Fire Prevention Plan

Babraham Research Campus Ltd

Application Reference: EPR/WE3374AB/A001

WHO THIS PLAN IS FOR

This plan is for the Technically Competent Manager, Site staff, contractors and the local Fire and Rescue Service (FRS). A copy of this plan will be kept on site and accessible for site staff, contractors or the FRS to review.

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1. SCOPE

This application is for a Bespoke Environmental Permit application under the Environmental Permitting (England and Wales) Regulations 2016 (as amended) for a Waste Operation.

The scope of this application is limited to the bulking and storage of wastes for treatment, transfer, and onward dispatch to an appropriately permitted facility. The wastes received originate entirely from the facilities operating on the wider Babraham Research Campus. The waste operation in effect serves as a subsidiary operation to centralise the collection of wastes from the research campus before onward transfer.

The composting operation undertaken is of similar small-scale, utilising the collection of animal bedding, food, and wastes originating from onsite grounds care to produce composting to be spread on the agricultural land part of the wider Babraham facility.

The activity codes as defined in the EU Waste Framework Directive 2008/98 are:

Description of activities	**Limits of activities**
D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced) **R13**: Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced) **D14:** Repackaging prior to submission to any of the operations numbered D1 to 13 **D9**:Physico-chemical treatment not specified elsewhere in Annex IIA which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D8 and D10 to D12 **R3**: Recycling/reclamation of organic substances which are not used as solvents **R4**: Recycling/reclamation of metals and metal compounds **R5**: Recycling/reclamation of other inorganic materials	Treatment consisting only of manual sorting, separation, screening, baling, shredding, crushing or compaction of waste into different components for disposal, (no more than 50 tonnes per day) or recovery. Physical treatment and composting.

2. TYPES OF COMBUSTIBLE MATERIALS

2.1. Combustible waste

The site will have;

- Both hazardous and non-hazardous Waste Electrical and Electronic Equipment recycling items (WEEE);
- Confidential Shredding (paper)
- CL2/GM2 Infectious Clinical Waste & Sharps (Plastic, rags & textiles, scrap metals);
- Cytotoxic Waste & Sharps (Plastic, rags & textiles, scrap metals);
- Dry Mixed Recycling (Paper and cardboard)
- Clothing, rags, cloths – contaminated.

2.2. Persistent organic pollutants

The site handles both hazardous and non-hazardous Waste Electrical and Electronic Equipment recycling items (WEEE) collected from the tenants' activities of BRC. This waste pile is isolated over 6 m away from other waste on site and stored in one of the buildings on site (as shown by Site Layout Plan K436.1~20~003).

2.3. Other combustible materials

A petrol safe cabinet (up to 200L) and bunded diesel tank (red diesel, 2500L) are located on site as shown in the Site Layout Plan K436.1~20~003.

Other combustible materials present on site include:

- Transmission Oils
- Hydraulic Oils
- Engine, gear and lubricating oils
- Used COSHH container wastes and solvents
- Used oil filters (COSHH)
- Used antifreeze (COSHH)
- Fuel oil and diesel/petrol (COSHH)
- Contaminated clothing, rags and clothes (COSHH)

3. USING THIS FIRE PREVENTION PLAN

3.1. Where the Plan is Kept and How Staff Know How to Use it

A hard copy of the plan shall be readily available at the site office during operational hours and is available on request to visitors and contractors. All staff are to read the FPP as part of their induction and sign a training log. Any changes to the plan shall be communicated to staff via training. Visitors and visiting contractors are given a brief overview key fire related measures such as the evacuation muster point and any fire extinguishers in their work area. If their visits extend over considerable length of time or on a regular basis, then they will be encouraged to read the plan in full and sign the training log. Emergency services will be allowed immediate access to the plan and further hard or digital copies can be made available if required.

3.2. Testing the Plan and Staff Training

Evacuation drills are conducted monthly at the discretion of Site Management in accordance with the Fire Drill Procedure and are recorded in the site diary. Any issues are addressed through site meetings and further training if/when necessary.

3.3. Activities at the Site

The site is underlain by an impermeable surface on which three buildings sit, with a dedicated access point into the yard area. The yard area at the forefront of the site is where waste compaction operations are undertaken alongside storage for municipal offensive waste storage. The building immediately to the left of the site entrance is used primarily for storage of WEEE wastes. The building located on the northern boundary is used for the storage and processing of clinical wastes. The bottom left corner on site is reserved for the composting operation. These activities and storage areas are indicated on the Site Layout Plan (K436.1~20~003).

Various waste streams are accepted onto site and collected through often daily collections from the adjoining BRC facilities and the associated tenants. All wastes accepted originate from this source with no wastes accepted from outside companies.

Waste Processing

Waste processing is limited to the compaction of dry mixed recyclables (DMR) and municipal wastes and a small-scale composting operation to facilitate the maintenance and upkeep of the wider BRC site. All wastes originate from the tenants on the campus or the maintenance of the wider site. Other waste activities, as described, relate to the storage and bulking of wastes before onward transfer to appropriately permitted facilities.

Compaction of municipal and DMR are undertaken within the main yard area of site and stored within containers (see Site Layout Plan, K436.1~20~003).

Composting operations are minor in scale and undertaken within the south-west corner of site, where incoming material is stored within containers, the material being processed is mixed in two static mixers and then formed into a windrow.

4. PLAN OF SENSITIVE RECEPTORS NEAR THE SITE

Sensitive Receptors are shown on the Sensitive Receptors Plan (K436.1~20~002) and in the Sensitive Receptors Table (Appendix A). The Sensitive Receptors displayed are in all directions. The closest observing station where weather data is available is Andrewsfield, located approximately 30 km south-east of the permit boundary. Figure 1 below shows the wind rose for which indicates the prevailing wind is from the south-west meaning those receptors located north-east are at greatest risk of wind-blown emissions.

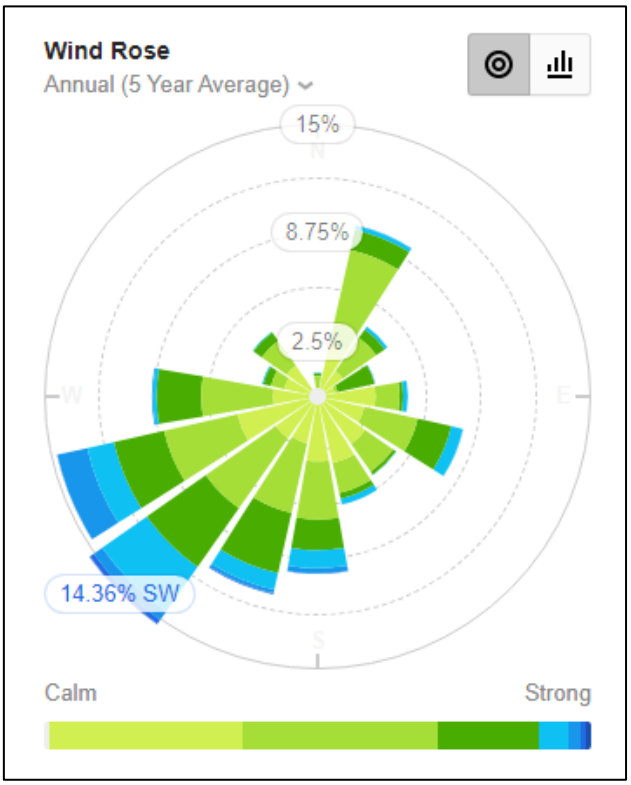

Figure 1. Wind Rose Indicating Prevailing Wind Directions

5. MANAGE COMMON CAUSES OF FIRE

5.1. Arson

The risk of arson is low given the proximity of neighbouring businesses and research operations.

The site possesses perimeter fencing and is only accessible through the entrance/exit, on the eastern boundary and covered by 24/7 CCTV cameras.

5.2. Plant and Equipment

Plant used on site in relation to the waste operations include: agricultural tractor and self-loading trailer for transport of general and DMR; a canvas covered cage truck, for transport of clinical & hazardous wastes; and a Merlo telehandler for loading of general and DMP waste.

Additionally, there are other machines based on site, including:

- Agricultural tractors
- Compact loaders
- Tracked chippers
- Compact tractors
- Mowers & flails
- Horticultural machinery
- Agricultural attachments

All equipment will be maintained in line with the manufacturer's guidance.

All mobile plant will be equipped with fire extinguishers.

When not in use mobile plant will be situated more than 6m away from combustible waste.

5.3. Electrical Faults Including Damaged or Exposed Electrical Cables

Any electrical faults noticed on site during normal inspections or throughout the working day are isolated. A qualified electrician will be called to resolve the problem. If required, the electric shall be switched off at the fuse box to prevent an ignition risk.

5.4. Electrics Certification

All electrics are certified every five years.

5.5. Electrical Equipment Maintenance Arrangements

Electrics are fully certified by a competent person, every 5 years. All electrical equipment is PAT tested once a year. HSS maintain all hired equipment as part of the contract with the site.

5.6. Discarded Smoking Materials

Any waste that is found to be smouldering, smoking or alight upon arrival into the site or during storage on site will be isolated within the quarantine area if safe to do so and subsequently

extinguished. The site operates a strict no smoking policy across site, except in designated areas. CCTV cameras are equipped with infra-red detectors that would pick up signs of combustion in the yard.

5.7. Smoking on Site Policies

No smoking is permitted on site, except within designated areas.

5.8. Hot Works Safe Working Practices

Hot works may sporadically be carried out, therefore staff and contractors will follow safe working practices, such as a permit to work system. There will be a fire watch carried out for a suitable period after hot works have ended, particularly at the end of a working day.

5.9. Industrial Heaters and Use

No industrial heaters are used on site..

5.1. Hot Exhausts and Engine Parts

Staff remain vigilant when using mobile plant and equipment for any signs of combustion and will carry out checks at the start and end of the working day to ensure there is no ignition risk. When not in use mobile plant is stored away from any combustible material and equipped with fire extinguishers.

6. FIRE WATCH PROCEDURES

A start and end of the day fire watch procedure shall be conducted. Findings shall be recorded within the site diary. CCTV system monitors the site 24/7, with thermal detectors in the yard area which would pick up signs of combustion. Staff are trained to remain vigilant for signs of self-combustion within waste piles and containers.

7. IGNITION SOURCES

There are no notable or consistent sources of ignition on site. Wastes stored are in small quantities and stored within containers or designated bays. The limited treatment processes

7.1. Batteries

Batteries are received solely as batteries and stored in solid pallet boxes ready for transfer and disposal off site.

7.2. Leaks and Spillages of Oils and Fuels

Spill kits are situated strategically across site to ensure that any spillages that may occur can be tackled appropriately. Any contaminated absorbents will be appropriately disposed. The area is then washed down and retained within the sealed drainage system. All containers are checked for integrity on a daily basis as part of scheduled checks.

7.3. Build-Up of Loose Combustible Waste, Dust and Fluff

Daily housekeeping occurs on site and management will instruct larger scale cleaning if needed. Housekeeping is recorded as part of daily site checks.

Given the scale of the non-commercial operation is relatively small general waste and litter shall not gather in significant quantities owing to robust housekeeping protocols and daily site inspections.

7.4. Reactions Between Wastes

All wastes are stored within designated bays or containers. Daily site inspections take place at the beginning and end of each day and staff are trained to be vigilant for any signs of reactions or combustion between wastes however unlikely. The quarantine area will be utilised in the unlikely occurrence of a reaction.

8. WASTE ACCEPTANCE AND DEPOSITED HOT LOADS

Wastes will be delivered to site via the entrance positioned to the East of the site by BRC vehicles (see Site Layout Plan K436.1~20~003). Upon arrival all vehicles and loads will undergo an initial visual inspection of the load and written waste descriptions by the TCM or appropriately appointed staff member.

Once loads have been accepted and unloaded, vehicles will be required to return to the site office to complete the relevant Duty of Care documentation.

Contamination or non-conforming loads identified during the initial inspection will be rejected and details of the rejections along with dates, times, and reasons recorded and retained. Of awaiting collection for transportation to a suitably permitted facility, they shall be stored within the quarantine area or an appropriate container.

Where limited volumes of contamination or non-conforming material are identified, the TCM will be consulted. Where possible and if safe to do so, contaminated, or non-conforming material will be picked out by hand or plant equipment and isolated into an appropriate rigid container (if possible) or within the quarantine area pending disposal at a suitably permitted facility.

In the unlikely event that smouldering or burning material is identified during the initial inspection immediate action will be taken to extinguish the load, the load will be rejected from the site and the waste carrier notified that the load will not be tipped on site.

9. HOT AND DRY WEATHER

All wastes once accepted are either stored within a container. Limited amounts of waste are stored outside so the impact of hot weather is limited; further measures such as CCTV with thermal detectors, the implementation of the FIFO method and limited storage times minimise risk.

Daily checks are made on site both at the start and end of the operational day to monitor any signs of self-combustion and housekeeping issues that may contribute to an ignition risk.

The site operates a First-In-First-Out (FIFO) procedure which helps to limit storage time of waste. Under normal operating procedure, waste shall be temporarily stored before being transferred for onward recovery or disposal. If extenuating circumstances extend this period, it will be ensured that this does not exceed the 3-month period stipulated within the Environment Agency’s guidance.

10. GENERAL SELF-COMBUSTION MEASURES

Owing to the limited time that waste is to be stored, the nature of permitted waste types and being stored in the largest form, the risk of self-combustion from a high temperature exothermic reaction is very low.

All operational staff will be required to remain vigilant and implement an informal fire watch throughout the day. The TCM and Site Management will remain up-to-date with government reports and weather updates to manage the site in accordance with the government guidance provided.

Site inspections are carried out routinely each day with a formal ‘End of Day’ carried out to check for fire risks and signs of self-heating

Waste piles will be managed in accordance with the measures, pile sizes and separation distances outlined within this FPP.

11. MANAGE STORAGE TIME

11.1. Method Used to Record and Manage the Storage of All Waste on Site

Loads entering the Babraham Estate site are recorded using a waste transfer note for non-hazardous waste and a consignment note for hazardous waste, with their storage time monitored. All deliveries are scheduled prior to arrival. This paperwork is used consistently, providing an overview of stock levels and storage durations. This process is representative of a First in First out policy (FIFO).

11.2. Stock Rotation Policy

The site operates a FIFO policy and periodically conducts physical assessments of stock to supplement the recording of transfer notes. The brevity of the storage of wastes on site ensure that stock is frequently rotated, and FIFO is practised.

12. MONITOR AND CONTROL TEMPERATURE

12.1. Monitoring Temperature

Daily site inspections incorporate monitoring of temperature for any waste stored on site. Site staff are trained to be vigilant for any signs of self-combustion throughout the day and are trained in first response to any fire detected.

Waste streams accepted on site are not deemed as high risk for self-combustion. The quick turnaround times prevent the build-up of latent heat. All wastes stored are in small quantities and stored within bays or containers.

CCTV cameras monitor waste piles and other areas to detect signs of self-combustion. Thermal detectors monitor the yard for signs of combustion.

12.2. Controlling Temperature

Waste streams accepted on site are not deemed as high risk for self-combustion. The quick turnaround times prevent the build-up of latent heat. Waste is stored in small quantities and containerised or stored within fire-resistant bays. Daily site inspections are conducted at the beginning and end of each day whilst site staff are trained to remain vigilant for any signs of combustion.

12.3. Dealing with Hot Weather and Heating From Sunlight

Wastes stored outside are done so within containers or fire-resistant bays on an impermeable surface. The quick turnaround times reduce the impact of direct heat from sunlight.

12.4. Waste Bale Storage

No waste is baled on site; compacted waste is done so loosely, in bulk and stored within containers (see Site Layout Plan, K436.1~20~003).

13. MANAGE WASTE PILES

13.1. Storing Waste Materials in Their Largest Form

Only municipal and dry mixed recyclables are compacted, reducing their size. All other wastes are stored in their largest form within designated storage areas (see Site Layout Plan K436.1~20~003).

13.2. Maximum Pile Sizes for the Waste on Your Site

Table 4: Pile Sizes

Waste stream	**Location** (must match site plan)	**How it is stored** For example this may include piles, bays, containers, skips, racks, bales	**Max. length / m**	**Max. width / m**	**Max. height / m**	**Volume / m^3**	**Max. time it will be stored**
WEEE	See K436.1~20~003 (WEEE Storage Bay)	Dedicated storage bay	12	4.7	3	169	3 months
Municipal Offensive Waste	See K436.1~20~003 (Municipal Offensive Storage)	1100L Bin	-	-	-	1.1	1 month
Infectious /Hazardous clinical waste	See K436.1~20~003 (Clinical Waste Processing & Store)	30/60L Bio Bins & sharps boxes, inside 1100L bins or stacked on pallets	-	-	-	1.1	2 weeks
Cytotoxic waste	See K436.1~20~003 (Clinical Waste Processing & Store)	30/60L Bio Bins & sharps boxes, inside 1100L bins or stacked on pallets	-	-	-	1.1	2 weeks

Waste stream	**Location** (must match site plan)	**How it is stored** For example this may include piles, bays, containers, skips, racks, bales	**Max. length / m**	**Max. width / m**	**Max. height / m**	**Volume / m^3**	**Max. time it will be stored**
Anatomical Waste	See K436.1~20~003 (Clinical Waste Processing & Store)	Bagged, frozen. Transferred to UN3291 containers and loaded in 660L bins for dispatch	-	-	-		1 month
Confidential shredding – Paper	See K436.1~20~003 (Dry Matter Recycling)	Bagged, Inside 1100L bin	-	-	-	1.1	1 month
General Municipal Waste	See K436.1~20~003 (General Municipal Compactor)	32-yard compactor skip 40-yard open skip	6.1	2.4	2.6	30.6	2 weeks
Dry mixed recyclables	See K436.1~20~003 (Dry Matter Recycling)	32-yard compactor skip	6.1	2.4	2	22.9	2 weeks
Glass waste	See K436.1~20~003 (Glass Waste Skip)	6 Yard Enclosed Skip	2.6	1.5	1.2	4.6	3 months

Waste stream	**Location** (must match site plan)	**How it is stored** For example this may include piles, bays, containers, skips, racks, bales	**Max. length / m**	**Max. width / m**	**Max. height / m**	**Volume / m^3**	**Max. time it will be stored**
Compostable Waste	See K436.1~20~003 (Compostable Waste Processing)	Compost mixers, then heap site (on 3-year rotation)	5	2.5	2.2	27.5	2 weeks in mixers 1 year in compost heap Spread on agricultural land (within boundary)

13.3. Waste Stored in Containers and Types of Containers

WEEE waste is stored as a 4.7m wide, 12m deep, 3m high storage area; clinical waste is stored either in the 30L/60L UN3291 hermetically sealed bins on a pallet, or inside an 1100L bin in containers, sharps bins, clinical waste bags; a 32-yard compactor skip; a 40-yard open skip.

All containers are inspected frequently to ensure integrity is maintained.

13.4. Accessibility of Containers

All containers are accessible on at least one side.

13.5. Moving Containers in a Fire

In the event of a fire, mobile plant shall be used to move containers to the quarantine area, if safe to do so. If safe to do so, non-burning waste shall be moved to the quarantine area to effectively isolate the burning waste in-situ.

14. COMPOST PRODUCTION

A small-scale composting operation will be undertaken for the purpose of land-spreading on the agricultural land to facilitate the maintenance and upkeep of the wider BRC site. The proposed activities at site are directly linked to the wider BRC site and the companies that operate within the facility and all wastes detailed within this document and those supporting the application originate from these facilities.

The proposed operations are in effect a supporting activity to the operation of the research facility; the operations are not commercial in nature and will not take in wastes outside of the wider BRC site. This is reinforced by the limited annual throughput of 5,000 tonnes.

15. PREVENT FIRE SPREADING

15.1. Separation Distances

A 6 m separation distance will be maintained at all times between combustible wastes, other combustible/flammable materials, where containers are not used. Combustible wastes are situated away from mobile plant when not in use. Combustible and flammable materials such as oil, fuels, and gas canister are stored in excess of 6 metres from combustible waste on site.

16. STORING WASTE IN BAYS

Waste is stored in small quantities and containerised on an impermeable surface. Fire walls are not implemented but the only waste not containerised (WEEE wastes) is situated away from other wastes. Wastes located nearby are containerised.

All containers are inspected frequently to ensure integrity is maintained.

The site operates a FIFO policy and periodically conducts physical assessments of stock to supplement the recording of transfer notes. The brevity of the storage of wastes on site ensure that stock is frequently rotated, and FIFO is practised.

17. QUARANTINE AREA

17.1.1. Quarantine Area Location and Size

Quarantine area and the associated 6 m separation distance is shown on the Site Lay-out Plan ([reference]). In accordance with the guidelines set out by the Environment Agency, the quarantine area can hold up to 50% of the largest waste pile.

Quarantine area covers an area of 90 m^3 which covers more than the required 85 m^3 as dictated by the largest waste pile (169 m^3).

17.2. How to Use the Quarantine Area if There is a Fire

In the event of a fire the quarantine area can be used to hold smouldering burning waste if safe to move from its storage location. It may also be used as a location to move non-burning/smouldering waste, so the burning material is isolated in-situ.

17.3. Procedure to Remove Material Stored Temporarily if There is a Fire

The quarantine area will be made available at the point of use as a location to move non-burning/smouldering waste, so the burning material is isolated in-situ.

18. DETECTING FIRES

18.1. Detection Systems in Use

The site is monitored 24/7 by CCTV cameras and available remotely to management of the site, whilst thermal detectors monitor for signs of temperature build-up. Site staff physically monitor wastes throughout the day, both on an ad-hoc basis and with formalised daily inspections. All staff are required to remain vigilant during operational hours and will be trained in required actions to be taken upon detection of a fire.

18.2. Certification for the Systems

CCTV specification is included in Appendix B. Cameras are subject to annual planned maintenance as well as ad-hoc where required.

19. SUPPRESSING FIRES

19.1. Suppression Systems in Use

Fire extinguishers are located strategically around site and all staff are aware of their locations and the procedure to use them efficiently. Mobile plant will also be fitted with fire extinguishers. All extinguishers are maintained in accordance with the manufacturer's guidelines.

Primary suppression system in a larger scale event would be the fire hydrant located approximately 20 m away from site; this is well within the stated 100 m distance within the Agency's FPP guidance.

20. FIREFIGHTING TECHNIQUES

20.1. Active Firefighting

Fire extinguishers are located strategically around site and all staff are aware of their locations and the procedure to use them efficiently.

The aim for the site staff is to extinguish any fire at the earliest opportunity before it can have the opportunity to spread. Upon detection burning material will be moved to a quarantine area or isolated in-situ if safer to do so.

If the fire cannot be extinguished by site staff, then the Fire Rescue Service will be contacted.

The fire hydrant located outside of site can be utilised in the case of a larger scale event (see Site Layout Plan, K436.1~20~003)

21. WATER SUPPLIES

21.1. Available Water Supply

Water supply is provided by a fire hydrant positioned 20 m east of the site entrance with an estimated flow rate of 1200L/min.

21.2. Show the Calculation for Your Required Water Supply

Table 5: Water Supply Calculation

Maximum pile volume in cubic metres	Water supply needed in litres per minute	Overall water supply needed over 3 hours in litres	Total water available on site in litres
Enter volume, for example, 300	Pile volume x 6.67	Water supply per minute x 180	Fire hydrant water supply x 180
169	1,129	203,220	216,000

22. MANAGING FIRE WATER

22.1. Containing the Run-Off from Fire Water

Site benefits from an impermeable surface and sealed drainage system which includes the following:

- As shown in the Site Layout Plan (K436.1~20~003) there is a ACO Drainage Channel around the site, channelling surface run off to water catchment chambers;
- There are two water catchment chambers, positioned to the North of the site, which collect surface run off from site. Drain guards provide a physical barrier preventing contaminated water from entering the water table;
- Water is then directed to the runoff interceptor tank (full retention separator NSFA050) position to the North-East of the site, which can be closed to prevent contaminated run-off, in the case of a fire, from entering the water table.

23. During and after an incident

23.1. Dealing With Issues During a Fire

Site operations will cease, and operatives will be informed to clear the site, or not attend. Any collections will be cancelled, and any deliveries will be diverted to another suitably permitted site. Site management will be present on the site during the fire, or as close as is deemed safe, and available to emergency services and responding to any issues that arise.

23.2. Notifying Residents and Businesses

In the event of smoke emissions all neighbouring units will be notified whether physically or via telephone contact.

The Environment Agency shall be contacted as per permit requirements on the Environment Agency Incident Hotline: 0800 80 70 60.

23.3. Clearing and Decontamination After a Fire

A third-party contractor will be instructed to clear and decontaminate areas of the site impacted by a fire, including the water interceptor.

23.4. Making the Site Operational After a Fire

It is unlikely that a fire event will impact the operations significantly, however the site will be cleaned and inspected post fire. A third-party contractor will be instructed to clear and decontaminate areas of the site impacted by a fire. Also, structural damage will be repaired as soon as possible prior to operations re-commencing.

The root cause of the fire will be established, and all site procedures and this document review, and staff updated with any changes.