecosystem.
- Release of pathogens to air.

8.6.2. Preparedness

General Measures (under normal operating circumstances):

- Ensure all staff and contractors receive information on emergency preparedness and spill response requirements during inductions.
- Ensure all staff (and where relevant - contractors) receive training in waste handling and spill response procedures and drills are undertaken regularly.
- Maintain good house-keeping practices.
- Ensure drainage systems and storage equipment are regularly inspected maintained.
- Ensure suitable biohazard spill kits are available and that their contents are regularly checked and replenished as necessary.

8.6.3. Response Procedure

In the event that a clinical wastes spill occurs (at Facility), the steps outlined in the procedure below are to be followed.

Code Yellow (Internal Emergency – Clinical Waste Spill Occurs) – Emergency Evacuation

↓

Stop work and make area safe (if possible), inclusive of:

- Remove all non-essential personnel from the work area
- Use Bio-Hazard Spill kit to contain spill after donning PPE
- Erect signage warning of the hazard outside perimeter of spill

↓

Engineering Services (T: 28556, Business Hours) or RDH Switchboard (T: 999, After Hours) notified

All pollution incidents must be reported immediately to NT EPA by contacting the Pollution Hotline (T: 1800 064 567) and emailing environmentops.nretas@nt.gov.au

Pollution incidents that may breach the Trade Waste Agreement and/ or have a significant effect on the health and safety of any person, the environment, any of Power and Water's works, or the operation of any sewerage plant must be reported within one hour of becoming aware of the incident (T: 08 8995 5808, M: 0401 118 123)

↓

Commence spill clean-up using Bio-Hazard spill kit

↓

Site/ engineering Manager, OHS&E manager and relevant ENL member assess situation and corrective actions implemented

↓

Return to work once safe to do so

↓

Follow internal/external reporting requirements and implement corrective actions as outlined in Section 9 of this plan.

8.7. Clinical Waste Spill (during collection and transport)

8.7.1. Potential Environmental Impacts

Potential environmental impacts that need be considered in this type of emergency situation include:

- Release of treated and/or untreated clinical waste to the environment causing land, groundwater or surface water contamination and death or injury to flora and fauna where waste enters a downstream ecosystem.
- Release of pathogens to air.

8.7.2. Preparedness

General Measures (under normal operating circumstances):

- Ensure all staff and contractors receive information on emergency preparedness and spill response requirements during inductions.
- Ensure all staff (and where relevant - contractors) receive training in waste handling and spill response procedures and drills are undertaken regularly.
- Inspect bins when collecting from waste generators to ensure that they are in good condition, not overfilled (3/4 full or less), and have the correct type of waste in them.
- Transport of all clinical waste must be undertaken in dedicated dangerous goods licenced and suitably equipped vehicles.
- Ensure suitable bio-hazard spill kits are available in vehicles used for transporting clinical waste and that their contents are regularly checked and replenished as necessary.
- Ensure all vehicles transporting waste carry a manifest and are appropriately placarded.

8.7.3. Response Procedure

In the event that a clinical waste spill occurs (during collection and transport), the steps outline in the procedure below are to be followed.

<table>
<tr><td colspan="2">Code Brown (External Emergency – Clinical waste spill occurs during collection or transport)
(Code Yellow if on RDH Campus)</td></tr>
<tr><td colspan="2">↓</td></tr>
<tr><td>Spill during collection or on RDH campus</td><td>Spill during transport (public road/location)</td></tr>
<tr><td>Stop work and make area safe (if possible):
• Don appropriate PPE and use bio-hazard spill kit to contain spill;
Barricade area and erect signage (if available) warning of spill hazard;</td><td>• Depending on severity contact emergency services 000 informing them of the nature of the waste spill.
• Assess road safety situation for staff involved in incident and other road users, altering other road users to hazard where possible while prioritising personal safety.
Don appropriate PPE and use bio-hazard spill kit to contain spill where safe to do so</td></tr>
<tr><td>↓</td><td>↓</td></tr>
<tr><td></td><td>Inform supervisor via phone</td></tr>
<tr><td colspan="2">Engineering Services (T: 28556, Business Hours) or RDH Switchboard (T: 999, After Hours) notified</td></tr>
<tr><td colspan="2">All pollution incidents must be reported immediately to NT EPA by contacting the Pollution Hotline (T: 1800 064 567) and emailing environmentops.nretas@nt.gov.au
NT SafeWork must also be contacted immediately on 1800 019 115 for any serious injury, illness, dangerous incident or death in a workplace</td></tr>
<tr><td>↓</td><td>↓</td></tr>
<tr><td>If spill is at waste collection location or hospital campus, Site/ engineering Manager, OHS&E manager and relevant ENL member assess situation and further actions to be implemented</td><td>If spill is on a public road/location take further direction from emergency services personel in attendence.</td></tr>
<tr><td colspan="2">↓</td></tr>
<tr><td colspan="2">On the advice of the Response Coordinator assist in any clean-up (if required) and coordinate the recovery of the waste material.</td></tr>
<tr><td colspan="2">↓</td></tr>
<tr><td colspan="2">Return to work once safe to do so</td></tr>
<tr><td colspan="2">↓</td></tr>
<tr><td colspan="2">Follow internal/external reporting requirements and implement corrective actions as outlined in Section 9 of this plan.</td></tr>
</table>

8.8. Cytotoxic Waste Spill (at Facility)

8.8.1. Potential Environmental Impacts

Potential environmental impacts that need be considered in this type of emergency situation include:

- Release of cytotoxic waste to the environment causing land, groundwater or surface water contamination and death or injury to flora and fauna where waste enters a downstream ecosystem.
- Release of pathogens to air.

8.8.2. Preparedness

General Measures (under normal operating circumstances):

- Ensure all relevant TEHS staff are aware of and follow the *Cytotoxic Medication Management TEHS Guideline*.
- Ensure all staff and contractors receive information on emergency preparedness and spill response requirements during inductions.
- Ensure all staff (and where relevant - contractors) receive training in waste handling and spill response procedures and drills are undertaken regularly.
- Maintain good house-keeping practices.
- Ensure drainage systems and storage equipment are regularly inspected maintained.
- Ensure suitable cytotoxic spill kits are available and that their contents are regularly checked and replenished as necessary.

8.8.3. Response Procedure

Where a cytotoxic waste spill occurs (at Facility), procedure that must be followed will depend on whether the purple bag remains intact (i.e. no contents spilled) when it becomes separated from the purple bin, or whether the bag is broken (i.e. contents leaked). Response procedures that must be followed for both are provided separately below.

Cytotoxic Waste Spill Where Purple Bag Remains Intact

Code Yellow (Internal Emergency – Cytotoxic Waste Spill Occurs)
Purple Bag Remains Intact

↓

Stop work and make area safe (if possible), inclusive of:

- Remove all no-essential personnel from work area

↓

In the event of a purple bag becoming separated from purple bin (in-tact & no contents spilled):

- Contact a qualified Cytotoxic nurse or Allan Walker Centre for Cytotoxic spill management assistance.
- Locate a BAXTER Hazardous Drugs Spill kit (inmanagers office)
- Erect cytotoxic spill signage outside of perimeter of spill to warn other of hazard;

Use cytotoxic spill kit to contain and clean up the spill (following instructions for use provided, i.e. PPE, disposal requirements) to contain spill. For more detail refer to Appendices F and H

↓

Notify Team Leader, Manager or Senior Pharmacist of spill

Engineering Services (T: 28556, Business Hours) or RDH Switchboard (T: 999, After Hours) notified

All pollution incidents must be reported immediately to NT EPA by contacting the Pollution Hotline (T: 1800 064 567) and emailing environmentops.nretas@nt.gov.au

Pollution incidents that may breach the Trade Waste Agreement and/ or have a significant effect on the health and safety of any person, the environment, any of Power and Water's works, or the operation of any sewerage plant must be reported within one hour of becoming aware of the incident (T: 08 8995 5808, M: 0401 118 123)

↓

Site/ engineering Manager, OHS&E manager and relevant ENL member assess situation and corrective actions implemented

↓

Return to work once safe to do so

↓

Follow any remaining internal/external reporting requirements and implement corrective actions as outlined in Section 9 of this plan.

Cytotoxic Waste Spill Where Purple Bag is Broken

Code Yellow (Internal Emergency – Cytotoxic Waste Spill Occurs) **Purple Bag Broken - Contents Leaked**

Stop work and make area safe (if possible), inclusive of: • Contact a qualified Cytotoxic nurse or Allan Walker Centre for Cytotoxic spill management assistance, they are to manage the response and clean-up • Remove all no-essential personnel from work area

• Locate a BAXTER Hazardous Drugs Spill kit (in managers office) • Erect 'Caution Hazardous Drugs Spills' signage outside of perimeter of spill to warn other of hazard • Contact the RDH Switchboard on triple star (***) & advise of a Code Yellow Dangerous Goods spill, the location & approximate size of the spill & request the Chief Warden be paged to attend the scene. Also contact the Waste Manager & advise of the situation • Contain and clean up spill following instructions for use provided (i.e. PPE, disposal requirements). For more detail refer to Appendices G and H

All pollution incidents must be reported immediately to NT EPA by contacting the Pollution Hotline (T: 1800 064 567) and emailing environmentops.nretas@nt.gov.au
Pollution incidents that may breach the Trade Waste Agreement and/ or have a significant effect on the health and safety of any person, the environment, any of Power and Water's works, or the operation of any sewerage plant must be reported within one hour of becoming aware of the incident (T: 08 8995 5808, M: 0401 118 123)
Site/ engineering Manager, OHS&E manager and relevant ENL member assess situation and corrective actions implemented

Return to work once safe to do so

Follow any remaining internal/external reporting requirements and implement corrective actions as outlined in Section 8 of this plan.

8.9. Cytotoxic Waste Spill (during collection or transport)

8.9.1. Potential Environmental Impacts

Potential environmental impacts that need be considered in this type of emergency situation include:

- Release of cytotoxic waste to the environment causing land, groundwater or surface water contamination and death or injury to flora and fauna where waste enters a downstream ecosystem.
- Release of pathogens to air.

8.9.2. Preparedness

General Measures (under normal operating circumstances):

- Ensure all relevant TEHS staff are aware of and follow the *Cytotoxic Medication Management TEHS Guideline*.
- Ensure all staff and contractors receive information on emergency preparedness and spill response requirements during inductions.
- Ensure all staff transporting cytotoxic waste are aware of safe procedures for transporting cytotoxic medications.
- Ensure all staff (and where relevant - contractors) receive training in waste handling and spill response procedures and drills are undertaken regularly.
- Ensure cytotoxic wheelie bins are locked at all times when being transported.
- Transport of all cytotoxic waste must be undertaken in dedicated dangerous goods licenced and suitably equipped vehicles. All RDH transport vehicles used to transport purple bins/bags on campus must have the restraining bar in place to reduce likelihood of bins falling & the tail-gate fully closed & locked when transporting any cytotoxic waste purple bins.
- Ensure suitable cytotoxic waste (Baxter) spill kits are available in vehicles used for transporting clinical waste and that their contents are regularly checked and replenished as necessary.
- Ensure all vehicles transporting waste carry a manifest and are appropriately placarded.

8.9.3. Response Procedure

Where a cytotoxic waste spill occurs (at Facility), procedure that must be followed will depend on whether the purple bag remains in act (i.e. no contents spilled) when it becomes separated from the purple bin, or whether the bag is broken (i.e. contents leaked). Response procedures that must be followed for both are provided separately below.

Cytotoxic Waste Spill Where Purple Bag Remains Intact

<table>
<tr><th colspan="2">Code Brown (External Emergency – Cytotoxic waste spill occurs (during collection or transport)
Purple Bag Remains Intact
(Code Yellow if on RDH Campus)</th></tr>
<tr><td colspan="2">↓</td></tr>
<tr><td>Spill during collection or on RDH campus
Note: if spill occurs on hospital ward or clinical area emergency response is the responsibility of the registered nurse on duty</td><td>Spill during transport (public road/location)</td></tr>
<tr><td>Stop work and make area safe (if possible):
• Remove all no-essential personnel from the work area
• Contact a qualified Cytotoxic nurse or Allan Walker Centre for Cytotoxic spill management assistance, they are to manage the response and clean-up
•
• Locate a BAXTER Hazardous Drugs Spill Kit
• Erect ‘Caution Hazardous Drugs Spills’ signage outside of perimeter of spill to warn other of hazard;
• Contact the RDH Switchboard on triple star (***) & advise of a Code Yellow Dangerous Goods spill, the location & approximate size of the spill & request the Chief Warden be paged to attend the scene. Also contact the Waste Manager & advise of the situation
•
• Don appropriate PPE and cytotoxic (Baxter) spill kit to contain spill where safe to do so following processes outlined in Appendices F and H</td><td>• Depending on severity contact emergency services 000 informing them of the nature of the waste spill.
• Assess road safety situation for staff involved in incident and other road users, altering other road users to hazard where possible while prioritising personal safety.

• Don appropriate PPE and cytotoxic (Baxter) spill kit to contain spill where safe to do so following processes outlined in Appendices F and H</td></tr>
<tr><td>↓</td><td>↓
Inform supervisor via phone. Supervisor to contact the RDH Switchboard on triple star (***) & advise of a Code Brown Dangerous Goods spill, the location & approximate size of the spill & request the Chief Warden be paged to attend the scene. Also contact the Waste Manager & advise of the situation.
• Contact a qualified Cytotoxic nurse or Allan Walker Centre for Cytotoxic spill management assistance, they are to manage the response and clean-up</td></tr>
<tr><td colspan="2">Engineering Services (T: 28556, Business Hours) or RDH Switchboard (T: 999, After Hours) notified</td></tr>
</table>

All pollution incidents must be reported immediately to NT EPA by contacting the Pollution Hotline (T: 1800 064 567) and emailing environmentops.nretas@nt.gov.au NT SafeWork must also be contacted immediately on 1800 019 115 for any serious injury, illness, dangerous incident or death in a workplace
↓ ↓
If spill is at waste collection location or hospital campus, Site/ engineering Manager, OHS&E manager and relevant ENL member assess situation and further actions to be implemented If spill is on a public road/location take further direction from emergency services personel in attendence
↓
On the advice of the Response Coordinator assist in any clean-up (if required) and coordinate the recovery of the waste material.
↓
Return to work once safe to do so
↓
Follow any remaining internal/external reporting requirements and implement corrective actions as outlined in Section 9 of this plan.

Cytotoxic Waste Spill Where Purple Bag is Broken

Code Brown (External Emergency – Cytotoxic waste spill occurs (during collection or transport) Purple Bag Broken - Contents Leaked (Code Yellow if on RDH Campus)	
↓	
Spill during collection or on RDH campus **Note: if spill occurs on hospital ward or clinical area emergency response is the responsibility of the registered nurse on duty**	Spill during transport (public road/location)
Stop work and make area safe (if possible): • Remove all no-essential personnel from the work area • Contact a qualified Cytotoxic nurse or Allan Walker Centre for Cytotoxic spill management assistance, they are to manage the response and clean-up • Locate a BAXTER Hazardous Drugs Spill Kit • Erect 'Caution Hazardous Drugs Spills' signage outside of perimeter of spill to warn other of hazard; • Contact the RDH Switchboard on triple star (***) & advise of a Code Yellow Dangerous Goods spill, the location & approximate size of the spill & request the Chief Warden be paged to attend the scene. Also contact the Waste Manager & advise of the situation • Contain and clean up spill following instructions for use provided (i.e. PPE,	• Depending on severity contact emergency services 000 informing them of the nature of the waste spill. • Assess road safety situation for staff involved in incident and other road users, altering other road users to hazard where possible while prioritising personal safety. • Locate a BAXTER Hazardous Drugs Spill Kit • Erect 'Caution Hazardous Drugs Spills' signage outside of perimeter of spill to warn others of hazard

disposal requirements). For more detail refer to Appendices G and H	
	Inform supervisor via phone. Supervisor to contact the RDH Switchboard on triple star (***) & advise of a Code Brown Dangerous Goods spill, the location & approximate size of the spill & request the Chief Warden be paged to attend the scene. Also contact the Waste Manager & advise of the situation. • Contact a qualified Cytotoxic nurse or Allan Walker Centre for Cytotoxic spill management assistance, they are to manage the response and clean-up
	Contain and clean up spill following instructions for use provided (i.e. PPE, disposal requirements). For more detail refer to Appendices G and H
All pollution incidents must be reported immediately to NT EPA by contacting the Pollution Hotline (T: 1800 064 567) and emailing environmentops.nretas@nt.gov.au NT SafeWork must also be contacted immediately on 1800 019 115 for any serious injury, illness, dangerous incident or death in a workplace	
If spill is at waste collection location or hospital campus, Site/ engineering Manager, OHS&E manager and relevant ENL member assess situation and further actions to be implemented	If spill is on a public road/location take further direction from emergency services personel in attendence
On the advice of the Response Coordinator assist in any clean-up (if required) and coordinate the recovery of the waste material.	
Return to work once safe to do so	
Follow any remaining internal/external reporting requirements and implement corrective actions as outlined in Section 9 of this plan.	

8.10. Hazardous Waste Identified in Clinical Waste Stream

8.10.1. Potential Environmental Impacts

Potential environmental impacts that need be considered in this type of emergency situation include:

- Land or groundwater contamination, or release of pathogens to air where hazardous waste is disposed of with treated clinical waste to landfill.
- Fire or explosion caused by hazardous waste (e.g. un-emptied chemical containers or batteries) passing through treatment equipment.

8.10.2. Preparedness

General Measures (under normal operating circumstances):

- Ensure all RDH personnel involved in waste management are trained in correct waste segregation and disposal procedures.
- Visually inspect clinical waste for at collection point, when received at RDH Waste Facility Building and during clinical waste treatment stages.
- Ensure all waste tracking procedures followed.

8.10.3. Response Procedure

In the event that hazardous waste is identified in the clinical waste stream, the steps outlined in the procedure below are to be followed.

Hazardous Waste Identified in Clinical Waste Stream
↓
• Stop work • Depending on what stage in the treatment process the waste identified, shutdown waste treatment processes. (If waste has caused a fire or treatment equipment damage, follow relevant Code Red or Code Yellow procedures)
↓
Engineering Services (T: 28556, Business Hours) or RDH Switchboard (T: 999, After Hours) notified Engineering Services to determine if it is classified as a Disruption to Operations or Code Yellow Emergency
All pollution incidents must be reported immediately to NT EPA by contacting the Pollution Hotline (T: 1800 064 567) and emailing environmentops.nretas@nt.gov.au
Pollution incidents that may breach the Trade Waste Agreement and/ or have a significant effect on the health and safety of any person, the environment, any of Power and Water's works, or the operation of any sewerage plant must be reported within one hour of becoming aware of the incident (T: 08 8995 5808, M: 0401 118 123)
↓
Where waste type is potentially hazardous or unknown Barricade area and remove all non-essential workers from the work area.
↓
Where its practical and possible to do so safely, the incorrect waste should be removed from the clinical waste stream with consideration to the following: • Where waste type is a known hazardous substance, refer to SDS for guidance on PPE to be worn proper handling and disposal requirements • Where waste is other type of related medical (e.g. Cytotoxic, pharmaceutical, radiological waste or mercury or amalgam), refer to Clinical and Related Waste Management TEHS Guidelines for guidance on PPE, and proper handling and disposal requirements • Where waste removal cannot be achieved to the extent practicable due to extent of cross contamination, the batch of waste impacted to be considered contaminated and disposed of appropriately
↓
Site/ engineering Manager, OHS&E manager and relevant ENL member assess situation and corrective actions implemented
↓
Return to work once safe to do so
↓
Follow internal/external reporting requirements and implement corrective actions as outlined in Section 9 of this plan

8.11. Power Failure

8.11.1. Potential Environmental Impacts

Potential environmental impacts that need be considered in this type of emergency situation include:

- Back-up of untreated waste where the facility is not able to operate for an extended period of time, resulting in impacts that may arise from unsuitable storage such as release of pathogens to air, increased risk of waste being released to the environment due to spills or vermin.

- Waste not able to be stored at correct temperature, resulting in impacts such as release of odours and pathogens to air and attraction of vermin.

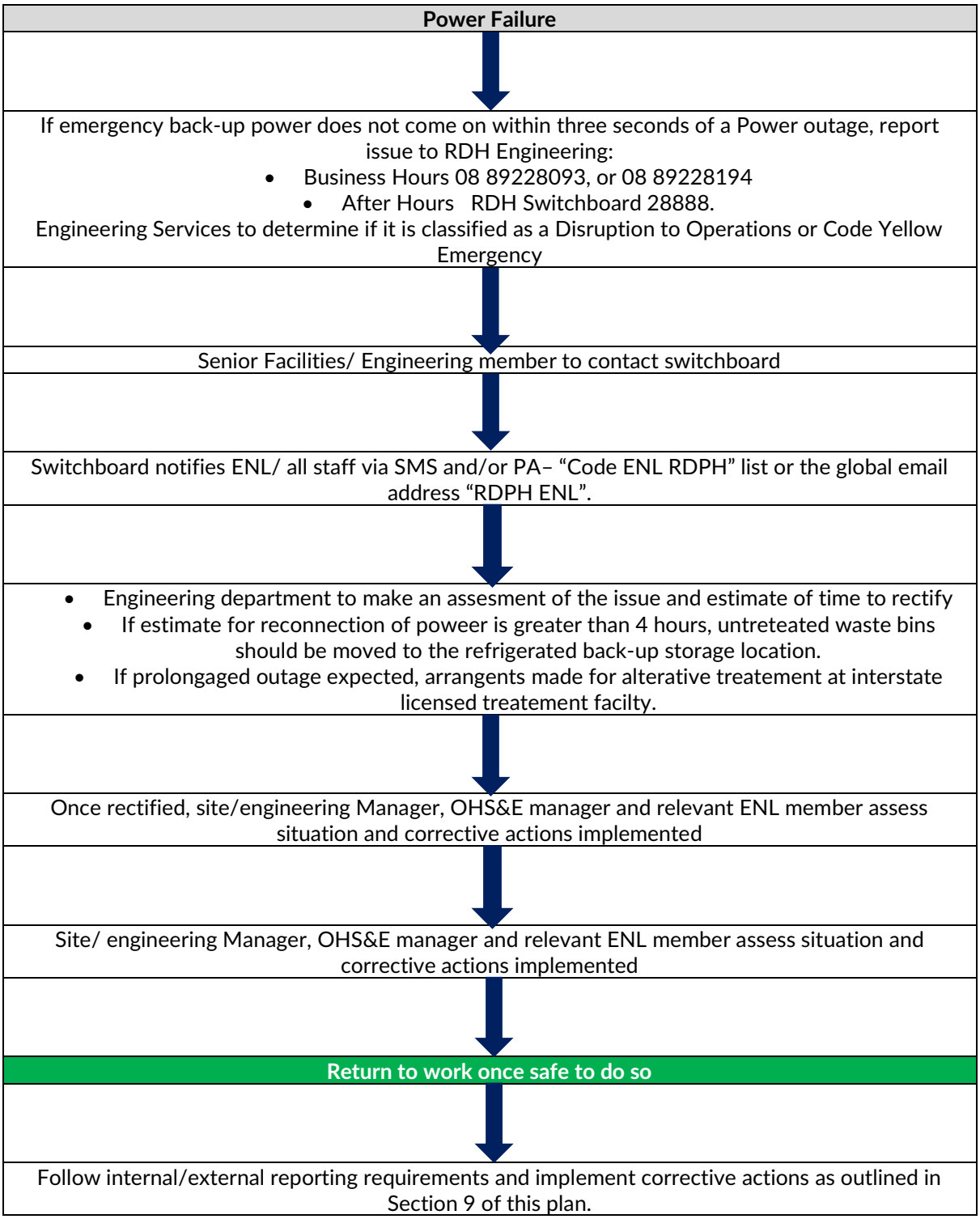
8.11.2. Preparedness

The following measures are to be in place in preparation for this type of event:

- Ensure back-up power systems are regularly maintained and tested (Engineering Department responsibility).
- Maintain back-up refrigerated waste storage shipping container to ensure it remains operational.

8.11.3. Response Procedure

In the event that a power failure occurs, the steps outlined in the procedure below are to be followed.



8.12. Drainage System Leak or Blockage

8.12.1. Potential Environmental Impacts

A leak or blockage in the Facility's drainage system has the potential to result in contaminated water being released to the environment either via land or subsurface leaks that have the potential to cause:

- Land contamination
- Groundwater contamination
- Downstream surface water contamination and impacts to flora and fauna where the contaminated water enters the stormwater system
- Release of pathogens or noxious odours to air

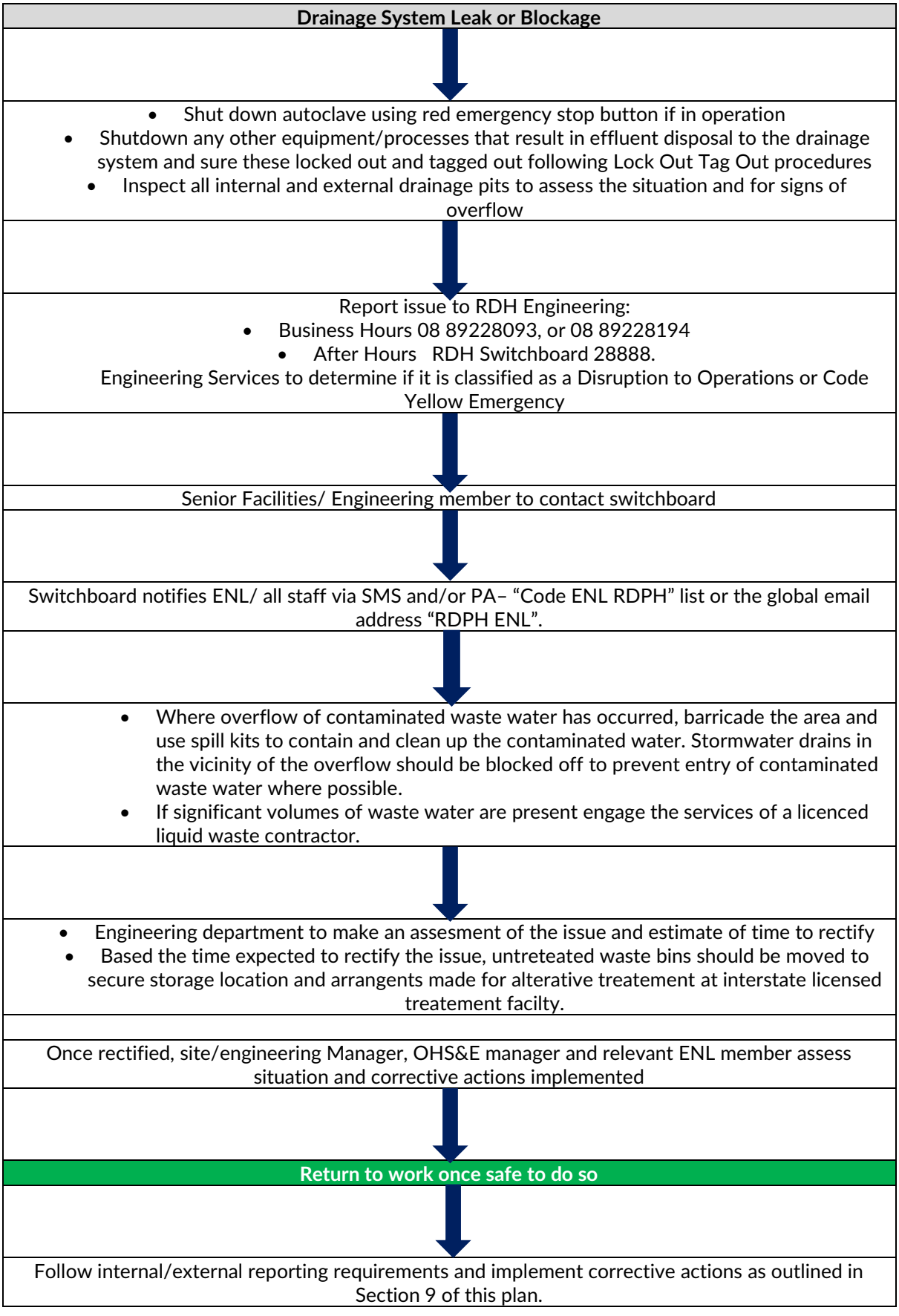
8.12.2. Preparedness

The following measures are to be in place in preparation for this type of event:

- Ensure all staff and contractors receive information on spill response requirements during induction.
- Ensure all Waste Facility staff are trained in the Facility's operating procedures.
- Undertake daily inspection of drainage systems, for evidence of overflow or leaks, including unusual odours, and that any concerns are reported to the engineering department.
- Ensure regular cleaning and maintenance of drainage system.
- Ensure adequate PPE and adequately stocked spill kits are available to contain any overflow.

8.12.3. Response Procedure

In the event that a drainage system leak or blockage occurs, the steps outlined in the procedure below are to be followed.



9. Reporting, Follow-Up and Close out Actions

9.1. Internal Reporting

Once the 'all clear' has been provided following an emergency event at the incident that resulted in the emergency event into RiskMan.

This will result in an incident being logged, and depending on the nature and severity of the incident, may trigger standard incident investigation processes to be initiated with corrective actions developed and implemented where appropriate. All incidents should also be logged into the Waste Management Facility Diary (What happened, what time, and how it was rectified)

Where environmental harm has been caused, corrective actions may include environmental investigation and remediation works that may require engaging a suitably qualified environmental consultant and liaison with the NT EPA.

Incident close out will require approval from the site manager, OHS&E manager, and relevant ENL member.

9.2. External Reporting Requirements

o Duty to notify of environmental incidents

The duty to notify of environmental harm is a legal requirement under the Waste Management and Pollution Control Act, that ensures that the administering authority and other relevant persons are made aware of incidents that may have caused or threaten serious or material environmental harm. As such, the NT EPA must be notified an incident occurs which causes, or threatens to cause, pollution resulting in material or serious environmental harm. Reporting is done through a 'Section 14 Incident Report' a template for this is available on the NT EPA website.

All pollution incidents must be reported immediately to NT EPA by contacting the Pollution Hotline (T: 1800 064 567) and emailing environmentops.nretas@nt.gov.au The Director Hospital Engineering Services will report the incident after an assessment to the relevant agencies i.e. NT safe and NT EPA as part of the Incident reporting requirements.

There is also a legal obligation to inform the landowner or occupier at a location when a pollution incident has occurred.

Similarly, Power and Water Corporation (PWC) must be notified on (08) 8995 5808 or 0401 118 123 within one hour of becoming aware of any incident which may:

- Give rise to a breach of the Trade Waste Agreement (e.g. significant breach of the Performance Standards in Schedule 3 of the Agreement).
- Have a significant effect on the health and safety of any person, the environment, any of Power and Water's works, or the operation of any sewerage plant.

10. Training Requirements

All staff who have an active role in an emergency response (Team Leaders/ Hospital Incident Management Team (HIMT) members) should be trained in their area of responsibility.

The Emergency Management Team is responsible for the coordination and delivery of appropriate training for staff who have a role in emergency management arrangements. Training and educational programs include but are not limited to:

- any essential training (Annual Fire & Emergency Training);
- Warden Training;
- Chief Warden Training; and
- Australasian Inter-Service Incident Management System (AIIMS).

NT Emergency Service provide AIIMS training and an Introduction to Emergency Management in the Northern Territory setting.

The Emergency Management Team will develop and schedule exercises throughout the year to practice and review operational/action plans, sub plans or procedures.

Managers and supervisors are responsible for ensuring that staff are aware of their roles and responsibilities during a disaster. Each ward/area should include emergency management in their staff orientation and induction packages. Staff are encouraged to attend the pre cyclone information sessions provided by the Emergency Management Team with the assistance of NT Emergency Service and the Bureau of Meteorology.

11. Testing and Review processes

Review of the plan will be undertaken annually or after an exercise or actual emergency, or where there are changes to Facility's operation that either change the existing environmental risks or introduce new environmental risks. A major review will be undertaken after the revision of the Emergency Management RDH PRH Plan which occurs every 5 years. The review will be managed by Quality and Safety.

Appendix A
Environmental Risk Assessment and Risk Matrix

Environmental Aspect Category	Potential Risk/ Impact	Consequence	Likelihood	Initial Risk Rating	Control Measures	Revised Likelihood	Residual Risk Rating
Land	Liquid waste or residual waste spill to ground during storage or treatment resulting in land contamination	B - Minor	Likely (4)	High (4B)	- Bins containing waste are stored on hardstand area that drains to triple interceptor - Procedures in place that require waste generators to double-bag hazardous wastes prior to placing in bins - Spill Kits available on site - Staff trained in spill response - Liquid waste from autoclave drains to triple interceptor after sterilisation and ultimately disposed of to sewer	Rare (1)	Low (1B)
Land	Liquid waste or residual waste spill to ground during transfer from its source within RDH or healthcare facility to the Waste Management Facility by staff resulting in land contamination	C- Moderate	Likely (4)	High (4C)	- Procedures in place that require waste generators to double-bag hazardous wastes prior to placing in bins - Bins inspected by waste staff prior to collection and transport to ensure waste is secured, properly labelled and bins are not overloaded - Procedures in place require that only waste correctly placed in bins are collected - Bins are transported in enclosed compartment of truck - Truck has spill containment in the form of an onboard sump - Truck has spill kits	Rare (1)	Low (1C)
Land	Liquid waste or residual waste spill to ground during transport to and from the Waste Management Facility by contractors resulting in land contamination	C-Moderate	Likely (4)	High (4C)	- Procedures in place that require waste generators to double-bag hazardous wastes prior to placing in bins - Only licensed contractors' that comply with relevant NT and National legislation and guidelines are used for transporting waste to and from the facility. - Contractor waste transport vehicles carry spill kits - Contractors transporting and handling waste are trained in spill response.E8 - Empty bins are inspected after cleaning to ensure there is no waste residue prior to being picked up by contractor	Rare (1)	Low (1C)
Land	Lubricants or cleaning chemicals used in equipment maintenance spilling to ground resulting in land contamination	B - Minor	Likely (4)	High (4B)	Maintenance activities undertaken within Waste Facility building which has an impervious hardstand floor which drains to a triple interceptor that ultimately discharges to sewer.	Rare (1)	Low (1B)
Land	Liquid waste/ contaminated water spill to ground during drainage system cleaning and maintenance resulting in land contamination	B - Minor	Likely (4)	High (4B)	Contractors undertaking works must undertake site induction that includes environmental requirements and provide Safe Work Method Statement that includes environmental controls for the work being undertaken.	Rare (1)	Low (1B)
Land	Liquid waste/ contaminated water spill to ground during truck cleaning resulting in land contamination	B - Minor	Likely (4)	High (4B)	- Truck as on-board sump for collection of cleaning waste liquid which is emptied into triple interceptor. - Truck cleaning takes place on hardstand	Rare (1)	Low (1B)
Land	Waste treated in the autoclave is not adequately sterilised resulting in hazardous waste being disposed to landfill.	D - Major	Almost Certain (5)	Extreme 5D	- Where power outage, mechanical sequence error or steam failure occurs that disrupts the sterilisation cycle, the autoclave is reset and a complete cycle re-run is performed. - Periodic sterilisation testing is performed once a year. - Validation testing of the autoclave occurs once a year - Autoclave is maintained in accordance with the manufacturer's requirements ensuring function within design parameters is undertaken quarterly.	Rare (1)	Medium (1D)
Land	Leak or overflow due to drainage system damage or blockage results in contaminated water seeping into ground cause land contamination	C - Moderate	Likely (4)	High (4C)	Drainage system is periodically inspected and maintained on a regular basis, including regular cleaning and maintenance of basket in settling pit.	Unlikely (2)	Medium (2C)
Land	Cyclone or major storm event causing damage to Facility resulting in wide distribution of waste into environment causing contamination of land	D - Major	Possible (3)	High (3D)	- Cyclone (Code Brown) RDPH Emergency Plan in place. - Clean up would be initiated as part of response measures reducing the risk of land contamination.	Rare (1)	Medium (1D)
Land	Catastrophic autoclave failure causing wide release of untreated medical waste causing contamination of land	D-Major	Unlikely (2)	High (2D)	- Autoclave is maintained in accordance with the manufacturer's requirements ensuring function within design parameters is undertaken quarterly. - Daily visual external inspections performed to identify leaks of maintenance issues. - The Autoclave has a pressure safety valve (cut of point of 500kpi) and three safety shut off switches, one on each fire exit and one on the console.	Rare (1)	Medium (1D)
Land	Road accident during transportation of cytotoxic or medical waste resulting in release of materials to environment causing contamination of land	D-Major	Possible (3)	High (3D)	- Spill kits carried on waste transport vehicles - Staff have regular cytotoxic waste spill management training - Waste transport vehicles placarded and carry manifest	Unlikely (2)	High (2D)
Surface Water	Liquid waste or residual waste spillage to roadway or ground during storage or treatment resulting in surface water contamination via entering stormwater network	C - Moderate	Likely (4)	High (4C)	- Bins containing waste are stored on hardstand area that drains to triple interceptor - Procedures in place that require waste generators to double-bag hazardous wastes prior to placing in bins - Spill Kits available on site - Staff trained in spill response - Liquid waste from autoclave drains to triple interceptor after sterilisation and ultimately disposed of to sewer	Unlikely (2)	Medium (2C)

Environmental Aspect Category	Potential Risk/ Impact	Consequence	Likelihood	Initial Risk Rating	Control Measures	Revised Likelihood	Residual Risk Rating
Groundwater	Liquid waste or residual waste spill to ground during transfer from its source within RDH or healthcare facility to the Waste Management Facility by staff resulting in groundwater contamination.	B - Minor	Possible (3)	Medium (3B)	- Procedures in place that require waste generators to double-bag hazardous wastes prior to placing in bins - Bins inspected by waste staff prior to collection and transport to ensure waste is secured, properly labelled and bins are not overloaded - Procedures in place require that only waste correctly placed in bins are collected - Bins are transported in enclosed compartment of truck - Truck has spill containment in the form of an onboard sump - Truck has spill kits - Staff trained in spill response - Empty bins are inspected after cleaning to ensure there is no waste residue prior to being transported back into service	Rare (1)	Low (1B)
Groundwater	Liquid waste or residual waste spillage to ground during transport to and from the Waste Management Facility by contractors resulting in groundwater contamination.	B - Minor	Possible (3)	Medium (3B)	- Procedures in place that require waste generators to double-bag hazardous wastes prior to placing in bins - Only licensed contractors' that comply with relevant NT and National legislation and guidelines are used for transporting waste to and from the facility. - Contractor waste transport vehicles carry spill kits - Contractors transporting and handling waste are trained in spill response - Empty bins are inspected after cleaning to ensure there is no waste residue prior to being picked up by contractor	Rare (1)	Low (1B)
Groundwater	Lubricants or cleaning chemicals used in equipment maintenance spilling to ground resulting in groundwater contamination.	B - Minor	Likely (4)	Medium (3B)	- Waste Facility building which has an impervious hardstand floor which drains to a triple interceptor that ultimately discharges to septic tank that is periodically pumped out by licensed contractor	Rare (1)	Low (1B)
Groundwater	Liquid waste/ contaminated water spill to ground during drainage system cleaning and maintenance resulting in groundwater contamination.	B - Minor	Possible (3)	Medium (3B)	Contractors undertaking works must undertake site induction that includes environmental requirements and provide Safe Work Method Statement that includes environmental controls for the work being undertaken.	Rare (1)	Low (1B)
Groundwater	Cyclone or major storm event causing damage to Facility resulting in wide distribution of waste into environment causing groundwater contamination	D - Major	Possible (3)	High (3D)	- Cyclone (Code Brown) RDPH Emergency Plan in place. - Clean up would be initiated as part of response measures reducing the risk of land contamination.	Rare (1)	Medium (1D)
Groundwater	Catastrophic autoclave failure causing wide release of untreated medical waste causing groundwater contamination	D-Major	Unlikely (2)	High (2D)	- Autoclave is maintained in accordance with the manufacturer's requirements ensuring function within design parameters is undertaken quarterly. - Daily visual external inspections performed to identify leaks of maintenance issues. - The Autoclave has a pressure safety valve (cut of point of 500kpi) and three safety shut off switches, one on each fire exit and one on the console.	Rare (1)	Medium (1D)
Groundwater	Road accident during transportation of cytotoxic or medical waste resulting in release of materials to environment causing groundwater contamination	D-Major	Possible (3)	High (3D)	- Spill kits carried on waste transport vehicles - Staff have regular cytotoxic waste spill management training - Waste transport vehicles placarded and carry manifest	Unlikely (2)	High (2D)
Flora and Fauna	Liquid waste or residual waste spill to ground or roadway during storage or treatment to roadway or ground resulting in contaminants entering down-stream ecosystems via stormwater network	C - Moderate	Likely (4)	High (4C)	- Bins containing waste are stored on hardstand area that drains to triple interceptor - Procedures in place that require waste generators to double-bag hazardous wastes prior to placing in bins - Spill Kits available on site - Staff trained in spill response - Liquid waste from autoclave drains to triple interceptor after sterilisation and ultimately disposed of to sewer	Rare (1)	Low (1C)
Flora and Fauna	Liquid waste or residual waste spill to ground or roadway during transfer from its source within RDH or healthcare facility to the Waste Management Facility by staff resulting in contaminants entering down-stream ecosystems via stormwater network	C - Moderate	Likely (4)	High (4C)	- Procedures in place that require waste generators to double-bag hazardous wastes prior to placing in bins - Bins inspected by waste staff prior to collection and transport to ensure waste is secured, properly labelled and bins are not overloaded - Procedures in place require that only waste correctly placed in bins are collected - Bins are transported in enclosed compartment of truck - Truck has spill containment in the form of an onboard sump - Truck has spill kits - Staff trained in spill response - Empty bins are inspected after cleaning to ensure there is no waste residue prior to being transported back into service	Unlikely (2)	Medium (2C)

Environmental Aspect Category	Potential Risk/ Impact	Consequence	Likelihood	Initial Risk Rating	Control Measures	Revised Likelihood	Residual Risk Rating
Air Quality	Waste spill during transfer from its source within RDH or healthcare facility to the Waste Management Facility by staff resulting release of pathogens to air	C - Moderate	Likely (4)	High (4C)	- Procedures in place that require waste generators to double-bag hazardous wastes prior to placing in bins - Bins inspected by waste staff prior to collection and transport to ensure waste is secured, properly labelled and bins are not overloaded - Procedures in place require that only waste correctly placed in bins are collected - Bins are transported in enclosed compartment of truck - Truck has spill containment in the form of an onboard sump - Truck has spill kits - Staff trained in spill response - Empty bins are inspected after cleaning to ensure there is no waste residue prior to being transported back into service	Unlikely (2)	Medium (2C)
Air Quality	Waste spillage during transport to and from the Waste Management Facility by contractors resulting in release of pathogens to air	C - Moderate	Likely (4)	High (4C)	- Procedures in place that require waste generators to double-bag hazardous wastes prior to placing in bins - Only licensed contractors' that comply with relevant NT and National legislation and guidelines are used for transporting waste to and from the facility. - Contractor waste transport vehicles carry spill kits - Contractors transporting and handling waste are trained in spill response - Empty bins are inspected after cleaning to ensure there is no waste residue prior to being picked up by contractor	Unlikely (2)	Medium (2C)
Air Quality	Pathogens released to air during cleaning of bins	B - Minor	Almost Certain (5)	High (5B)	Automatic bin cleaner has enclosed cleaning chamber to prevent the release of pathogens when cleaning bins [I have assumed that this is the case, can you confirm? Has any testing been done to verify pathogens cannot be released to air during bin cleaning process]	Unlikely (2)	Low (2B)
Air Quality	Cyclone or major storm event causing damage to Facility resulting in wide distribution of waste into environment including pathogens	D - Major	Possible (3)	High (3D)	- Cyclone (Code Brown) RDPH Emergency Plan in place. - Clean up would be initiated as part of response measures reducing the risk of land contamination.	Rare (1)	Medium (1D)
Air Quality	Catastrophic autoclave failure causing wide release of untreated medical waste including pathogens	D-Major	Unlikely (2)	High (2D)	- Autoclave is maintained in accordance with the manufacturer's requirements ensuring function within design parameters is undertaken quarterly. - Daily visual external inspections performed to identify leaks of maintenance issues. - The Autoclave has a pressure safety valve (cut of point of 500kpi) and three safety shut off switches, one on each fire exit and one on the console.	Rare (1)	Medium (1D)
Air Quality	Road accident during transportation of cytotoxic or medical waste resulting in release of materials to environment including pathogens	D-Major	Possible (3)	High (3D)	- Spill kits carried on waste transport vehicles - Staff have regular cytotoxic waste spill management training - Waste transport vehicles placarded and carry manifest	Unlikely (2)	High (2D)
Air Quality	Fire or explosion involving cytotoxic or medical waste resulting in the release of gases, fumes or smoke	D-Major	Possible (3)	High (3D)	- Fire prevention and response procedures in place - Waste inspected for hazardous items prior to treatment - Autoclave is maintained in accordance with manufacturers requirements - Waste generators have procedures that require hazardous items that may have the potential to cause fire or explosions to be segregated into alternative waste streams	Unlikely (2)	High (2D)
	Fire or explosion involving radiological waste resulting in the release of gases, fumes or smoke	E - Severe	Unlikely (2)	Very High (2E)	- Facility does not accept or treat radiological waste Fire prevention and response procedures in place - Waste inspected for hazardous items prior to treatment - Autoclave is maintained in accordance with manufacturers requirements - Waste generators have procedures that require hazardous items that may have the potential to cause fire or explosions to be segregated into alternative waste streams	Rare (1)	Very High (1D)
Noise and Vibration	Noise nuisance to surrounding receptors due to site activities.	C - Moderate	Almost Certain (5)	Very High (5C)	- The Facility is also located away from neighbouring land users and public areas of the hospital. - Operations are restricted to daylight hours - The autoclave, shredder and compactor are designed to keep noise levels at less than 10 dB(A) above background noise. With the negative pressure enclosure, this can reduce to 5 dB (A) above background levels	Rare (1)	Low (1C)
Visual Amenity	Waste spill to ground during storage or treatment resulting in staining of external roadways/ walkways or release of litter.	A - Insignificant	Likely (4)	High (5B)	- Bins containing waste are stored on hardstand area that drains to triple interceptor - Procedures in place that require waste generators to double-bag hazardous wastes prior to placing in bins - Spill Kits available on site - Staff trained in spill response - Liquid waste from autoclave drains to triple interceptor after sterilisation and ultimately disposed of to sewer	Unlikely (2)	Low (1A)

Risk Assessment Matrix

Environmental Consequence (Outcome or Impact of an Event)

Consequence	A - Insignificant	B - Minor	C - Moderate	D - Major	E - Severe
Environmental Risk	No or negligible on site or offsite environmental impacts	Minimal on-site impacts immediately contained, no discernible off-site impacts, no external complaints received	Some off-site temporary impacts, moderate on-site impacts	Off-site impacts to a segment of the environment, medium term-environmental damage, off-site clean-up required, breach of environmental legislation	Substantial off-site impacts to broader environment, long-term environmental damage that requires extensive clean-up, complete failure of environmental protection controls

Likelihood (Chance / Frequency of an Event)

	Descriptor	Description	Likelihood
1	**Rare**	No identified or known incidents of event ever occurring. Very unlikely to ever occur.	Event not expected to occur less than once every five (5) years or, probability of adverse consequent occurring <5%.
2	**Unlikely**	Evidence of event occurring in the past but unlikely to occur.	Event expected to occur once in the next 2-5 years or, probability of adverse consequent occurring 5%-15%.
3	**Possible**	There is evidence of several events in the past and may occur infrequently.	Event expected to occur once in the next 1-2 years or, probability of adverse consequent occurring 15%-50%.
4	**Likely**	Risk event will probably happen but not a persistent issue.	Event expected to occur once in the next year or, probability of occurring adverse consequent 50%-75%.
5	**Almost Certain**	Risk event is expected to occur or has already occurred.	Event expected to occur within the next week to three (3) months or, probability of adverse consequent occurring 75%-100%.

		Consequence				
		A- Insignificant (1)	B- Minor (2)	C- Moderate (3)	D- Major (4)	E-Severe (5)
Likelihood	Almost Certain (5)	Medium (9 or 5A)	High (16 or 5B)	Very High (18 or 5C)	Extreme (24 or 5D)	Extreme (25 or 5E)
	Likely (4)	Medium (8 or 4A)	High (13 or 4B)	High (15 or 4C)	Very High (21 or 4D)	Extreme (23 or 4E)
	Possible (3)	Low (4 or 3A)	Medium (7 or 3B)	High (12 or 3C)	High (17 or 3D)	Very High (22 or 3E)
	Unlikely (2)	Low (2 or 2A)	Medium (6 or 2B)	Medium (10 or 2C)	High (14 or 2D)	Very High (20 or 2E)
	Rare (1)	Low (1 or 1A)	Low (3 or 1B)	Low (5 or 1C)	Medium (11 or 1D)	Very High (19 or 1E)

Appendix B
Emergency Response Activation Triggers

Activation Triggers

Triggers for each of the emergencies are detailed in the specific action plan, procedure or supplementary plans. Overview detailed below:

Code	Description	Activation Trigger/s	Key Immediate Actions
Code Red	Fire Alert (Alarm)	Audible Fire Alarm operates OR PA notification OR *** Call made	Chief Warden (CW) relocates to Fire Control Panel Fire Response Team operates under CW direction CW should consult with Executive Director RDPH (or delegate) immediately a fire is discovered
	Fire and Smoke Response	Confirmation of fire	Activation of Code Red Emergency Procedure and where evacuation is required activation of Code Orange Evacuation Procedure Emergency Notification List (ENL) members to be advised immediately a fire is discovered (via Switchboard Spok Messaging system – Code ENL RDPH list)
Code Blue	Medical Emergency – adult or paediatric, patient/staff/visitor	Emergency call (to ***) requesting Code Blue activation or at PRH – Activation of Medical Emergency Button	Code Blue response team dispatch to the relevant location following activation by receipt of a Code Blue pager message RDH - PA announcement PRH – details on annunciator Activation of relevant Rapid Response Team Procedure
Code Purple	Threat (phone or written) To building occupants or identification of a suspicious package, parcel or mail	Emergency call (to ***) reporting a bomb or arson threat or suspicious package noted. Recommendation from Senior Security or the Chief Warden following consultation with NT Police of genuine risk to life or health of building occupants.	Switchboard activate relevant Code Purple Response Team which operates under the direction of Chief Warden (CW). CW relocates to the Fire Control Room, and a Security staff member is dispatched to 'site/scene' Area Wardens to operate WIP phones to relay instructions RDPH emergency notification list members (ENL) to be advised once standby stage is declared(via Switchboard Spok Messaging system – Code ENL RDPH) CW to consult with the Executive Director RDPH (ED RDPH) (or delegate) immediately Where a threat is deemed genuine, ED RDPH to establish a Hospital Incident Management Team to work in partnership with Police Incident Controller Activation of Code Purple Emergency Procedure

Code	Description	Activation Trigger/s	Key Immediate Actions
Code Brown	Tropical Cyclone	Tropical Cyclone WATCH – advised by BOM	Tropical Cyclone Plan activated to the relevant stage RDPH ENL members notified (email RDH ENL on the global email address list or via Switchboard Spok Messaging system – Code ENL RDPH list) Northern Region Medical Response plan activated to relevant stage.
	Mass Casualties	Recommendation from the ED Medical Director (or after hours delegate), HRC or Medical Group Leader of : RDH 5 or more seriously injured ;or 15 or more walking wounded; PRH 2 or more serious injured; or 8 or more walking wounded OR Injuries having significant impact on current resources;	Mass Casualties Plan and work area sub-plans activated, 'other' hospital advised. RDH will become the lead facility in a MCI. RDPH ENL advised (via Switchboard Spok Messaging system – Code ENL RPDH list and/or email RDPH ENL on the global email address list) HIMT established Northern Region Medical Response Sub Plan does not have to be activated for RDH and/or PRH to declare a Code Brown Mass Casualty incident.
	Earthquake/Tremors	Upon experiencing a seismic event	Area managers in conjunction with Engineering staff to undertake assessment of area of responsibility to ascertain any damage to the area. Engineering manager (or after hours delegate) lead remedial actions until situation is rectified. Hospital Incident Management Team (HIMT) activated (if required) Engineering Manager (or delegate) to consult with ED RDPH (or delegate) immediately if any structural damage to area and requires evacuation or closing off.

Appendix C
Authority to Activate Emergency Response Activation Triggers

Authority to activate

In addition to the Executive Director's authority to declare codes the following table details which positions have been delegated authority to declare codes and stages of activation.

Appointed Hospital Incident Controllers also have the authority to declare codes and stages of activations.

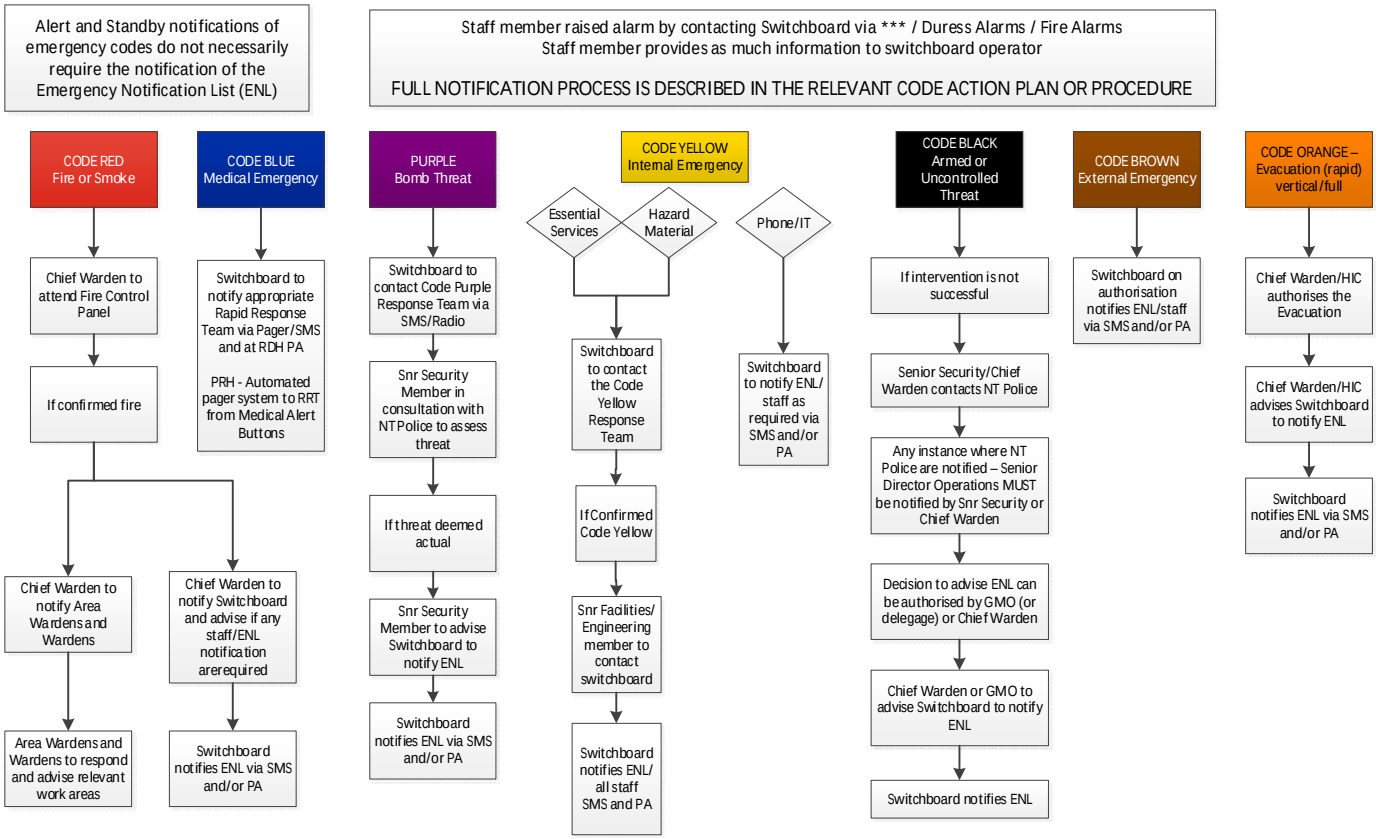
Delegates of RDH include Director of Nursing and Midwifery and Director of Medical Services

Delegates of PRH include Executive on-call and Operations Manager Non-clinical Services.

CODE		ALERT	STANDBY	RESPOND	STAND DOWN
		Authority to Activate			
Red	Fire and Smoke	ALL STAFF	Chief Warden Area Warden Warden	Chief Warden Area Warden Warden	Chief Warden ED RDPH (or delegate) HIC if appointed
Blue	Medical Emergency			ALL STAFF	
Purple	Bomb Threat	ALL STAFF	Chief Warden (CW) NT Police ED RDPH (or delegates) RDH ONLY - Security Manager (or delegate)	Chief Warden (CW) NT Police ED RDPH (or delegates) RDH ONLY - Security Manager (or delegate)	NT Police in consultation with Chief Warden or ED RDPH (or delegate) HIC if appointed
After hours		CNM HRC (as Chief Warden) Executive on Call	CNM HRC Executive on Call	CNM HRC Executive on Call	CNM HRC Executive on Call
Yellow	Internal Emergency	ALL STAFF	ED RDPH (or delegate) Engineering Mgr RDH Engineering Site Mgr PRH	ED RDPH (or delegate) Engineering Mgr RDH Engineering Site Mgr PRH	ED RDPH (or delegate) Engineering Mgr RDH Engineering Site Mgr HIC if appointed
After hours		CNM HRC (as Chief Warden) Executive on Call	CNM HRC Executive on Call	CNM HRC Executive on Call	CNM HRC Executive on Call

Appendix D
Emergency Notification Process

Notification process (overview)



RDPH Emergency Notification List (RDPH ENL) members

Key positions within the Hospitals will be notified when an emergency code has been activated. The individual procedures and actions cards will determine the process but once a response is required (excluding Code Blue and some specific Code Black activations), the RDPH Emergency Notification List members will be notified.

The RDPH ENL members are responsible for ensuring that staff in their areas of responsibility are advised of any codes/incidents that relate to their work area.

ENL is notified via Switchboard Spok Messaging system – “Code ENL RDPH” list or the global email address “RDPH ENL”.

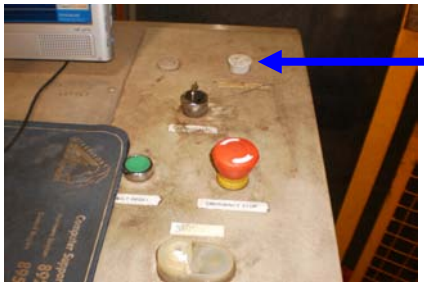
The RDPH ENL list is managed by the Emergency Management Team and the RDH Switchboard.

Appendix E
Steriliser Machine Failure or Breakdown Procedure

Steriliser Machine Failure or Breakdown

De - activate the steriliser machine by pressing a **single SHUT-DOWN** button. Buttons are located one at each exit door & one on the steriliser machine operating consol.

SHUT DOWN button near the exit doors



SHUT DOWN button on the machine consol

Contact RDH Engineering to report the machine failure/breakdown**.**

- Business Hours 08 89228093, or 08 89228194
- After Hours RDH Switchboard 28888.

Note on the communications board located next to the entrance to the staff room the details of the machine failure/breakdown including date/time reported to RDH Engineering.

Report the machine failure/breakdown onto ***RiskMan.***

Appendix F
Cytotoxic Waste Spill Kit Instructions - Purple Bag Intact (no-spill)

Code Yellow - Cytotoxic Waste Spill

Purple Bag Intact (no-spill)

In the event of a purple bag becoming separated from a purple bin (in-tact & no contents spilled)

Locate a **BAXTER Hazardous Drugs Spills** kit located in the cabin of the transport truck, the Managers Office or the purple bin storage room.

Remove & wear the PPEC provided in the kit – a Gown, Mask, Goggles and 1 pair of Gloves to protect the body as shown below:

Place the intact purple bag into a purple bin.

Remove the used PPEC & place into the bag provided in the spills kit.

Place the bag containing the used PPEC into a purple bin & re- lock the bin.

Thoroughly wash & rinse hands and face with warm soapy water

Replace the used Spills Kit – order through RDH Pharmacy.

Report the incident on ***RiskMan.***

Appendix G
Cytotoxic Waste Spill Kit Instructions - Purple Bag Broken (contents spilled)

Code Yellow - Cytotoxic Waste Spill
Purple Bag Broken (contents spilled)

In the event of a purple bag becoming separated from a purple bin (broken & contents leaked)

Locate a **BAXTER Hazardous Drugs Spills** kit/s located in the cabin of the transport truck, the Managers Office or the purple bins storage room.

Remove the '***Caution Hazardous Drugs Spills'*** signs from the kit signs & place appropriately to warn others.

Contact the RDH Switchboard on triple star (***) & advise of a Code Yellow Dangerous Goods spill, the location & approximate size of the spill & request the Chief Warden be paged to attend the scene. Also contact the Waste Manager & advise of the situation.

Remove & wear ALL PPEC provided in the kit (one set for each person involved in the clean up) Gown, Mask, Goggles ,2 pairs of Gloves & Yellow Boots as shown below::




Complete the clean up following all directions provided in the spills kit (see over page).

Thoroughly wash hands & face with warm soapy water.

Present (immediately following clean-up) to the RDH Emergency Department informing staff that this is a work related presentation for assessment.

Report the incident on ***RiskMan.***

Appendix H
'Baxter' Spill Kit Instructions

Baxter

Hazardous Drugs Spill Kit Procedure Form

PROCEDURE:

1. DO NOT PANIC - STOP AND THINK. Alert others to the spill. Do not leave spill unattended.
2. Remove contaminated clothing quickly and wash affected skin with soap and water.
3. Contain the spill
    a) Place towelettes around the spill to contain it.
    b) For liquid or powder spills, gently lay the Chemosorb pads over the spill.
4. Prominently display the Caution Hazardous Drugs Spill signs at the spill's perimeters.
5. Don Personal Protection in the following sequence:
    a) Respirator mask
    b) Safety glasses
    c) Hairnet (if you have long hair)
    d) One pair of gloves
    e) Chemogown – keep inner pair of gloves under the Chemogown
    f) Overshoes
    g) Second pair of gloves. Pull gloves over the Chemogown cuff.
6. Set up - Open white and purple waste bags & roll down the top so items can be placed inside without touching their exteriors. Make sure all kit items are within easy reach.
7. Clean the spill - If a powder spill, gently pour water onto Chemosorb pad so that it saturates (without flooding) the area. Wait for the water to soak through the pad into the powder.
8. Scoop up broken glass and / or powder slurry using the plastic scoop and scraper and dispose of it in the white waste bag.
9. Using towelettes moistened with water, start from the spill's outside edge to carefully wipe towards the spill's centre and dispose of it in the white bag. Use a fresh wipe each time.
10. Dry the area - Using any remaining towelettes, dry the area and dispose of them in the white bag.
11. If required, as detailed in the standard operating procedures at your facility, give the area a final wash with a mild detergent or hypochlorite solution. Note that these extra cleaning agents are not included in the spill kit and will need to be maintained separately.
12. Discard waste - Remove all Personal Protection in the following sequence:
    a) Overshoes
    b) Outer gloves – be careful not to contaminate the inner gloves
    c) Chemogown
    d) Safety glasses
13. Place these items in the white bag and carefully tie it at the top using a cable tie. Do not press it down as broken glass could puncture the bag.
14. Place the white bag inside the purple bag without touching its exterior then remove inner pair of purple gloves and respirator and place of them in the purple waste bag.
15. Use the second cable tie to secure the purple waste bag and dispose of it as per your facilities protocol or according to state legislation.
16. Wash your hands thoroughly with soap and water.
17. Report the incident – Advise your supervisor and complete the Incident Report Form.
18. Replace the Spill Kit - Discard the old spill kit and arrange to have another kit ordered.

C R G HEALTHCARE
In association with Ph: (02) 8437 4600