Runcorn ERF
Fire Prevention Plan

Version: 4.0

Environmental Permit: EPR/RP3638CG

Runcorn Energy Recovery Facility
Barlow Way
Runcorn
Cheshire
WA7 4HG

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Referenced Drawings

Drawing Numbers	Drawing description
12159_151_01_2100_3	External Site Services – Key Plan
12159_151_01_2066_3	Site Layout
12159_151_01_2065_6	Site Boundary Plan
12159_151_01_2115_3	Site Drainage Plan
12159_305_01_5911_2	Building services upper tipping hall

Fire Prevention Plan Table of Contents

1. Site Description

1.1. Introduction

This report follows the Environment Agency (EA) guidance for Fire Prevention Plans[1] (FPP) and details the required mitigation and management methods to prevent a fire of combustible materials stored on site.

The information contained within this FPP aims to meet the 3 main objectives of the EA FPP guidance:

- Minimise the likelihood of a fire happening;
- Aim for a fire to be extinguished within 4 hours; and
- Minimise the spread of fire within the site and to neighbouring sites.

There is a requirement to share the Fire Management Plan, which includes the FPP, since the site's operations are collocated within a common operational boundary and share the boundary on North and East side of site is Inovyn Caustic Works. West side boundary is Inovyn Salt and SSE.

Under current fire safety legislation[2], a responsible person must carry out, or appoint a competent person to carry out, a suitable and sufficient fire risk assessment of the risks of fire to employees and others who may be affected by the site. This risk assessment was conducted by FCS Live Limited and is included as Appendix 01.

1.2. Environmental Management System

In accordance with EA guidance 'develop a management system: environmental permits' the permitted activities are managed and operated in accordance with a written management system. Viridor maintains a robust management system that incorporates a number of procedures related to fire safety. Within the Viridor system Runcorn is recognised as Runcorn Energy from Waste. (Runcorn ERF)

This FPP, a copy of Environmental Permit (EPR/RP3638CG), the Environmental Risk Assessment, Fire Risk Assessment, and the Incident Response Plan (IRP) are retained on site for reference by all site staff.

[1] Fire Prevention Plans, November 2016.
[2] Regulatory Reform (Fire Safety) Order 2005

1.3. Training and Responsibilities

It is the role of the Technically Competent Management (TCM) for the site to implement and maintain at site level the relevant Company Policies and Procedures for the permitted activities including the FPP. Site employees are trained in the Incident Response Plan (IRP) and undergo regular refresher training to ensure they possess the required level of awareness. All staff and contractors working on site are made aware of the contents of the FPP and the procedures that are in place in the event of a fire on site.

Viridor conduct a test of the FPP at least once a year, or in the event of any significant changes to site operations, to ensure that the contents are still relevant and that all staff members' knowledge is current and up to date.

The site is BSI accredited to the ISO 14001, 9001, 50001 and OHSAS 18001 standards.

1.4. Environmental Site Setting

The site is located in Runcorn. National Grid References are:

- Turbine Hall – SJ4977481635
- Tipping Hall – SJ4986381622
- Waste Bunker – SJ49895816577
- Flue Gas Treatment Area – SJ49833281752

The site is accessible via Barlow Way on the eastern side of the site. Vehicles enter via the weighbridge and subsequently travel to the tipping hall up the ramp. The ramp is designed to support heavy goods vehicles, so will have no issues for the Fire Service in the event of a fire. Waste is also delivered to site via train. The rail line used is known as Folly Lane and is managed by Freightliner (UKBULK Handling). Containers on the train are sent from Manchester Viridor Sites. The containers are offloaded from the train via roll on roll off Terburg vehicles.

The site and permit boundary are shown marked on drawing (Keppel Seghers 12159_041_01_1007_12 Road and Roof Plan). All permitted waste management activities take place within the permit boundary.

1.5. Pathway Assessment and Key Receptors

The site is situated in a highly industrialised area but is also within close proximity to residential estates.

Table 1. Sensitive Receptor List

Location Runcorn EFW	Dist. (km)	Dir. from site	Location	Dist. (km)	Dir. from site
Surface Water			***Schools***		
River Mersey	0.25	West	Weston Point Primary School and Pre School	0.5	South East
River Weaver and Weaver Navigation	0.25	West	Westfield Primary	1	North East
Transport			**Medical**		
Runcorn Train station	1	North	Halton General Hospital	4	South East
			POI		
			Runcorn Golf Club	1	East
			Heath Park	1	

A plan drawing showing areas that could be at risk from site are shown in the site plan drawing. Drawing Office ref RUN ERF 09

Local meteorological data is half hourly recorded using the John Lennon Airport weather station and the local predominant wind directions are from the South-Westerly to Westerly. Wind directions from the other sectors occur relatively infrequently. The predominant wind speed range is 13 – 16 km/h.

Therefore, in the event of fire it can be assumed that the most likely receptor for smoke and particulates are those areas to the northeast of the facility.

The industry covering North West and South sides of side is Inovyn.

Runcorn EFW reference doc ERF-RUN-EHS-P015 Incident Response Plan Section *A.2.3.* States all external stakeholders, INOVYN, and SSE contact details.

There are residential properties North, East, and South sides of site, these properties are mixed in with the other neighbouring industries. Also North and East of site lies Runcorn Widnes Bridge and Weston Point Expressway. These throughways could be impacted by any smoke accidentally emitted from site, if this was to happen the council would be contacted immediately who will then initiate their controls for roads.

1.6. Site Process

The activities at the site are regulated under Section 5.1, Part A, (1) (b)[3] of the Environmental Permitting Regulations 2016 (as amended). The activities include;

'The incineration of non-hazardous waste including the operation of an incineration line, boiler and auxiliary burner; facilities for the treatment of exhaust gases; on-site facilities for treatment, storage and disposal of residues, surface water and waste water; systems for controlling and monitoring incineration operations; and receipt, storage and handling (including shredding) of wastes and raw materials (including fuels) [4]'.

The site also operates a combined heat and power (CHP) facility treating up to 1.04 million Tonnes of pre-treated Refuse Derived Fuel (RDF) each year and generates up to 70MW of electricity and up to 51MW of heat, for exclusive use by Inovyn ChlorVinyls.

1.7. Waste Types, Quantities and Storage

The site stores the following waste types which are defined as combustible materials in the FPP Guidance:

- Paper and cardboard;
- Plastics;
- Rags and textiles;
- Scrap metals;
- Mixed waste;
- Rubber;
- Wood; and
- WEEE.

[3] The incineration of non-hazardous waste in a waste incineration plant or waste co-incineration plant with a capacity exceeding 3 tonnes per hour.
[4] Details of operations taken from Schedule 1 – Operations, Table S1.1 Activities of the Environmental Permit (Ref: EPR/RP3638CG).

The waste bunker stores up to approximately 14,000 tonnes of waste between Monday and Friday, with less waste being delivered at the weekend.

Exact tonnage quantities vary as waste is constantly loaded into the incinerators. This is led by demand per line, with an approximate load of 25 -30 tonnes per hour. Fuel used at Runcorn EFW is combustible waste (refuse derived fuel) and other wastes including mixtures of material from mechanical treatment of wastes. The sites Environmental Permits categorises the waste material using the European Waste Code. (19 12)

1.8. Site Access

The site is accessed via Barlow Way on the eastern side of the site. The closest Fire Station is located on Heath Road, Runcorn to the east. Using Google directions[5] and mapping, the drive time is approximately six minutes and approximately 1.8 miles between the site and the Fire Station.

2. Site Fire Prevention

Fire Prevention for Runcorn ERF incorporates the identification of sources of ignition, sources of fuel and the likelihood of the fuel igniting. Additionally, through sound fire prevention engineering, management of the amount of material involved in a fire is reduced which subsequently limits the risk of spread.

The storage of waste is internal in a waste bunker, the waste bunker is armoured with water cannons and thermal imaging cameras, to highlight any hotspots in the waste.

Other areas on site liable to take fire e.g. DSEAR Zones are clearly marked and monitored.

2.1. Waste Pre-Acceptance/Acceptance/Rejection

The site follows strict waste acceptance and rejection procedures ensuring that no non-conforming waste is accepted on site. Procedure ERF-RUN-OPS-P113 applicable to waste acceptance and rejection on site, waste contracts are set up which include what waste is acceptable for Runcorn EFW.

Prior to any new waste streams being brought to the Runcorn site a pre-audit shall be carried by the RDF Commercial Manager which will include analysis of a sample of the intended incoming waste.

[5] www.maps.google.co.uk accessed January 2018

Weekly inspections will be carried out on all waste streams coming to site to check for its suitability. Any suspicion over incoming waste would dictate either refusal or a more careful inspection of the load (for example a smell of solvents). In that instance the vehicle shall be directed to the designated quarantine area within the Tipping Hall, where the driver shall expose their load to allow for inspection.

All inspections shall be conducted by trained and competent Runcorn EfW staff adhering to site specific procedures and risk assessments.

The Tipping Hall shall be monitored by the Fuel Reception staff during operations and in the event that non-conforming waste is observed while a vehicle is tipping; the driver shall be directed to cease discharging until an inspection has been carried out.

If any suspected non-conforming waste has been discharged, it shall be segregated and transferred to the dedicated quarantine area, as far as is reasonably safe and practical to do so.

If the load is found to contain non-conforming waste the Operations Manager shall decide whether non-conforming waste can be removed without posing a risk to health and safety of staff and visitors and can be readily and safely separated. If this is the case, the portion of non-conforming waste shall be segregated from the load and the remainder of the load shall be processed.

As a further measure of fuel quality compliance, a Viridor appointed fuel sampling technician will on a routine basis attend all suppliers. The technician will take representative fuel samples from waste streams bound for the Runcorn site and ensure that the waste being sent is of the correct composition. Any issues found will be investigated by the RDF Commercial Manager. Any actions decided upon will be tracked by the Technical EHS Manager.

2.2. Fire Detection

The site benefits from an automatic fire detection system and**,** in the event of a fire**,** the alarm is raised automatically. The site is evacuated immediately to allow trained site staff to deal with an incident. The location and details of a fire on site can be communicated across the site via radio.

Mercury, ADT and Aspect Fire, designed, supplied, installed, tested and commissioned the site fire detection and alarm systems. The systems are designed to meet the requirements of:

- BS 5839-1:2013 (L1 and P1) Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises.
- Mercury Engineering designed and installed all fire detection and fire suppression at Runcorn EFW – Mercury are certified to LPS1048 Level 4 for Sprinkler Systems, LPS1014 for Fire Detection and Alarm Systems, LPS1204 for Gas Extinguishing Systems.

Detection systems are installed in the following areas that are relevant to this FPP: for Administration Building; Tipping Hall; and Waste Bunker.

- 801PH Multi smoke & heat detector
- 801H Heat detector
- Smoke detector sounder base
- Heat detector sounder base
- Sounder
- Call point
- Fire alarm panel
- Relay interface module
- Junction box

The system incorporates the following analogue addressable devices:

- Optical smoke & heat detectors;
- Flame detectors;
- Gas detection;
- Infra-red and ultra violet detection (UVIR);
- Manual call points;
- Audible and visual alarms;
- Multi-sensors detectors; and
- Thermal imaging cameras.

The main control panel and the indicator panel are located in the control room. Networked repeater panels are located in the office building and the main site entrance gatehouses. All fire alarm control panels are fitted with standby batteries to be used in the event of a failure of mains electricity.

The actions taken in the event of a fire alarm sounding are contained within the Fire Emergency Plan. Procedure ERF-RUN-EHS-P015 – Incident Response Plan is relevant to fire detection on site.

The facility has been built in accordance with the requirements of the following:

- Building Regulations – Approved Document B (Fire Safety);
- The fire prevention and control in place at the site has been reviewed by the insurers for both Phase 1 and Phase 2 of the facility. The controls in place meet the requirements of the insurers fire prevention standard.

2.3. Inspections and Amenity Monitoring

The site is continually manned and site operatives are asked to remain vigilant at all times to look out for signs of fire. The operations team carry out planned site walks several times a shift which includes fire watches. Monitoring is also completed via CCTV in high potential areas or tasks and also to observe any unauthorised access being made to the site. There is also a fixed fire detection system linked to the control room which is manned and monitored 24/7.

Staff are trained in how to identify fires and fire hazards on site. Staff also receive training on the use and selection of fire extinguishers, site evacuation and shut down procedures, fire safety and all relevant emergency procedures.

Inspection and monitoring of the waste bunker is carried out automatically by the infra-red camera scanning system integrated into the waste bunker management programme. Further details are included in Section 2.5 below.

The site undergoes regular cleaning using mobile plant and wash down hoses/jet wash to prevent a build-up of debris and dust on site.

Daily and weekly monitoring is recorded in line with the requirements of the Environmental Permit and detailed in the EMS.

2.4. Pile Management

Stockpile sizes and waste storage times do not exceed those stated in Table 2-1 below. The table shows each storage area with its associated storage time and dimensions. Waste bunker basis of design 12159_101_01_1002_3

Table 2-1 Storage Areas

Storage Area	Expected Turnover Time (h)	Length (m)	Width (m)	Height (m)	Max Storage Volume (m^3)	Max Tonnage (t)	Likely Storage Volume (m^3)	Likely Tonnage (t)
Waste Bunker	24-48 hours	85	20	25	42,500	22,000	12,765	6,000

The waste bunker is capable of holding 42,500m^3 of material as indicated above. The likely storage volume shown above indicates that the waste bunker is never full to capacity. Under normal operating conditions the bunker contains approximately 6,000 tonnes (approximately 12,765m^3) of material.

The construction of the waste bunker comprises of reinforced concrete storage bunker incorporated with steel frame superstructure, supported on piled foundations

The construction of the tipping hall comprises of a steel frame with cladding over the exterior. There are automatic doors on the vehicle access points and the building has a raised central roof section running over the full length of the building that allows venting of heat and smoke in the event of a fire.

To manage the stockpile in the bunker, waste cranes can be operated in manual semi-auto or fully automatic mode. The waste will be fed in the following manner:

1) Waste will be picked from a designated area of the bunker by the waste grab.
2) The waste grab will be lifted approximately 3m above the height of the waste and the grab fully opened, this will allow any compacted waste to be separated.
3) The waste grab will be lowered, and the dropped waste retrieved by the grab.
4) The waste will then be fed to the designated waste feeding hopper in a mode selected by the operator.
5) The above steps will be repeated for each time waste feed is required

On completion of waste deliveries waste feeding operations will be carried out in fully automatic mode and limited to a specific area of the bunker. Oldest waste is processed first and will be picked until it is no longer viable to feed from this area, at which time a new feeding area will be designated by the operations team.

If there are any concerns that the waste is not being sufficiently turned over in the semi-automatic or fully automatic modes, the Operations Manager or Shift Team Leader will instruct the crane operators to start Manual waste feeding.

2.5. Management of Hotspots within Stockpiles

Management of hotspots in the waste bunker are controlled by the infra-red camera scanning system integrated into the automatic waste bunker management program.

Hotspots are monitored on a constant basis. In the event of a hotspot being identified, one of the cranes in the waste bunker will target the hotspot ensuring that the waste is lifted and turned until the temperature decreases.

The waste cranes and water cannons can both be operated manually by site operatives from the control room.

2.6. Plant and Equipment on Site

The following items of mobile plant are held on site.

Mobile Plant	Location
Telehandler road brush	Tipping Hall
Skid Steer Loader	Tipping Hall
Fork Lift Truck	Workshop/Stores
JCB Waste Master	Tipping Hall
Telehandler x 2	Tipping Hall
Kubota ATV x 2	Tipping Hall and Workshop
Reach Truck	Stores
Scissor Lift	Outside grounds
Cherry picker	Outside grounds
Fork lift Truck	Outside grounds

There are occasions that hired plant will be delivered to site, these will be delivered and maintained by the company hiring the plant.

The site is operational 24 hours a day therefore mobile plant is continuously in use. If required, mobile plant is temporarily stored in:

- Majority of plant is stored in the tipping hall for waste operations
- Other mobile plant is stored in the workshop and stores.

2.7. Fire Sources and Prevention Measures

Table 2-2 below provides a summary of the potential causes of fire on site and associated preventative measures and is taken from the Fire Prevention Plan guidance.

Table 2-2 - Fire Sources and Prevention Measures

Cause	Preventative Measure
Arson and Vandalism	The site is surrounded by fencing and gates that are secured 24/7 with security guards present. The site is operated and manned day and night. There are security lights on the exterior of all the buildings. A full perimeter check of the integrity of the fencing is carried out daily. All areas in which operations will be undertaken during the hours of darkness and inside the site building have adequate artificial lighting. All lighting infrastructure is subject to regular maintenance checks with defects being repaired as soon as reasonably practicable. Dates of checks and repairs are recorded in the site diary. There are late operating, third-party neighbouring sites which also provide additional discouragement for potential arson activity. The main entrance gates are locked outside of operating hours between 10pm – 6am. CCTV cameras are located a various area around site and the footage is actively monitored. In the event of a breach of security at the site, the cause will be investigated, and appropriate mitigation measures implemented.
Self-Combustion	This site has a rapid turnover of waste materials. In the event of full loss of incineration, no waste remains on site for the longer than 4 – 6 weeks. However, it should be noted that the site has 4 lines running concurrently therefore having an in-built redundancy. Due to independent back up auxiliary services to each phase of the facility, it is highly unlikely that the site will have no lines in operation. In the event of a major failure then waste in the bunker may be removed by using the installed waste crane to load it in to vehicle. This waste may then be sent to another permitted facility. The waste arriving at site is pre-treated and all materials liable to self-ignite are taken out before the incineration process at Runcorn. The site has waste acceptance and stock management procedures which are upheld by all employees at the site, as detailed in Section 2.1. The wastes accepted at this site are in accordance with the List of European Waste Code and the Environmental Permit.

Cause	Preventative Measure
	Sources of flammable materials on site are: • A bunded 60,000 litre diesel tank located on hard standing; • Gas bottle storage cage. (Propane, Oxygen) • CEMS hut. (Bottled gases, Nitrogen). All fuel and oil is stored at least 6m from any combustible waste.
Plant or Equipment Failure	Mobile plant operates within the permitted area. Daily checks are undertaken on all mobile plant this includes checks to insure there are no leaks of fuels or combustible material; this is completed by the operators. Defects are recorded for both fixed plant and mobile plant and measures are put in place to rectify defects and, depending on the critical nature of the defect, it can be classified as urgent. Any defects that put any persons or the environment at immediate risk will result in the mobile plant being placed out of use or the equipment isolated. Arrangements will be made for a Viridor Engineer or specialist contractor to attend and repair the defect. Any site mobile plant that is hired in as replacement is required to meet the relevant standards. Records of the daily check sheet are held on site. Mobile plant is only operated by trained competent persons in accordance with Viridor procedures. A register and training matrix is held on site and will be subject to both internal and external audit checks. Contractors are to bring their certification of competency before use of any mobile or fixed plant and equipment. Fire extinguishers are fitted inside the cabs of all mobile plant with fire hydrants and extinguishers located around site. Mobile Plant receives annual LOLER inspections by Allianz and there is regular scheduled maintenance as part of an O & M contract. All plant is fitted with reverse fans and sealed engine bays to prevent dust or fluff build up and all are fitted with a fire extinguisher.
Electrical faults (Including Damaged or exposed electrical cables)	All portable electrical equipment within the ERF, weighbridge, office and welfare facilities is subject to a PAT testing regime, carried out by a competent electrical technician Fixed electrical equipment undergo routine inspections, completed by ERF in house electrical team. All power is generated from the site generator. In the event of outage, the main electrical supply is taken from the phase that is still operational, via the onsite substation. Electrical distribution on site is via 3 substations.

Cause	Preventative Measure
	Substation 1 is a common supply for both phase 1 and phase 2, substation 2 is to supply electricity for the whole of phase 1, and substation 3 is to supply electricity for phase 2. Substations 2 and 3 run independently, however there is a parallel connection for the diesel generators on site, which are in place to continue an electrical supply in an emergency and controlled plant shutdown. The electrical switch rooms are protected and totally separated from combustible waste. The ERF has electric distribution via various panels within the plant which are fully separated from waste or combustible materials. Throughout the buildings all lighting is installed to building regulations and the lights used in plant rooms are not incandescent. All lighting is subject to a routine weekly visual inspection which is logged in the site diary/inspection report. Waste transfer activities that directly require electrical power, are the crane and the tipping hall doors, although doors can be manually lifted, the electrical supply and installation checks to these are done via PPMS. Hardwire electrical testing is undertaken periodically across the whole site and defects reported will be repaired as soon as practicable. Any item deemed electrically unsafe will be isolated and removed from service until repaired. All work on electrical systems is subject to Viridor ERF Permit to Work system and work can only be undertaken by a competent person. Electrical work permits can only be signed off by a trained and authorised person following completion of the works.
Naked lights	All ignition sources are kept a minimum of 6 metres away from the storage of combustible and flammable wastes. No naked lights are permitted on site.
Discarded Smoking Materials	The site operates a strict no smoking policy within the buildings in accordance with the Health Act (England and Wales) 2006 and a designated smoking area is provided. This is written into Viridor HR policies and procedures issued to all employees. The rules regarding smoking on site also forms part of all visitor and contractor inductions.
Hot Works	Any work carried out by contractors on the site must be undertaken (Mandatory) with an appropriate Work Permit, with supporting Risk Assessments and Method Statements. All contractors are inducted to site prior to undertaking any work on site. Hot work must be undertaken after a Hot Work Assessment has been completed by a competent person. Welding or hot work is only undertaken with appropriate control measures including a standby fire watch, a mobile fire extinguisher and, where required, works are completed using screens and proper segregation from waste or other combustible materials.

Cause	Preventative Measure
	Hot work is only undertaken by a trained and competent person. Following completion of any hot work, a minimum one-hour fire watch is instigated as required by the Hot Work Assessment. No naked lights are used elsewhere on the site. Waste within the ERF is stored inside a purpose-built storage bunker which minimises the risk of ignition from an offsite source or fire.
Hot Exhausts	Vehicles and mobile plant are turned off when not in use. Consideration is given to the high-risk time for hot exhausts (one hour after switch off when dust can settle on hot surfaces). Site operatives keep a watch on the vehicles whilst they cool down. Flammable/combustible materials are stored in the designated areas away from frequent vehicle movements. Housekeeping is controlled and undertaken by a permanent contract cleaning firm, who will do daily cleaning tasks around different areas of the site. Scheduled cleaning is done periodically, including hoovering dusts, litter picking, sweeping, and general tidying. The importance of housekeeping is communicated out to all employees/contractors prior to starting work. Routine weekly site safety walks are done by each departmental manager, who will monitor and check housekeeping standards and report any defects. Records of these PPM's and safety walks are retained on site. At the end of the day/shift a fire check is also undertaken which includes monitoring waste piles and all mobile and fixed plant.
Open Burning	The site environmental permit does not allow the open burning of waste on site. Some industries adjacent to the facility have, on occasions, had controlled fires on their premise which is beyond the control of Viridor. Viridor will report any uncontrolled fires located close to the site boundary to the Fire Service.
Reactions between incompatible materials	Waste streams delivered to the facility that are deposited within the bunker area are very unlikely to contain materials that are incompatible. However, the site has a waste acceptance procedure and undertakes random inspections of wastes upon arrival to site. The waste acceptance procedure is described in section 2.1. All tanks and storage containers are clearly labelled with UN Placard Hazard/Flammable signs.

Cause	Preventative Measure
	Tanks containing potentially polluting liquids are constructed so that any leaks/spillages are contained. Tanks are surrounded by a leakage containment bund capable of containing at least 110% of the volume of the largest tank within the bund.
Neighbouring Sites	The site is located within an industrial park. Both industrial and commercial premises are located to the east, west, north and south of the site boundary. Neighbouring site activities are beyond the control of Viridor however the site does not store waste or materials on the site boundary that could ignite. The risks are recognized by Viridor regarding impact to the company's activities from fires located in the neighbouring industry. The operatives are trained to be vigilante in looking for any signs of fire while operating. If there is a suspected neighbouring fire the appropriate Incident Response Plan will be utilised.
Sparks from Loading Buckets	The sources of friction on the site involve sparks from the wear bar on the leading edge of the loading shovel, the metal edge of the crane pusher, and hand shovels or other metal hand tools being used on site. A wearing plate is provided on the edges of the shovel. The loading shovels are therefore not fitted with rubber strips, however there are trials being undertaken within Viridor regarding the suitability of such material. All fuel reception operatives are to clear the tipping hall floor regularly. Loading Shovels will only be driven by competent and trained operatives and the driver will avoid dragging or pulling the blade along the floor. Viridor also notes the floor of the ERF in the waste reception hall is usually damp from deposited waste which limits the potential for sparks and Viridor deem the potential of fire from loading bucket sparks as low risk. Viridor acknowledge that there is always a risk from batteries and small flammable bottles being moved by the loading shovel. The operatives are trained to be alert for incidents that involve these materials.
Industrial Heaters	The site does not use industrial heaters and has no current plans to use industrial heaters for any future site activities.
Hot loads deposited at site	No burning, reactive / reacting or visibly hot (producing steam or heat) loads are accepted on site.

Cause	Preventative Measure
	In accordance with Section 2.1, an appropriate sample of deliveries is visually inspected to ensure compatibility with accompanying delivery notes, therefore minimising prohibited wastes and the acceptance of hot loads. Instructions are given to customers to ensure no hot loads are accepted on site. Initially identified by gatehouse staff who have clear sight of vehicles entering site. Additional verification is completed by Viridor Fuel Reception Staff. Random loads are routinely inspected to identify waste stream problems, i.e. self-igniting fuel, batteries and gas canisters. Crane operators and thermal imaging cameras will also clearly identify any heat/hot loads. Should a hot load be deposited on site, it will be handled via the procedures outlined in Section 3.3 of this FPP.

3. Fire Management

Fire management involves the initial response to the fire, notifications, fire suppression, mitigation and remediation. Section 2 identifies the potential causes of fire and measures currently in place to prevent ignition and limit effects of fire.

Types of detection in waste storage areas, tipping hall and waste bunker, the detection in the tipping hall are smoke beam and heat detection. In the waste bunker are the detection includes thermographic cameras, visual inspections at certain areas, CCTV, deluge system which is activated with the waste chute detection, smoke alarms, and sprinklers. CCTV is also available in other plant areas, for security purposes and safety.

3.1. Containing and Mitigating Fires

3.1.1 Automatic Water Based Fire Suppression

Mercury designed, supplied, installed and commissioned the water based extinguishing systems on site. To supply the water there is a fire water tank is located on the Westside of site, has a water storage capacity of 1,500m^3 and a sprinkler pump room containing 3 diesel pump sets and 2 jockey pumps. The system is live at all times under a standing pressure of 14.5 bar, allowing the rapid flow of water upon operation.

A summary of the parts of the system that cover waste storage areas is provided in Table 3-1 below:

Table 3-1 Summary of Water Based Fire Suppression System

Location	Type of Suppression
Water based Automatic Suppression System	
Tipping Hall	Openings are protected by a manually operated deluge sprinkler system designed and installed to NFPA, the sprinkler systems are controlled by 3 65mm deluge installation control valve sets.
Waste Bunker	Water cannon system, designed and installed to NFPA requirements, the system is controlled by a skid valve.

The Operation and Maintenance Manual, Armstrong – Fire pumps operation and technical data manual (file no. S6064_L0020_03) is kept on site and is available for reference at any time.

3.1.2 Automatic Gaseous Based Fire Suppression

Mercury designed, supplied, installed and commissioned the gaseous suppression systems in the switch rooms on site. The system is designed to meet the requirements of:

- ISO 15004 part 1:2008
- ISO15004 Part 9:2008
- BS6266:2002
- BS7273 Part 1:2006
- LCPB Rules

Each system has a design concentration of 45.7% by volume as per EN15004:2008 to higher Class A Category.

The system is designed to extinguish fires involving flammable liquids, gases and Class A hazards especially electrical equipment. The system directs INERGEN (a mixture of Nitrogen, Argon and Carbon Dioxide) into an enclosed hazard. INERGEN extinguishes the fire by lowering the oxygen content below the level that supports combustion.

- IG541: Mix 52% Nitrogen + 40% Argon + 8% Carbon Dioxide.

3.1.3 Manual Fire Suppression (Fire Extinguishers)

The locations of all fire extinguishers located in areas of combustible waste storage are. Foam and Carbon Dioxide (CO_2) extinguishers are provided. A summary of the types and locations is shown in Table 3-2 below:

Table 3 - Summary of Type and Location of Fire Extinguishers

Location	Type	Quantity
Tipping Hall	Powder	10
Administration Block	CO_2 Foam	33

3.2. Emergency Contact Details

An emergency contact sheet is included in Appendix 02 of the sites Incident Response Plan. The contact sheet details the phone numbers for the Fire service, EA, local businesses, the local sewage service, who will be contacted if necessary, in the event of a fire, and important contact numbers for the site.

3.3. Site Procedures

In all incidences of a fire occurring in the tipping hall and the waste bunker the Incident Response Plan will be followed. Specific procedures for this FPP for handling a fire are shown below. In the event of a fire in the bunker the sites incident response plan will take over, with instructions to manage the incident. The incident management procedure is.

1. The sites fire alarm will start, due to heat and smoke from the fire, and the fire control panel will audibly alarm and indicate the location of the fire. Additionally, the thermal imaging camera in the bunker will activate an audible alarm on the fire control panel should a hot spot above 60^{o}C be detected for longer than 2 seconds.
2. The area will be checked with thermal imaging cameras which are hard wired in to the control room. The fire cannons closest to the location of the fire will be manually started. There are 5 fire cannons available in the waste bunker which will be put in to service as required by the operator.
3. The fire cannon will continuously offload water onto the fire and the emergency services will be contacted and asked to attend site and assist with managing the fire.
4. Additionally, fire cannons may be directly at sections of waste soaking them. This waste will then be lifted in the grab and dropped on to the fire.
5. The area will continuously be monitored with thermal cameras and visual inspections to ensure the fire doesn't spread. The duration of this monitoring will be agreed with the fire service watch commander.

6. An additional 20m3 AFFF (Aqueous Film Forming Foam) system may also be utilised via the waste bunker cannons.

3.3.1 Small Fire

A small fire or area of smouldering waste found within incoming waste that had been selected for inspection will be dealt with as follows:

- A fire or area of smouldering waste will not be dealt with in-situ, a loading bucket will be utilised to pull the affected waste into the open and away from any further waste that could become a light on contact; and
- Depending on the size / nature of the fire the waste will either be:
    - Extinguished immediately[6] utilising the fire hoses or the fire extinguishers found in delivery vehicles or on items of mobile plant; or
    - Moved into the waste bunker where it can be extinguished using the water cannons or fed straight into the waste feed hopper.

Once a small fire is dealt with the remaining pile will be visually inspected immediately by site operatives for any signs that a fire / smouldering waste still remains within the waste pile. The same procedure, detailed in this section, will be implemented should this be the case.

Cheshire Fire Service have been given a copy of the sites emergency procedures, which has detailed information for products on site, the location of the fire hydrant points and maps of the fire water holding tanks and dirty water storage capacities.

[6] Should a single item of the waste stream be alight, and the fire is well contained, then the waste will be doused via use of an extinguisher or fire hose as it is pulled from the waste pile. The burned / fire- damaged portion will then be moved into the waste bunker.

3.3.2 Uncontainable Small Fire or Large Fire

The following procedure will be followed in the event of a small fire in the tipping hall becoming uncontainable or in the event of a major fire onsite:

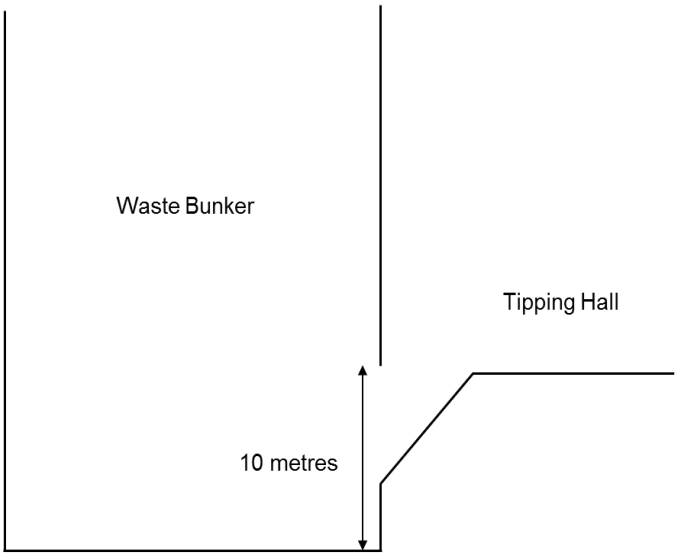
- The Site Management, Fire Service and EA will be notified immediately;
- If it is safe do so, a temporary bund (using the flood barriers held on site) will be constructed by site operatives and managed by the Site Management to ensure that firewater is kept primarily within the tipping hall. Roller shutter doors will be closed, and flood barriers utilised to ensure no release of water under the door. Any firewater held within the bunded area will be tested before removal offsite to a suitably licensed facility.
- If unsafe to fit temporary bunds in the tipping hall, then spill pads and kits will be put in place around any surface water drains to prevent contaminated water ingress.
- Final option to prevent contaminated water entering the offsite surface water areas, site will close off the Penn Stock, preventing water leaving site.
- If possible, waste that is unburnt will be dampened down to prevent the fire from spreading further and any contaminated runoff will be held within the temporary bunded area;
- If possible, unburned material will be separated from the fire using heavy plant;
- Fixed fire suppression will be used, dependant on the area, e.g. sprinklers or cannons.
- The burning area will be isolated and attempts will be made to extinguish the fire utilising the onsite fire extinguishers or fire hoses if safe to do so; and
- The site and buildings will be evacuated

3.4. Fire Waters

The site has the benefit of impermeable surfacing throughout. Firewater management on site is as follows.

3.4.1 Waste Bunker (primary firewater containment)

In the event of a fire within the waste bunker, any firewater generated from the use of the water cannons, deluge systems or sprinklers will be contained within the bunker. The height of the waste bunker from the floor to the level of the tipping hall is approximately 10 meters. Up to this height, 17,000,000 litres[7] of firewater can be safely contained. If the firewater was to go above the 10m height, then it would start to spill in to the tipping hall via the waste feeding chute. In this case the controls detailed in 3.4.2 would come in to effect.



The use of water within the waste bunker is likely to be localised, for example, a water cannon aimed at a hotspot. Therefore, it is reasonable to conclude that large quantities of water will not be used and the maximum containment capacity of the bunker will not be reached.

In the event of the AFFF (foam) system being used as part of the fire suppression the 1 x 3% AFFF AR solution used has been selected as it does not produce great quantities of foam but instead creates a membrane like film over the fire. Additionally, it does not have the odour problems related to older foam suppressants. The material safety data sheet can be found in the appendix.

[7] Fire water containment calculation: Area of bunker (1,700m^2) * height of bunker up to tipping bay (10m) = Volume of water to be contained (17,000m^3). Volume of water to be contained (17,000m^3) * 1,000 = 17,0000,000 litres. This calculation is based on the baseline capacity of the bunker without waste in it.

3.4.2 Tipping Hall (secondary firewater containment)

There is very limited run-off generated under general site operating conditions within the tipping hall. Any water draining from the tipping hall, would drain directly into the waste bunker.

In the event of a fire, the building can be bunded to prevent the release of firewater into the yard. Flood barriers are stored on site and can be used to bund the building by placing them across each doorway to ensure that no firewater is released from the building (tipping hall). Drain mats will be used to ensure no potentially contaminated firewater is released to the foul sewer in an uncontrolled manner or without prior agreement from the sewerage provider.

In the event of a fire, where there is no requirement to open the building doors, the tipping hall is capable of containing an amount of firewater that far exceeds the amount deemed to be required in the worst-case scenario described in Section 3.4.3 below. In the event that the building doors needed to be opened and it is not safe for flood barriers to be fitted, then spill kits will be fitted around the drains susceptible to ingress. At any time is contaminated water has suspected to have entered the site surface water the Penn stock valve will be shut preventing any discharge from site.

3.4.3 Firewater Calculations

The following calculations are based on the assumption that the worst-case scenario on site would be a waste delivery vehicle catching fire on one of the site roads. Based upon the FPP guidance firewater calculations, it is estimated that approximately 46,000 litres of water would be required to put out the entire fire.

In the event of such a fire, the site will immediately shut the Penn stock valve thus stopping all discharge from site. The fire water used will then be diverted in to a contaminated fire water tank which as a storage capacity of 1,500,000 litres. Should fire water be released from the site during firefighting or after the fire is extinguished, action will be taken to rectify the situation immediately. All remediation action will be recorded, and advice sought from the EA if necessary.

It should be noted that the reason a delivery vehicle on a site road has been determined as a worst-case scenario is due to the lack of fire detection and automated fire extinguisher systems in these areas. Unlike the waste bunker which has thermal imaging, smoke detectors and deluge systems available the vehicle on a site road will be reliant on quick reporting by a person in the vicinity which may cause delays in tackling the fire.

3.5. Firewater Sources

Sources of water available onsite are:

- 25 x fire hydrants connected to mains water;
- 1,500m3fire water tank; and
- On board water supply from Fire Service vehicles.

The Fire Service will collect, and reuse firewater run off as part of normal operating procedures.

The system design capacity flow rates for each element of the suppression system are detailed in the Operation and Maintenance Manual which is kept on site and is available for reference at any time

3.6. Management after a Fire Event

After a fire event, the following procedure will be implemented depending on the severity of the fire:

1. A small and containable fire that can be dealt with in-house using suitably trained staff and firefighting equipment located on site: The fire will be recorded in the site log, including the causes of the fire and methods used to manage the fire. An assessment will be carried out to determine whether further mitigation measures could have prevented the fire. Any outcomes to be implemented onsite will be incorporated within this FPP and the site's EMS as required.

2. A larger fire that requires the presence of the Fire Service: If the site operatives have been told to evacuate or cease operations by the EA and/or Fire Service, the site will wait until told it is safe to re-enter site and resume operations. The fire will be recorded in the site log, including the causes of the fire and methods used to manage the fire. An assessment will be carried out to determine whether further mitigation measures could have prevented the fire. Any outcomes to be implemented onsite will be incorporated within this FPP and the site's EMS as required.

   In the event of an ongoing fire or should damage be sufficient to prevent the site from being able to treat and store waste, the site will cease accepting waste and will divert to a suitably licensed facility (ERF-RUN-MAN-P001). This will be managed by the Head of Contracts who will liaise directly with the clients and hauliers.

   Details of suitable licenced facilities and associated transport services are available on Viridor's third party database. Such facilities have been subject to either a site audit or a desktop audit to ensure their suitability as a waste facility.

The Site Management will liaise with the EA to determine a plan-of-action to introduce waste treatment and storage operations at the site, and the timescales involved to achieve this.

To ensure that updates are frequent and accurate the Pennon Communications team will prepare and release statements for local businesses and the general public. These will be communicated via the EA and Halton Borough Council.

3.7. Fire Damaged Waste

A visual assessment will be carried out by the Site Management to determine whether the waste can be treated on site. Wherever possible, unburnt wastes will be separated from fire damaged piles. Due to the nature of the operations at the Runcorn ERF (the incineration of waste and its role as a final recovery site) the burnt waste could potentially be processed/disposed of on site. However, this decision will ultimately be made by the Site Management with the EA's agreement.

3.7.1 Quarantine Area

Due to the nature of the operations on site, it is not deemed necessary to supply a quarantine area that meets the requirements of the FPP guidance. As detailed in Section 3.3 above, burnt or burning waste will be kept within the tipping hall in order to ensure coverage by the comprehensive automated suppression system. Waste that typically would be moved to a quarantine area, as stated in the FPP guidance, will be moved into the waste bunker and processed as opposed to being removed from site.

4. Conclusion

This FPP is considered to be a 'working' document that is reviewed and updated annually or as required should any of the following occur:

- A fire on site;
- A change or review of legislation; or
- If the site is instructed to do so by the EA.

It is the responsibility of the Site Management or nominated person to maintain this FPP and to ensure it is adhered to in the event of a fire on site.

Appendix

Emergency Contact Sheet

Viridor Site Contacts

- Names and contact details removed from this version

TPSCo

- Names and contact details removed from this version

Emergency Services

- Halton General Hospital Hospital Way, Runcorn WA7 2DA 01928 714567 Non-Emergency: 111
- Runcorn Fire Station Heath Road, Runcorn, WA7 4XL 01928 572811
- Runcorn Police Station 2nd Avenue, Halton Lea, Runcorn, WA7 2HG 0845 458 6381 Non-Emergency:111

Regulatory Authority

- Health & Safety Executive Bootle Headquarters Redgrave Court, Merton Road, Bootle, Merseyside, L20 7HS Tel: 0151 951 4000 Major Injury or Fatality: Incident Contact Centre: 0345 300 9923 (opening hours Monday to Friday 8.30 am to 5 pm).
- Environment Agency Site Permit Ref: EPR RP3638CG North West Regional Office, PO Box 12, Richard Fairclough House, Knutsford Road, Latchford, Warrington, Cheshire. WA4 1H Incident Response Line: 0800 80 70 60 Site Inspector: Alex Sutherland 07818 012771
- Halton Borough Council Environmental Health Office Environmental & Public Health Policy & Resources Directorate. Town Hall Heath Road Runcorn, WA7 5TD Tel: 0151 511 7613 Out of Hours Emergency Response: 0333 000 4300

Fire Risk Assessment

Fire Risk Assessment

Carried out on behalf of Runcorn EfW

On the 15 Feb 2018

By John Mawdsley CMIOISH GIFireE

FIRE RISK ASSESSMENT GUIDANCE NOTES

This Fire Risk Assessment has been compiled and formulated as required by the Regulatory Reform (Fire Safety) Order 2005, The Fire Safety (Scotland) Regulations 2006, The Fire & Rescue Services (NI) Order 2006 and The Fire Precautions (Workplace) Regulations (Northern Ireland Only). It has been constructed to be used as a tool for the safe management of a work place.

To use the Risk Assessment effectively follow the points below:-

1. Read the risk summary as a snap shot of the premises on the day of the Fire Risk Assessment. Recommendations from the Action Plan may have already been implemented by the time you read this.
2. The Risk Assessment is broken into the following twelve sections.
3. The Action Plan is the observations and recommendations of the Fire Assessor using their competence and experience to ensure the most pragmatic approach is applied to all significant findings.

   a. Read the Action Plan in its entirety as some actions may have an impact on other recommendations.
   b. Once the recommended action has been completed, the responsible person must sign and date the page relating to the non conformity this will then be automatically stored in the Archive Section which provides an audit trail.

4. It is essential that the Fire Log Book is maintained by the Responsible Person, to ensure that all tests, maintenance, practice drills and periods of instruction are recorded. If used as designed, this will then prove to be an invaluable Management tool.
5. If there are any material changes to the structure, layout, use of the building, type of business or changes in the number of staff then a new Fire Risk Assessment must be carried out.The Fire Risk Assessment should be reviewed by a competent person by the review date or at such earlier time as there is reason to suspect that it is no longer valid or there have been significant changes to the premises, the occupancy or its use. It is recommended to have a review carried out annually to ensure all fire safety measures and practices are being adhered to.

SECTION 1:MANAGEMENT OVERVIEW - RISK ASSESSMENT

Address
Runcorn EfW
Barlow Way
Runcorn
WA7 4HG

Responsible Person
Viridor

Article 5(3) Persons
Craig Critchley

Telephone
07760664959

Email
ccritchley@viridor.co.uk

Building Id
10001792
Assessment Id
10027863

This Risk Assessment was carried out on 15 Feb 2018 and the assessor has stated that this building cannot be below Medium risk.

Building Details:		
Assessor:	John Mawdsley CMIOSH GIFireE	
Checked By:	John Mawdsley	Date: 15/02/2018
Validated By:	Phil Smyth	Date: 15/03/2018
Area:	13000	
Number of floors:	9	
Occupied floors:	9	
Number of occupants:	60	
Is customer LandLord?:	No	
Type of alarm:	Category L2 System	

Live Fire Log Book	Next Due Date
Risk Assessment	15/02/2019
Fire Drill	Records held off-site
Fire extinguisher maintenance	Records held off-site
Fire Safety Training	Records held off-site
Fire Marshal Training	Records held off-site
Fire Alarm Service	Records held off-site
Emergency Lighting Service	Records held off-site

Description of Property

The construction of the Runcorn Viridor EfW (Energy from Waste) site was commenced in 2009.
At the time of this assessment the site is considered to be fully operational.
The site is used for the production of electricity by steam driven turbines. Heat for the production of the steam is by the burning of general, non recyclable household waste.
The site is split over two main sections; the processing area, where waste is tipped into a very large bunker from where it is grabbed and fed into incinerators to heat water to produce the steam to turn the turbines which are located within a separate building.
The main form of construction of the external wall and roof is by a double skin alloy sandwich panel with internal insulation.
Internal construction and fire separation between the different areas is by block work, which also provides the construction for internal protected stairs.
The means of escape provided varies in the different buildings. The main building boiler room is nine storeys high, however, there is no structural subdivision of the levels in this room; this is achieved by a series of metal mezzanine floors and stairs. After horizontally exiting the mezzanine at all levels there is a protected stair at both ends of the building leading directly to fresh air.
One of the protected stairs also serves the administration block where the administration offices are located. There are two additional stairs located within the boiler room area serving the ash monitoring room and the de-aerator building.
The bunker holds a large volume of waste product and is approximately five storeys high.
This would not be occupied unless a major problem occurred.
The turbines are served by another series of metal mezzanine floors and stair.
There are two exit routes and vertical ladders serving these areas which terminate at ground level where final exit doors are available.
There is a first floor level control room which overlooks the tipping hall served by a single protected stair leading directly to fresh air.
The site is of modern construction and subject to Building Control approval in conjunction with consultation with the Enforcing Authority.

All areas.

This Risk Assessment was carried out on 15 Feb 2018 and this property was considered a Medium risk property.

0	0	0
Actions required next service visit	Actions required within 30 days	Immediate actions required

To view actions outstanding click here

History of Incidents

None known

Risk Assessors Summary

A previous re-assessment of the site was conducted on the 10th January 2017. Points raised during that assessment have been addressed. No significant changes have been made to the buildings or any processes. The Runcorn Energy from Waste (EfW) Combined Heat & Power (CHP) facility is designed to receive Refuse Derived Fuel (RDF) produced from non-recyclable wastes arising from local authority (e.g. Greater Manchester) and local business contracts. The waste is treated/shredded on other Viridor sites before being delivered to Runcorn, usually by rail, although refuse vehicles also deliver. Persons at risk are Viridor staff; and visiting contractors etc. The site would operate a full evacuation subject to prearrange emergency shut downs etc that form part of their emergency plan. Viridor conduct the required statutory checks on all fire precaution systems such as the fire alarm; emergency lighting and sprinkler system. Viridor use a computerised on line management system (Holistech) to pre plan and record all scheduled maintenance and testing. The client prefers to use this system as opposed to the 'Live' log book provided with the assessment. To avoid all dates showing as ' red - overdue' the log book has been endorsed as 'Records held off Site' in all relevant sections. Viridor staff receive training on induction and are given Tool Box Talks which are programmed in for all staff on emergency action including fire. The site operates a full evacuation procedure which is appropriate for this risk. Full evacuation/incident response training is also carried out. An emergency action plan has been formulated for posting around the premises; all staff are issued with an emergency actions card. The sprinkler pump is run on a weekly basis, as are the fire fighting monitors which are located at the top of the bunker to deal with any fire which may occur in the bulk waste held within it. Thermal image checks will be carried out on HV switchgear; permanent thermal image cameras are also located in the bunker control room to detect any early signs of over heating in the bulk waste store. The Air Conditioning system shuts down on operation of the fire alarm. Electrical switch rooms are protected by IG 541 (Inergen) systems and the turbines are protected by a Carbon Dioxide suppression system. The site has a sprinkler and deluge system which protects designated areas around the site. The turbine halls are also protected by an inert gas system. There are clearly indicated private hydrants around the site and dry risers within protected stairs. These are now subject to on going maintenance and testing. Environmental protection - Automated Penstock Valve diverts dirty water into a dedicated waste water tank; additionally a nominated person is responsible for ensuring fire water is not discharged from site.

SECTION 2: RISK ASSESSMENT

01 - Persons at Risk

It is important to consider all relevant persons that use the premises. This will include persons that use the building on a day to day basis such as staff or residents but also any persons that visit the premises on temporary basis such as visitor or contractors. Particular care should be taken to identify any risks to vulnerable persons such as those with disabilities or young persons.

Sub Section	Question	Answer	Action Plan	Status
01 - Young Persons	Are young persons in the premises?	There are no young persons present at the time of this fire risk assessment.		**N/A**
02 - Persons with Special Needs	Are persons with special needs in the premises?	Persons with special needs are present and the Responsible Person has completed a Personal Emergency Evacuation Plan (PEEP).		**Compliant**
03 - Members of the Public	Are members of the public present in the premises?	There are no members of the public allowed access to the building at the time of this fire risk assessment.		**N/A**
04 - Occupancy Numbers	Is the occupancy level for the premises acceptable?	The occupancy capacity, width of escape routes and exits appear to be sufficient.		**Compliant**
05 - Lone Working	Are there areas where relevant persons are isolated?	Lone working takes place, there are suitable and sufficient procedures in place.		**Compliant**

02 - Sources of Ignition

The premises is assessed to identify all potential ignition sources that may be the cause of a fire. Examples of Ignition sources can be any heat generating equipment such as portable heaters, cooking equipment and power tools. Fixed installations and portable electrical equipment can also be an ignition source if they are misused or not maintained. Naked flames and equipment that generates sparks must be strictly controlled.

Sub Section	Question	Answer	Action Plan	Status
01 - Heating - Gas and Electric - including Portables	Are all heating appliances correctly installed, adequately protected and maintained?	All appliances are correctly installed and adequately maintained.		**Compliant**
02 - Electrical Services	Are all electrical installations and appliances correctly installed and maintained?	All electrical installations and appliances are correctly installed and adequately maintained.		**Compliant**
03 - Lightning Protection	Is lightning protection provided for the building?	A lightning protection system has been installed, the system is being periodically inspected and maintained.		**Compliant**
04 - Miscellaneous	Are potential sources of ignition adequately controlled?	Potential sources of ignition present are adequately controlled.		**Compliant**

03 - Sources of Fuel

In order for a fire to develop the presence of fuel is required. By managing the quantity, type and location of combustible materials the risk of a fire developing can be greatly reduced. The storage of combustible materials within the escape routes or places of high fire risk such as boiler rooms or electrical cupboards must be prevented.

Sub Section	Question	Answer	Action Plan	Status
01 - Housekeeping	Are house keeping arrangements satisfactory?	Housekeeping arrangements appear to be satisfactory.		**Compliant**

04 - Construction

The fire protection of the building is required to ensure that fire is unable to spread and also to prevent premature collapse in the event of fire. It means that the occupants can safely exit the premises without undue risk, whilst it is not perceived that any building should be sacrificed it is always possible to avoid the loss of the premises.

Sub Section	Question	Answer	Action Plan	Status
01 - Structural Elements	Are the fire resisting and separating walls and floors in good condition?	Fire stopping between compartments appears to be poorly installed. This appears to be poorly installed inside the service shaft where access is difficult. Photographs also show where the cabling emerges in the production area.	E	**Non_Compliant**
02 - Lift Shafts	Are the lifts contained within protected shafts?	The lifts are contained within a protected shaft.		**Compliant**
03 - Protected Shafts	Are the escalators, chutes, ducts and pipes contained within protected shafts?	The services are contained within protected shafts.		**Compliant**
04 - Concealed Spaces - Cavities	Are the concealed spaces or cavities protected with suitable cavity barriers?	The cavity barriers appear to be acceptable.		**Compliant**
05 - Protected Stairways	Are the stairways within the building required for means of escape adequately enclosed with fire resisting construction?	The stairways are enclosed throughout their height to an acceptable standard.		**Compliant**
06 - Higher Risk Areas	Are areas of higher risk and places of special fire hazard sufficiently separated from the remainder of the building by fire resisting construction?	The high risk areas and places of special fire hazard are adequately separated with fire resisting construction.		**Compliant**
07 -	Are the materials used to line walls and ceilings	The materials lining the walls and ceilings are deemed to be of		**Compliant**

Surface Spread of Flame	of the correct surface spread of flame classification in accordance with the Approved Document B of the Building Regulations?	an acceptable standard.

05 - Means of Escape

To ensure a safe escape the escape routes must be protected from smoke, heat and flames. The distance that occupants have to travel must also be regulated to ensure that the distance people have to travel to safety is within the prescribed guidelines.

Sub Section	Question	Answer	Action Plan	Status
01 - Means of Escape for the Disabled	Are there adequate arrangements for the evacuation of disabled people?	No disabled persons present at the time of this fire risk assessment.		**N/A**
02 - Premises that are multi-occupied	Are the escape routes for all the building occupants acceptable?	The premises are multi-occupancy and the means of escape from each occupancy is considered satisfactory.		**Compliant**
03 - Escape routes and travel distances from within a storey	Are the escape routes sufficient in number and travel distance from any point within the floor area to the nearest storey exit, having due regard to the layout of walls, partitions and fittings within current guidance?	The travel distance to the nearest storey exit is within current guidance.		**Compliant**
04 - Occupancy Numbers	Is the occupancy level for the premises acceptable?	The occupancy capacity and width of escape routes and exits appear to be sufficient.		**Compliant**
05 - Protected Corridors	Are the protected corridors suitable and sufficient to allow the occupants to reach a storey exit safely?	All protected corridors are adequate to allow the occupants to reach a storey exit safely.		**Compliant**
06 - Escape from Inner Rooms	Is the escape from inner rooms acceptable?	Escape from inner rooms is acceptable.		**Compliant**
07 - Accommodation Lifts and Stairways	Are the accommodation lifts and or stairways positioned so that they do not impact on the escape routes from upper floors?	The position of accommodation lifts and or stairways is such that they do not prejudice the escape from upper floors.		**Compliant**
08 - Protected Stairways	Do the protected stairways offer sufficient and suitable protection to ensure the safe escape of all occupants?	Sufficient and protected stairways have been provided to ensure safe escape of all the occupants.		**Compliant**
09 - External Stairways	Is the external stairways provision sufficient and does it afford suitable protection to the occupants to ensure their safe escape?	No external stairways were present.		**N/A**
10 - Escape Route across a flat roof	Is the escape route across a flat roof acceptable?	Flat roofs do not form part of the escape route.		**N/A**
11 - Fire-resisting doors	Do the fire resisting door sets meet the appropriate standard?	Ineffective self closing devices.	J	**Non_Compliant**
11 - Fire-resisting doors	Do the fire resisting door sets meet the appropriate standard?	The fire resisting door of the service shaft is missing.	NR-49-198-1	**Non_Compliant**
11 - Fire-resisting doors	Do the fire resisting door sets meet the appropriate standard?	The door was found locked in the open position negating its fire resisting properties.	NR-49-198-2	**Non_Compliant**
11 - Fire-resisting doors	Do the fire resisting door sets meet the appropriate standard?	The fire door has not been provided with a means to prevent the spread of fire between compartments.	C	**Non_Compliant**
11 - Fire-resisting doors	Do the fire resisting door sets meet the appropriate standard?	The door coordinator required to ensure that that doors close in the correct sequence is ineffective. Some double doors which have a rebate where the doors meet, are not fitted with a door co-ordinator.	W	**Non_Compliant**
11 - Fire-resisting doors	Do the fire resisting door sets meet the appropriate standard?	Fire doors were found to be wedged open.	G	**Non_Compliant**
11 - Fire-resisting doors	Do the fire resisting door sets meet the appropriate standard?	The fire doors have a large gap between the doors which may allow the ingress of smoke and prevent the intumescent seals being effective.	X	**Non_Compliant**
12 - Fire-resisting partitions	Are the fire resisting partitions present installed and maintained to the appropriate standards?	No partitions are required to be fire resisting within the building.		**N/A**
13 - General Doors	Are the doors required to form part of the escape route in an emergency?	All the doors required to form part of the escape route are in good working order and are capable of being used effectively.		**Compliant**
14 - Housekeeping	Are house keeping arrangements satisfactory?	The housekeeping arrangements appear to be of an acceptable standard.		**Compliant**

06 - Fire-fighting Equipment

Fixed and portable firefighting equipment can be used to good effect and minimize damage to the premises. If a fire has been detected in its early stages fighting the fire in these early stages will contain its growth and reduce hazards to the occupants such as smoke and heat as well as minimising potential financial loss to the business and the impact on jobs.

Sub Section	Question	Answer	Action Plan	Status
01 - Portable Equipment	Are there sufficient quantities of portable fire-fighting equipment provided, correctly sited and adequately maintained?	The provision, siting and maintenance of portable fire-fighting equipment is suitable and sufficient.		**Compliant**
01 - Portable Equipment	Are there sufficient quantities of portable fire-fighting equipment provided, correctly sited and adequately maintained?	There are two hose reels in the tipping hall designated as fire hose reels, but there is no label attached indicating they have been tested and maintained.	Spc	**Non_Compliant**
02 - Fixed Fire-Fighting Installations	Are the fixed fire-fighting installations correctly installed, adequately maintained and appropriate for the risk?	There is a suitable fixed fire-fighting installation present that has been installed and maintained in accordance with the appropriate standard.		**Compliant**

07 - Fire Detection and Warning

It is essential for the safe evacuation of building occupants that they have been made aware of a fire incident as soon as possible. This will allow the Fire Service to be contacted in the early stages of the fire and most importantly all the occupants should have left the building to a place of safety before the fire has had the chance to take a hold. It is vital that any early warning and detection system be installed and maintained to British Standards.

Sub Section	Question	Answer	Action Plan	Status
03 - Fire Detection and Warning System Provision	Is there an adequate method for raising the alarm and detecting a fire present in the premises?	There is an appropriate method of raising the alarm and detection in the event of a fire.		**Compliant**
02 - Fire Alarm Maintainence	Is the fire alarm system routinely tested, inspected and maintained in accordance with current guidance?	The fire alarm system is routinely tested, inspected and maintained in accordance with current guidance.		**Compliant**

08 - Emergency Lighting

If the conventional lighting system fails in a building, an emergency lighting system may be required. The emergency lighting system should indicate the safe routes to and through the escape exits from the premises including any changes of direction or level en-route. It can also be used to illuminate fire alarm call points, refuges and firefighting appliances.

Sub Section	Question	Answer	Action Plan	Status
01 - The Emergency Lighting System	Is there an adequate method for illuminating the escape route and safety equipment in the premises?	It appears that the installed emergency lighting system will provide sufficient illumination (visual observation only, a physical test was not completed).		**Compliant**
02 - Maintenance of Emergency Lighting Systems	Is the emergency lighting system routinely tested, inspected and maintained in accordance with current guidance?	The emergency lighting system is routinely tested, inspected and maintained in accordance with current guidance.		**Compliant**

09 - Firefighters Provisions

As required under the Regulatory Reform Order (Fire Safety Act) consideration must be made to the effects of a fire in any given building to the Fire Service. Safety of the fire crews and their operational needs such as access, water supplies and building information must be reviewed and be made available for the Fire Service for consideration.

Sub Section	Question	Answer	Action Plan	Status
01 - Access for Fire Fighting	Have reasonable facilities and access for firefighters and fire appliances been provided to aid the protection of life?	Facilities and access for firefighters and fire appliances are available and adequate.		**Compliant**
02 - Firefighter Safety	Have all reasonable measures and arrangements been made to safeguard firefighting personnel in a fire situation?	All reasonable measures and arrangements for the safety of firefighting personnel in a fire situation are in place.		**Compliant**
03 - Water Supplies	Are water supplies adequately provided to assist firefighting personnel in their firefighting tasks?	There is adequate hydrant provision of adequate diameter in close proximity to the premises.		**Compliant**
04 - Rising Mains	Are rising mains adequately provided to assist firefighting personnel in their firefighting tasks?	There is adequate provision of rising mains in the premise.		**Compliant**

10 - Management

Providing all of the elements of the fire safety plan (of which the fire risk assessment form just part) are adhered to, then the safe evacuation of all the occupants is then likely to be successful. If however the management of the fire safety plan is not adhered to the fire safety provisions may be seriously compromised.

Sub Section	Question	Answer	Action Plan	Status
01 - Management	Are management and employees fully aware of the fire safety features provided and their purpose?	Management and employees are fully aware of the fire safety features provided and their purposes.		**Compliant**
02 - Staff Training	Have employees received appropriate fire safety awareness training?	All employees have received the appropriate fire safety awareness training.		**Compliant**
03 - Housekeeping	Are house keeping arrangements satisfactory?	The housekeeping arrangements appear to be of an acceptable standard.		**Compliant**

04 - Arson	Are adequate measures in place to control risk of fire due to arson?	Adequate arson control measures are in place.	**Compliant**
05 - Smoking Policy	Is a suitable 'no smoking' policy in place?	An adequate "no smoking" policy is in place in accordance with current legislation and company policy.	**Compliant**
06 - Legislation	Has the premises been subject to an inspection by the Enforcing Authority?	The premises have been subject to an inspection by the Enforcing Authority and a satisfactory letter of compliance has been issued.	**Compliant**

11 - Signs and Signals

Research has shown that members of the public may become confused and disorientated in the event of a fire. To save confusion which can jeopardise building occupants escape all safety signs should be installed and conform to Signs and Safety Signals Regulations.

Sub Section	Question	Answer	Action Plan	Status
01 - Provision of Fire safety Signs and Notices	Are there adequate and suitable fire safety signs and notices displayed in the appropriate places throughout the premises?	There are no signs provided to discourage people from using the lifts in an emergency.	A	**Non_Compliant**
01 - Provision of Fire safety Signs and Notices	Are there adequate and suitable fire safety signs and notices displayed in the appropriate places throughout the premises?	Some of the fire alarm call points are not identified with appropriate signs.	B	**Non_Compliant**
01 - Provision of Fire safety Signs and Notices	Are there adequate and suitable fire safety signs and notices displayed in the appropriate places throughout the premises?	The external side of the final exit doors are not adequately identified.	J	**Non_Compliant**

12 - Effects on the Environment

A further requirement under the Regulatory Reform Order (Fire Safety Act) is that consideration must be made to the effects of a fire in any given building to the environment. The spread of fire to adjacent properties, the risks posed by the smoke from the materials contained within the building if affected by fire and if the water used for firefighting needs to be contained to protect the water course.

Sub Section	Question	Answer	Action Plan	Status
01 - Adjacent Properties	Has the Responsible Person considered the effects to adjacent buildings that might be caused by a fire on the site?	The Responsible Person has made adequate arrangements to mitigate any damage to the adjacent properties from a fire on the site.		**Compliant**
02 - Immediate Surroundings	Has the building's Responsible Person considered the effects to the environment that might be caused by a fire on the site?	The Responsible Person has made arrangements to mitigate any damage to the environment from a fire on the site.		**Compliant**

SECTION 3: ACTION PLAN

SECTION 4: ARCHIVE

SECTION 4. ARCHIVE: Action has been archived

Ref	Sub Section	Question	Non-conformity	Recommendation	Location	Who is responsible	By When
10735544	A	Are there adequate and suitable fire safety signs and notices displayed in the appropriate places throughout the premises?	There are no signs provided to discourage people from using the lifts in an emergency.	Install "Do not use lift in the event of Fire" signs that comply with BS 5499-5.	Floor 7 and 5 Central Stair.	Statutory requirement of the Client	14/04/2018

Action Status Notes:

Ref	Date	Notes	Author
108786	05 Apr 2018	New signs fitted	Craig Critchley

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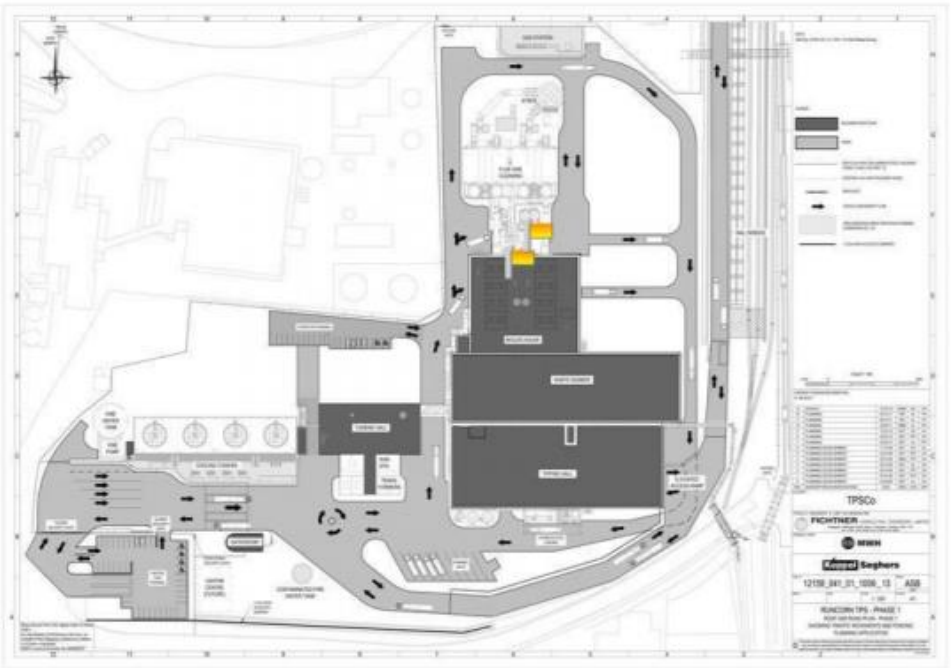
Locations of Non-conformity (one floorplan per page)



SECTION 4. ARCHIVE: Action has been archived

Ref	Sub Section	Question	Non-conformity	Recommendation	Location	Who is responsible	By When
10735545	B	Are there adequate and suitable fire safety signs and notices displayed in the appropriate places throughout the premises?	Some of the fire alarm call points are not identified with appropriate signs.	Install fire alarm call point signage complying with BS 5499-5. The signs should display the evacuation process in pictorial form including how to operate the manual call point.	Where signs are currently missing.	Statutory requirement for the Client	14/04/2018

Action Status Notes:

Ref	Date	Notes	Author
108788	09 May 2018	New stickers and signs fitted	Craig Critchley

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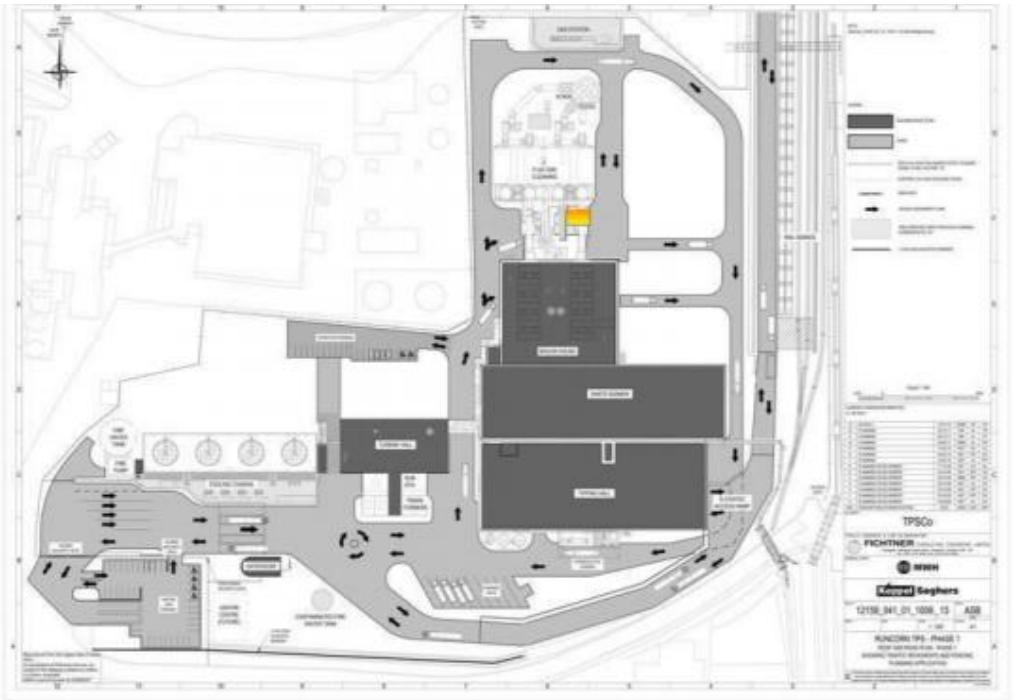
Locations of Non-conformity (one floorplan per page)



SECTION 4. ARCHIVE: Action has been archived

Ref	Sub Section	Question	Non-conformity	Recommendation	Location	Who is responsible	By When
10735540	C	Do the fire resisting door sets meet the appropriate standard?	The fire door has not been provided with a means to prevent the spread of fire between compartments.	Dual intumescent heat strips and flexible smoke seals should be installed by a competent person in accordance with the manufacturer's instructions.	Please See Plan - Accommodation stair floor 6.	Statutory requirement for the Client	14/04/2018

Action Status Notes:

Ref	Date	Notes	Author
108796	11 Apr 2018	Door seals now fitted	Craig Critchley

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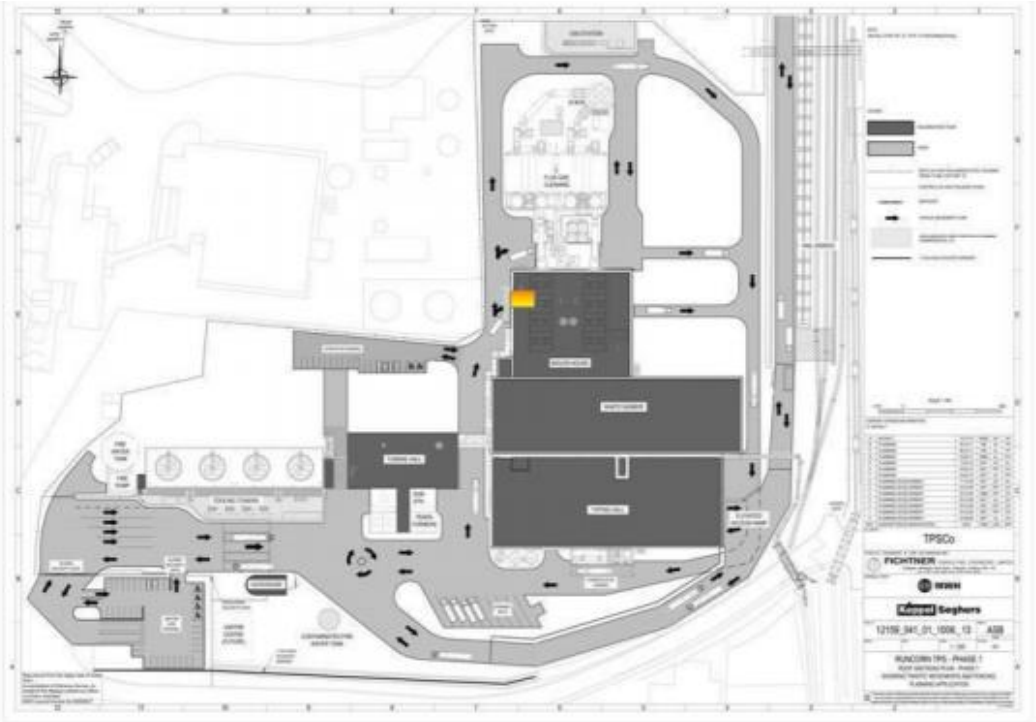
Locations of Non-conformity (one floorplan per page)



SECTION 4. ARCHIVE: Action has been archived

Ref	Sub Section	Question	Non-conformity	Recommendation	Location	Who is responsible	By When
10735536	E	Are the fire resisting and separating walls and floors in good condition?	Fire stopping between compartments appears to be poorly installed. This appears to be poorly installed inside the service shaft where access is difficult. Photographs also show where the cabling emerges in the production area.	As necessary, install fire stopping around services and pipe work which penetrate through the fire resisting and separating floors and walls. Ensure the correct approved proprietary materials are installed by a competent passive fire safety contractor.	Level 7 Electric meter shaft off the stair and Service shaft on landing between floors 1 and 2.	Statutory requirement for the Client	14/04/2018

Action Status Notes:

Ref	Date	Notes	Author
108784	11 Jul 2018	Fire Stop insulation has now been fitted	Craig Critchley

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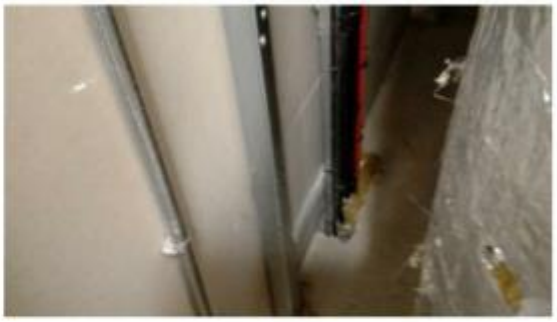

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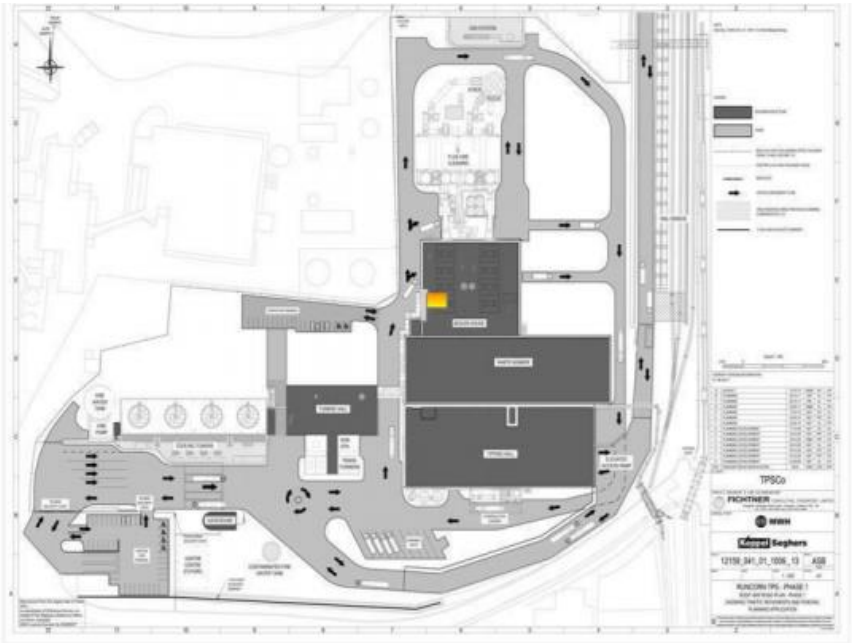
Locations of Non-conformity (one floorplan per page)



SECTION 4. ARCHIVE: Action has been archived

Ref	Sub Section	Question	Non-conformity	Recommendation	Location	Who is responsible	By When
10735542	G	Do the fire resisting door sets meet the appropriate standard?	Fire doors were found to be wedged open.	Remove the wedges from doors and maintain closed when not in use. This door protects the escape route from the rear room. If this door requires to be held open, an approved automatic hold open/release device can be installed as an acceptable alternative. Installation must be completed by a competent person in accordance with BS EN 1155 or BS 5839-3.	Kitchen door accommodation wing.	Statutory requirement for the Client	14/04/2018

Action Status Notes:

Ref	Date	Notes	Author
108795	11 Jul 2018	Automated door releases fitted to close doors in event of an emergency	Craig Critchley

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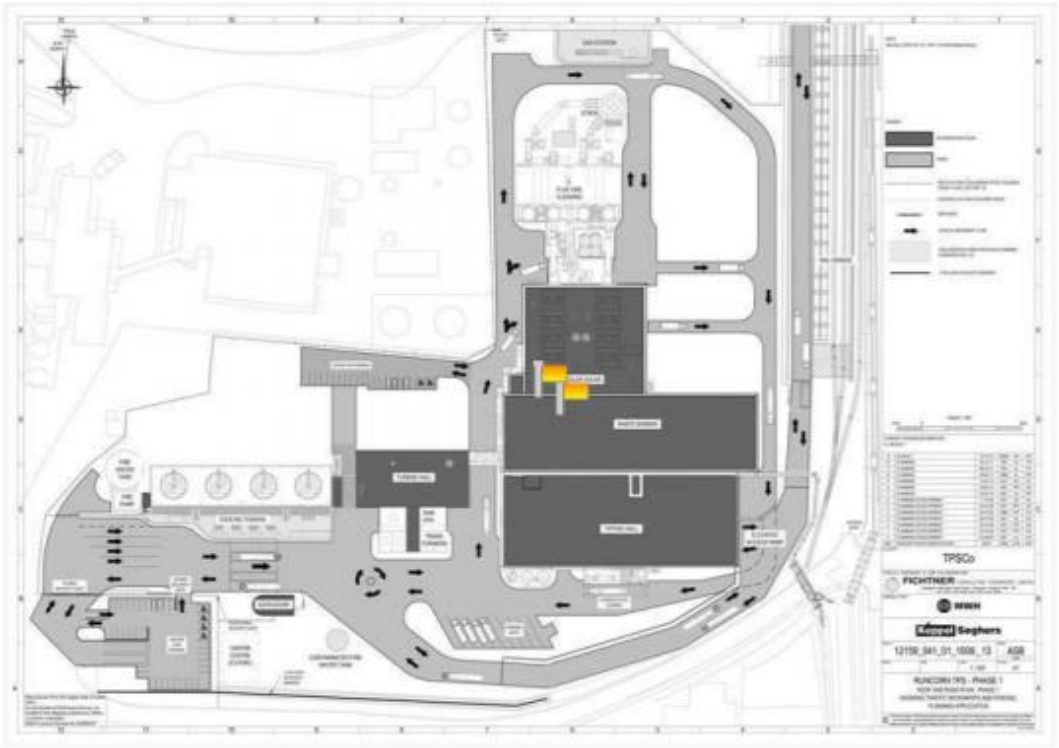
Locations of Non-conformity (one floorplan per page)



SECTION 4. ARCHIVE: Action has been archived

Ref	Sub Section	Question	Non-conformity	Recommendation	Location	Who is responsible	By When
10735537	J	Do the fire resisting door sets meet the appropriate standard?	Ineffective self closing devices.	Repair or replace the self-closing devices to ensure fire doors close fully into their frame against the door stops.	Doors from accommodation stair into production and office areas.	Statutory requirement for the Client	14/04/2018

Action Status Notes:

Ref	Date	Notes	Author
108799	04 Jul 2018	Self closers adjusted by Keytracker and new style of door closers fitted on some doors.	Craig Critchley

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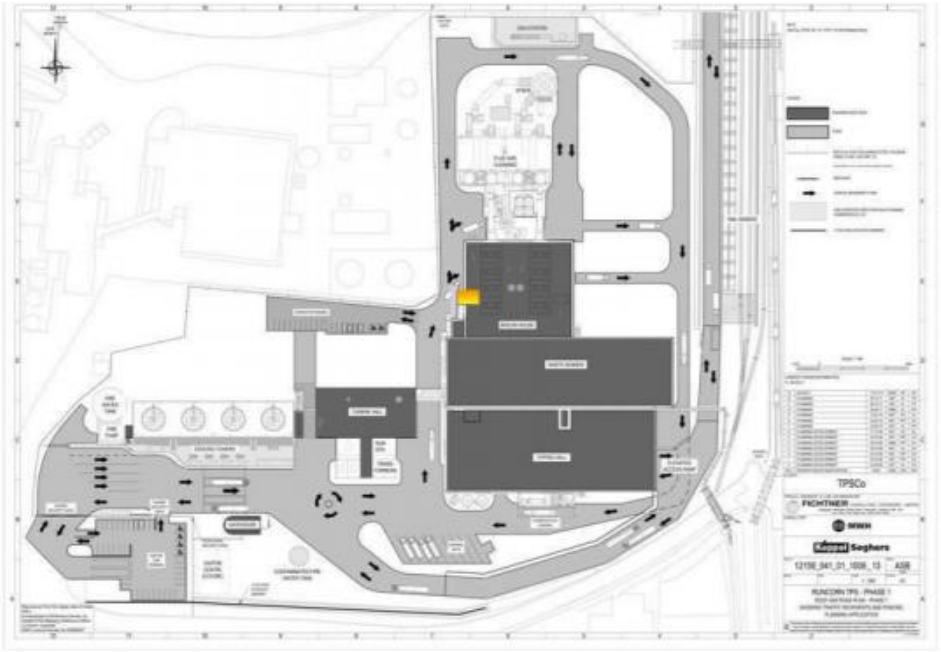
Locations of Non-conformity (one floorplan per page)



SECTION 4. ARCHIVE: Action has been archived

Ref	Sub Section	Question	Non-conformity	Recommendation	Location	Who is responsible	By When
10735546	J	Are there adequate and suitable fire safety signs and notices displayed in the appropriate places throughout the premises?	The external side of the final exit doors are not adequately identified.	The external sides of final exit doors must be indicated by "Fire Exit Keep Clear" signs complying with BS 5499-5.	Please See Plan	Statutory requirement of the Client	14/04/2018

Action Status Notes:

Ref	Date	Notes	Author
108790	16 Mar 2018	Signs and stickers fitted to doors across site	Craig Critchley

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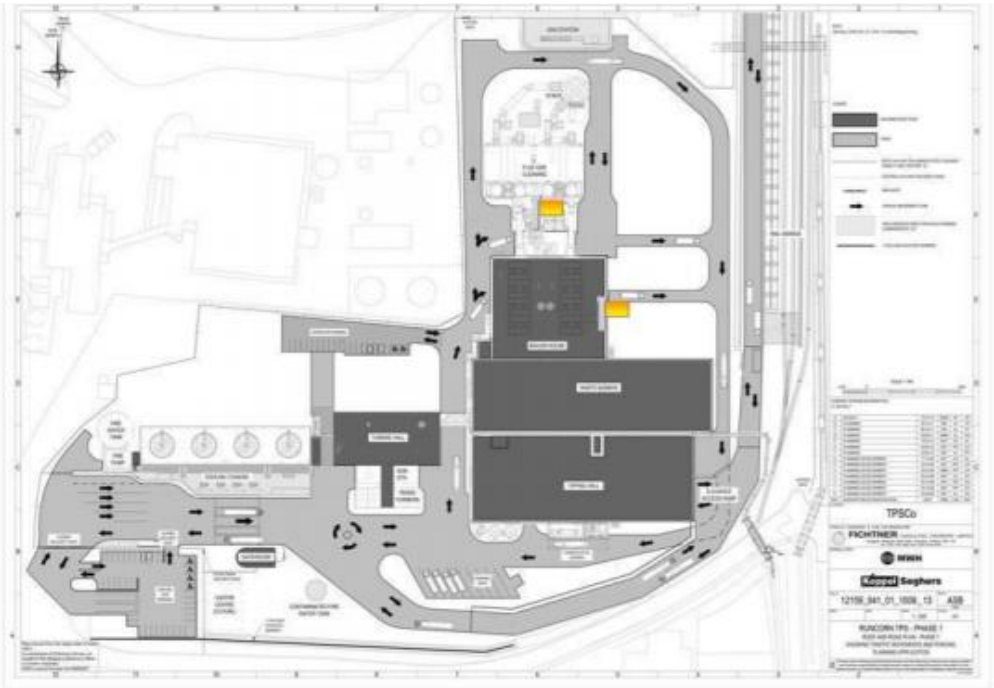
Locations of Non-conformity (one floorplan per page)



SECTION 4. ARCHIVE: Action has been archived

Ref	Sub Section	Question	Non-conformity	Recommendation	Location	Who is responsible	By When
10735538	NR-49-198-1	Do the fire resisting door sets meet the appropriate standard?	The fire resisting door of the service shaft is missing.	The door should be replaced.	Floor 7 Accommodation stairs.	Statutory requirement for the Client	14/04/2018

Action Status Notes:

Ref	Date	Notes	Author
108791	03 Jul 2018	New door fitted	Craig Critchley

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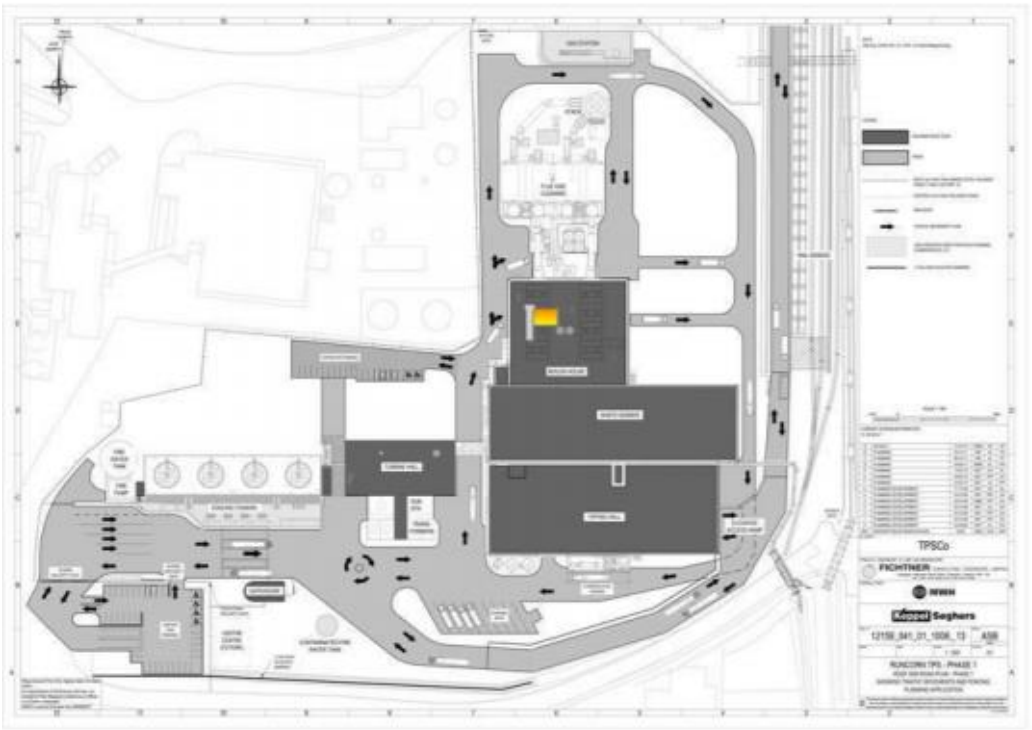
Locations of Non-conformity (one floorplan per page)



SECTION 4. ARCHIVE: Action has been archived

Ref	Sub Section	Question	Non-conformity	Recommendation	Location	Who is responsible	By When
10735539	NR-49-198-2	Do the fire resisting door sets meet the appropriate standard?	The door was found locked in the open position negating its fire resisting properties.	The door should be locked in the closed position.	Accommodation stair floor 6.	Statutory requirement of the Client	14/04/2018

Action Status Notes:

Ref	Date	Notes	Author
108793	07 Mar 2018	Door unlocked and closed	Craig Critchley

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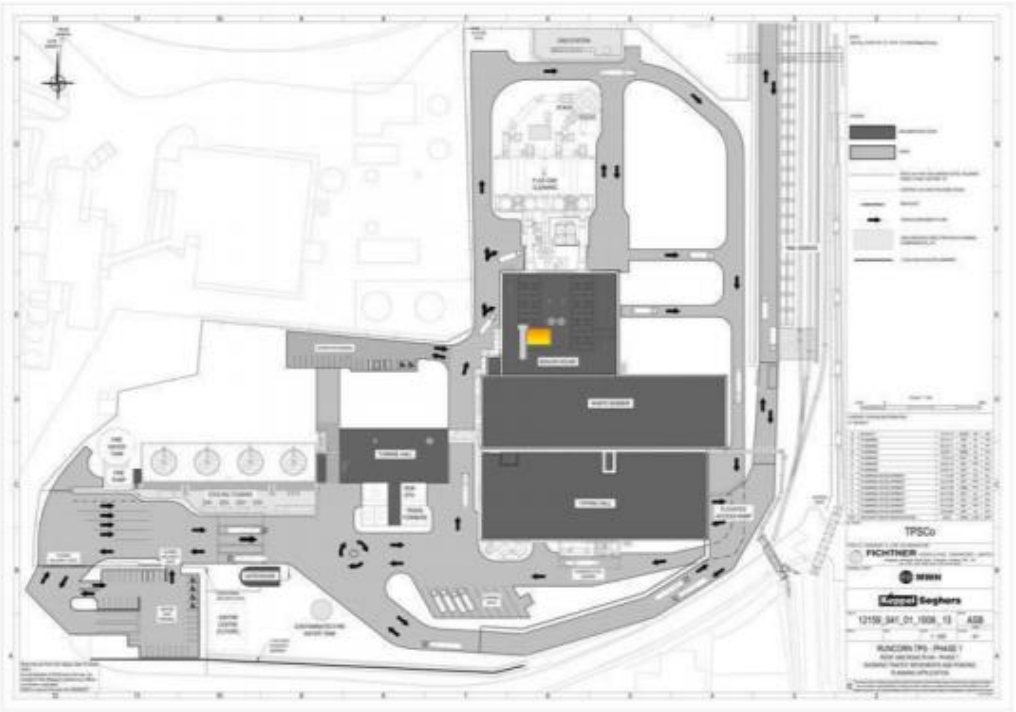
Locations of Non-conformity (one floorplan per page)



SECTION 4. ARCHIVE: Action has been archived

Ref	Sub Section	Question	Non-conformity	Recommendation	Location	Who is responsible	By When
10738729	Spc	Are there sufficient quantities of portable fire-fighting equipment provided, correctly sited and adequately maintained?	There are two hose reels in the tipping hall designated as fire hose reels, but there is no label attached indicating they have been tested and maintained.	If not already being carried out, the equipment should be periodically maintained by a competent person to BS 5306-3 and records maintained. If the equipment is no longer required for fire fighting purposes the labels indicating that it is a fire hose reel should be removed.	Tipping Hall	Statutory requirement of the Client	14/04/2018

Action Status Notes:

Ref	Date	Notes	Author
108787	07 Mar 2018	Hollistech ppm now created for these tests. Test dates will be logged in site CMMS	Craig Critchley

Locations of Non-conformity (one floorplan per page)

SECTION 4. ARCHIVE: Action has been archived

Ref	Sub Section	Question	Non-conformity	Recommendation	Location	Who is responsible	By When
10735541	W	Do the fire resisting door sets meet the appropriate standard?	The door coordinator required to ensure that that doors close in the correct sequence is ineffective. Some double doors which have a rebate where the doors meet, are not fitted with a door co-ordinator.	The door coordinator must be repaired or replaced to ensure that the doors close in the correct sequence, or fitted to doors sets with rebated double doors where none are currently installed.	Accommodation stair side.	Statutory requirement of the Client	14/04/2018

Action Status Notes:

Ref	Date	Notes	Author
108800	11 Jul 2018	New style of door closing co-ordinator fitted on some doors. Others have been adjusted by Keytracker	Craig Critchley

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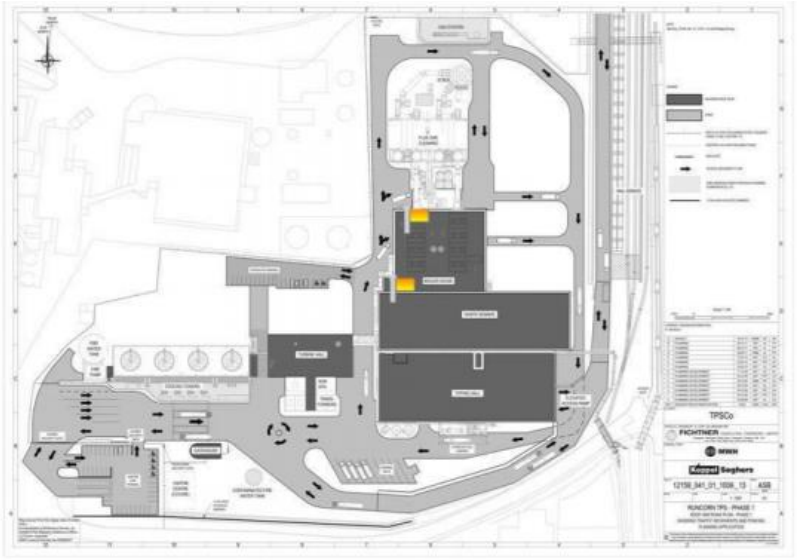
Locations of Non-conformity (one floorplan per page)



SECTION 4. ARCHIVE: Action has been archived

Ref	Sub Section	Question	Non-conformity	Recommendation	Location	Who is responsible	By When
10735543	X	Do the fire resisting door sets meet the appropriate standard?	The fire doors have a large gap between the doors which may allow the ingress of smoke and prevent the intumescent seals being effective.	The doors should be adjusted to ensure that there is no more than a 3mm gap between the doors.	Please See Plan - Ground floor reception and doors leading into Production as shown.	Statutory requirement of the Client	14/04/2018

Action Status Notes:

Ref	Date	Notes	Author
108797	12 Jun 2018	Keytracker have been to site to service doors and adjust	Craig Critchley

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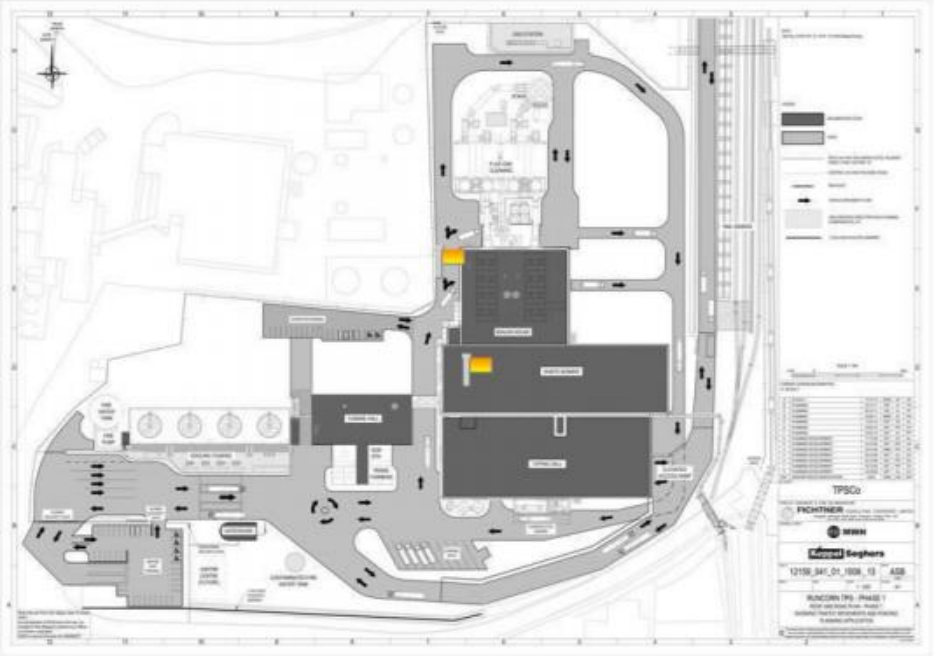
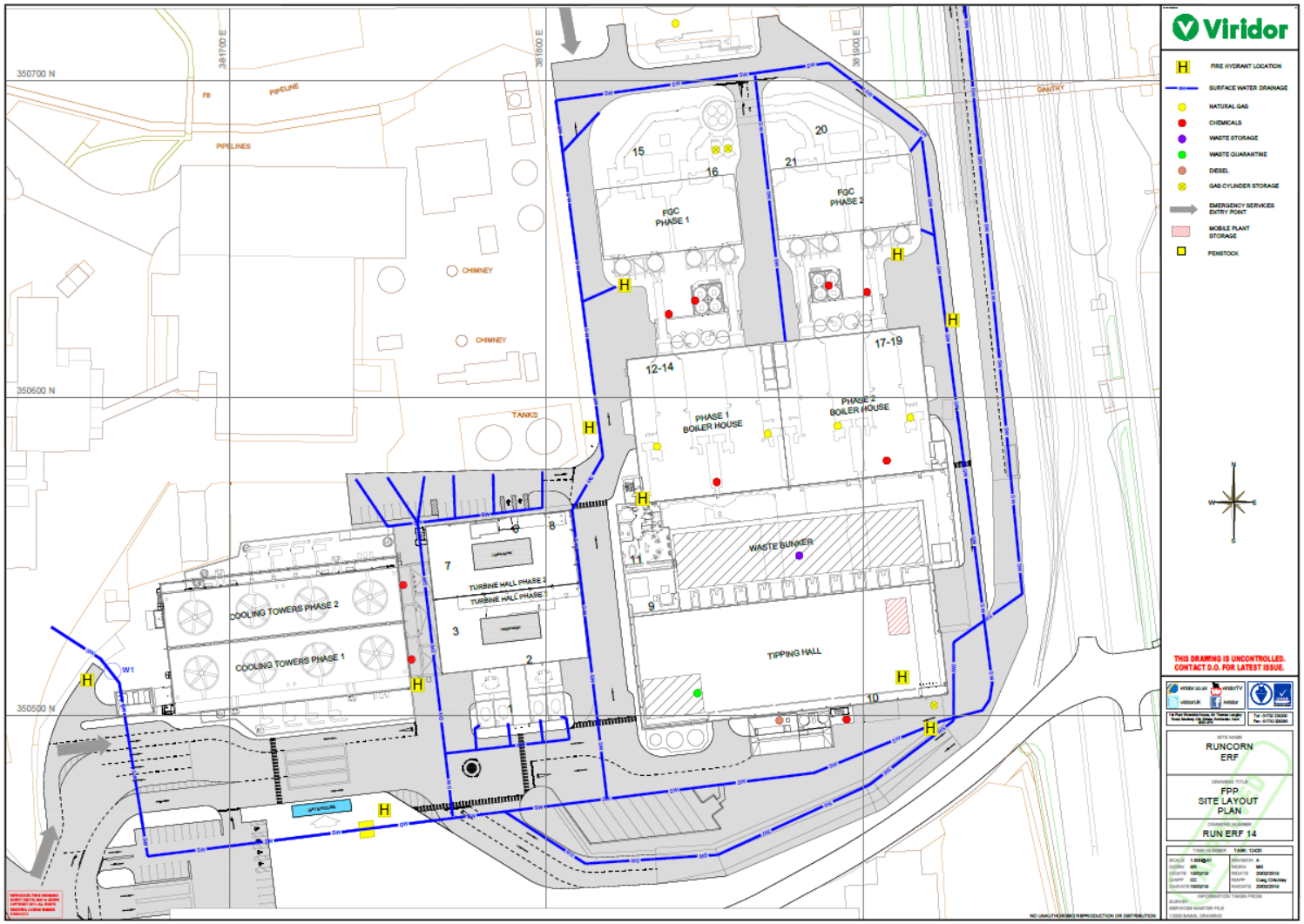
Locations of Non-conformity (one floorplan per page)



SECTION 5: LOG BOOK

Site Plan



An A3 copy will be supplied with the procedure

END

Safety Data Sheet

Perimeter SOLUTIONS
Quality Products. Exceptional Response.

RESPONSIBLE CARE®

According to 1907/2006/EC (REACH), 453/2010/EC Phos-Chek 1x3 AR-AFFF - [POLYFOAM 1/3]

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier: Phos-Chek 1x3 AR-AFFF - [POLYFOAM 1/3]

1.2 Relevant identified uses of the substance or mixture and uses advised against:

Relevant uses: Fire-extinguishing. For professional use only.

Uses advised against: All uses not specified in this section or in section 7.3

1.3 Details of the supplier of the safety data sheet:

AUXQUIMIA, S.A.U.
Polígono Industrial de Baiña, parcela 23
33682 Baiña (Mieres) - Asturias - Spain
Phone.: +34 985 242 945 / +34 985 242 946 -
Fax: +34 985 253 809
sds@perimeter-solutions.com
www.auxquimia.com

1.4 Emergency telephone number: +34 985 242 945 / +34 985 242 946

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

NFPA 704:

Health Hazards: 3
Flammability Hazards: 0
Instability Hazards: 0
Special Hazards: Non-applicable

Directive 67/548/EC and Directive 1999/45/EC:

This product was classified in accordance with Directive 67/548/EC and Directive 1999/45/EC, adapting the requirements to Regulation (EC) nº1907/2006 (REACH regulation).
Xi: R36 - Irritating to eyes, R43 - May cause sensitisation by skin contact

2.2 Label elements:

NFPA 704:

Directive 67/548/EC and Directive 1999/45/EC:

In accordance with the legislation, the elements on the label are as follows:

R Phrases:

R36: Irritating to eyes
R43: May cause sensitisation by skin contact

S Phrases:

S24: Avoid contact with skin
S37: Wear suitable gloves

Supplementary information:

Non-applicable

Substances that contribute to the classification:

Amphoteric hydrocarbon surfactant 6608110000

2.3 Other hazards:

Non-applicable

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

- CONTINUED ON NEXT PAGE -

Safety data sheet
According to 1907/2006/EC (REACH), 453/2010/EC

Phos-Chek 1x3 AR-AFFF - [POLYFOAM 1/3]

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (continue)

Chemical description: Aqueous solution of tensoactives

Components:

In accordance with Annex II of Regulation (EC) nº1907/2006 (point 3), the product contains:

Identification	Chemical name/Classification			Concentration
CAS: 112-34-5 EC: 203-961-6 Index: 603-096-00-8 REACH: 01-2119475104-44-XXXX	**2-(2-butoxietoxi)etanol**		ATP CLP00	10 - <15 %
	Directive 67/548/EC	Xi: R36		
	Regulation 1272/2008	Eye Irrit. 2: H319 - Warning		
CAS: 107-21-1 EC: 203-473-3 Index: 603-027-00-1 REACH: 01-2119456816-28-XXXX	**Ethane-1,2-diol**		ATP CLP00	3 - <6 %
	Directive 67/548/EC	Xn: R22		
	Regulation 1272/2008	Acute Tox. 4: H302 - Warning		
CAS: Non-applicable EC: Non-applicable Index: Non-applicable REACH: Non-applicable	**Mixture of fluorosurfactants**		Not classified	3 - <6 %
	Directive 67/548/EC			
	Regulation 1272/2008			
CAS: Non-applicable EC: Non-applicable Index: Non-applicable REACH: Non-applicable	**Amphoteric hydrocarbon surfactant 6608110000**		Self-classified	1 - <3 %
	Directive 67/548/EC	Xi: R36, R43		
	Regulation 1272/2008	Eye Irrit. 2: H319; Skin Sens. 1: H317 - Warning		
CAS: Non-applicable EC: Non-applicable Index: Non-applicable REACH: Non-applicable	**Non-ionic hydrocarbon surfactant 6607730000**		ATP CLP00	1 - <3 %
	Directive 67/548/EC	Xi: R41		
	Regulation 1272/2008	Eye Dam. 1: H318 - Danger		
CAS: Non-applicable EC: Non-applicable Index: Non-applicable REACH: Non-applicable	**Anionic hydrocarbon surfactant 6608700000**		Self-classified	1 - <3 %
	Directive 67/548/EC	Xi: R38, R41		
	Regulation 1272/2008	Eye Dam. 1: H318; Skin Irrit. 2: H315 - Danger		
CAS: Non-applicable EC: Non-applicable Index: Non-applicable REACH: Non-applicable	**Amphoteric hydrocarbon surfactant 6201213000**		Self-classified	1 - <3 %
	Directive 67/548/EC	Xi: R41		
	Regulation 1272/2008	Eye Dam. 1: H318 - Danger		
CAS: 11138-66-2 EC: 234-394-2 Index: Non-applicable REACH: Non-applicable	**Xanthan gum**		Not classified	0,1 - <1 %
	Directive 67/548/EC			
	Regulation 1272/2008			
CAS: Non-applicable EC: Non-applicable Index: Non-applicable REACH: Non-applicable	**Mixture of fluorinated polymers**		Not classified	0,1 - <1 %
	Directive 67/548/EC			
	Regulation 1272/2008			
CAS: 67-56-1 EC: 200-659-6 Index: 603-001-00-X REACH: 01-2119433307-44-XXXX	**Methanol**		ATP CLP00	<0,1 %
	Directive 67/548/EC	F: R11; T: R23/24/25, R39/23/24/25		
	Regulation 1272/2008	Acute Tox. 3: H301+H311+H331; Flam. Liq. 2: H225; STOT SE 1: H370 - Danger		

To obtain more information on the risk of the substances consult sections 8, 11, 12 and 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures:

The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the MSDS of this product.

By inhalation:

This product is not classified as dangerous through inhalation,however, it is recommended in case of intoxication symptoms to remove the person affected from the area of exposure, provide clean air and keep at rest. Request medical attention if symptoms persist.

By skin contact:

In case of contact it is recommended to clean the affected area thoroughly with water and neutral soap. In case of modifications on the skin (stinging, redness, rashes, blisters,...), seek medical advice with this Security Data Sheet

By eye contact:

Rinse eyes thoroughly with luke warm water for at least 15 minutes. Do not allow the person affected to rub or close their eyes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, as this could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the MSDS of the product.

By consumption:

- CONTINUED ON NEXT PAGE -

Safety data sheet
According to 1907/2006/EC (REACH), 453/2010/EC

Phos-Chek 1x3 AR-AFFF - [POLYFOAM 1/3]

SECTION 4: FIRST AID MEASURES (continue)

Do not induce vomiting, but if it does happen keep the head up to avoid inhalation. Keep the person affected at rest. Rinse out the mouth and throat, as they may have been affected during ingestion.

4.2 Most important symptoms and effects, both acute and delayed:

Acute and delayed effects are indicated in sections 2 and 11.

4.3 Indication of any immediate medical attention and special treatment needed:

Non-applicable

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media:

Product is non-flammable under normal conditions of storage, manipulation and use, containing flammable substances. In the case of inflammation as a result of improper manipulation, storage or use preferably use polyvalent powder extinguishers (ABC powder), in accordance with the Regulation on fire protection systems. IT IS NOT RECOMMENDED to use tap water as an extinguishing agent.

5.2 Special hazards arising from the substance or mixture:

As a result of combustion or thermal decomposition reactive subproducts are created that can become highly toxic and, consequently, can present a serious health risk.

5.3 Advice for firefighters:

Depending on the magnitude of the fire it may be necessary to use full protective clothing and individual respiratory equipment. Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...) in accordance with Directive 89/654/EC.

Additional provisions:

Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Destroy any source of ignition. In case of fire, refrigerate the storage containers and tanks for products susceptible to inflamation, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

Isolate leaks provided that there is no additional risk for the people performing this task. Evacuate the area and keep out those without protection. Personal protection equipment must be used against potential contact with the spilt product (See section 8). Above all prevent the formation of any vapour-air flammable mixtures, through either ventilation or the use of an inertizing agent. Destroy any source of ignition. Eliminate electrostatic charges by interconnecting all the conductive surfaces on which static electricity could form, and also ensuring that all surfaces are connected to the ground.

6.2 Environmental precautions:

This product is not classified as dangerous to the environment. Keep product away from drains, surface and underground water.

6.3 Methods and material for containment and cleaning up:

It is recommended:

Absorb the spillage using sand or inert absorbent and move it to a safe place. Do not absorb in sawdust or other combustible absorbents. For any concern related to disposal consult section 13.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A.- Precautions for safe manipulation

Comply with the current legislation concerning the prevention of industrial risks. Keep containers hermetically sealed. Control spills and residues, destroying them with safe methods (section 6). Avoid leakages from the container. Maintain order and cleanliness where dangerous products are used.

B.- Technical recommendations for the prevention of fires and explosions

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Safety data sheet
According to 1907/2006/EC (REACH), 453/2010/EC

Phos-Chek 1x3 AR-AFFF - [POLYFOAM 1/3]

SECTION 7: HANDLING AND STORAGE (continue)

Avoid the evaporation of the product as it contains flammable substances, which could form flammable vapour/air mixtures in the presence of sources of ignition. Control sources of ignition (mobile phones, sparks,...) and transfer at slow speeds to avoid the creation of electrostatic charges. Avoid projections and pulverizations. Consult section 10 for conditions and materials that should be avoided.

C.- Technical recommendations to prevent ergonomic and toxicological risks

Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

D.- Technical recommendations to prevent environmental risks

It is recommended to have absorbent material available at close proximity to the product (See subsection 6.3)

7.2 Conditions for safe storage, including any incompatibilities:

A.- Technical measures for storage

Minimum Temp.: -10 ºC

Maximun Temp.: 50 ºC

B.- General conditions for storage

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

7.3 Specific end use(s):

Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters:

Substances whose occupational exposure limits have to be monitored in the work environment

Identification	Environmental limits		
Ethane-1,2-diol	TLV-TWA		
CAS: 107-21-1	TLV-STEL		100 mg/m³
EC: 203-473-3	Year	2014	
Methanol	TLV-TWA	200 ppm	
CAS: 67-56-1	TLV-STEL	250 ppm	
EC: 200-659-6	Year	2014	

DNEL (Workers):

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
2-(2-butoxietoxi)etanol	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
CAS: 112-34-5	Dermal	Non-applicable	Non-applicable	20 mg/kg	Non-applicable
EC: 203-961-6	Inhalation	Non-applicable	101,2 mg/m³	67,5 mg/m³	67,5 mg/m³
Ethane-1,2-diol	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
CAS: 107-21-1	Dermal	Non-applicable	Non-applicable	106 mg/kg	Non-applicable
EC: 203-473-3	Inhalation	Non-applicable	Non-applicable	Non-applicable	35 mg/m³
Anionic hydrocarbon surfactant 6608700000	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
CAS: Non-applicable	Dermal	Non-applicable	Non-applicable	4060 mg/kg	Non-applicable
EC: Non-applicable	Inhalation	Non-applicable	Non-applicable	285 mg/m³	Non-applicable
Amphoteric hydrocarbon surfactant 6201213000	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
CAS: Non-applicable	Dermal	Non-applicable	Non-applicable	12,5 mg/kg	Non-applicable
EC: Non-applicable	Inhalation	Non-applicable	Non-applicable	44 mg/m³	Non-applicable
Methanol	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
CAS: 67-56-1	Dermal	40 mg/kg	Non-applicable	40 mg/kg	Non-applicable
EC: 200-659-6	Inhalation	260 mg/m³	260 mg/m³	260 mg/m³	260 mg/m³

DNEL (Population):

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Safety data sheet
According to 1907/2006/EC (REACH), 453/2010/EC

Phos-Chek 1x3 AR-AFFF - [POLYFOAM 1/3]

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continue)

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
2-(2-butoxietoxi)etanol	Oral	Non-applicable	Non-applicable	1,25 mg/kg	Non-applicable
CAS: 112-34-5	Dermal	Non-applicable	Non-applicable	10 mg/kg	Non-applicable
EC: 203-961-6	Inhalation	Non-applicable	50,6 mg/m³	34 mg/m³	34 mg/m³
Ethane-1,2-diol	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
CAS: 107-21-1	Dermal	Non-applicable	Non-applicable	53 mg/kg	Non-applicable
EC: 203-473-3	Inhalation	Non-applicable	Non-applicable	Non-applicable	7 mg/m³
Anionic hydrocarbon surfactant 6608700000	Oral	Non-applicable	Non-applicable	24 mg/kg	Non-applicable
CAS: Non-applicable	Dermal	Non-applicable	Non-applicable	2440 mg/kg	Non-applicable
EC: Non-applicable	Inhalation	Non-applicable	Non-applicable	85 mg/m³	Non-applicable
Amphoteric hydrocarbon surfactant 6201213000	Oral	Non-applicable	Non-applicable	7,5 mg/kg	Non-applicable
CAS: Non-applicable	Dermal	Non-applicable	Non-applicable	7,5 mg/kg	Non-applicable
EC: Non-applicable	Inhalation	Non-applicable	Non-applicable	Non-applicable	Non-applicable
Methanol	Oral	8 mg/kg	Non-applicable	8 mg/kg	Non-applicable
CAS: 67-56-1	Dermal	8 mg/kg	Non-applicable	8 mg/kg	Non-applicable
EC: 200-659-6	Inhalation	50 mg/m³	50 mg/m³	50 mg/m³	50 mg/m³

PNEC:

Identification				
2-(2-butoxietoxi)etanol	STP	200 mg/L	Fresh water	1 mg/L
CAS: 112-34-5	Soil	0,4 mg/kg	Marine water	0,1 mg/L
EC: 203-961-6	Intermittent	3,9 mg/L	Sediment (Fresh water)	4 mg/kg
	Oral	56 g/kg	Sediment (Marine water)	0,4 mg/kg
Ethane-1,2-diol	STP	199,5 mg/L	Fresh water	10 mg/L
CAS: 107-21-1	Soil	1,53 mg/kg	Marine water	1 mg/L
EC: 203-473-3	Intermittent	10 mg/L	Sediment (Fresh water)	37 mg/kg
	Oral	Non-applicable	Sediment (Marine water)	3,7 mg/kg
Anionic hydrocarbon surfactant 6608700000	STP	1,35 mg/L	Fresh water	0,1357 mg/L
CAS: Non-applicable	Soil	0,22 mg/kg	Marine water	0,01357 mg/L
EC: Non-applicable	Intermittent	Non-applicable	Sediment (Fresh water)	1,5 mg/kg
	Oral	Non-applicable	Sediment (Marine water)	0,15 mg/kg
Amphoteric hydrocarbon surfactant 6201213000	STP	3000 mg/L	Fresh water	0,0135 mg/L
CAS: Non-applicable	Soil	0,8 mg/kg	Marine water	0,00135 mg/L
EC: Non-applicable	Intermittent	Non-applicable	Sediment (Fresh water)	1 mg/kg
	Oral	Non-applicable	Sediment (Marine water)	0,1 mg/kg
Methanol	STP	100 mg/L	Fresh water	154 mg/L
CAS: 67-56-1	Soil	23,5 mg/kg	Marine water	15,4 mg/L
EC: 200-659-6	Intermittent	1540 mg/L	Sediment (Fresh water)	570,4 mg/kg
	Oral	Non-applicable	Sediment (Marine water)	Non-applicable

8.2 Exposure controls:

A.- General security and hygiene measures in the work place

If product is used at the concentration dosing conditions specified in the relevant instructions for use (section 15), personal protective equipment described in section 8.2 for UNDILUTED products will not be required.

Safe handling recommendations for undiluted product:
As a preventative measure it is recommended to use basic Personal Protection Equipment, with the corresponding ""CE marking"" in accordance with Directive 89/686/EC. For more information on Personal Protection Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For more infomation see subsection 7.1.
All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

B.- Respiratory protection

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continue)

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory respiratory tract protection	Filter mask for gases and vapours	CE CAT III	EN 405:2001+A1:2009	Replace when there is a taste or smell of the contaminant inside the face mask. If the contaminant comes with warnings it is recommended to use isolation equipment.

C.- Specific protection for the hands

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory hand protection	Chemical protective gloves	CE CAT I	EN 374-1:2003 EN 374-3:2003/AC:2006 EN 420:2003+A1:2009	Replace the gloves at any sign of deterioration.

D.- Ocular and facial protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory face protection	Panoramic glasses against liquid splash	CE CAT II	EN 166:2001 EN 172:1994/A1:2000 EN 172:1994/A2:2001 EN ISO 4007:2012	Clean daily and disinfect periodically according to the manufacturer´s instructions. Use if there is a risk of splashing.

E.- Bodily protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
	Work clothing	CE CAT I	EN ISO 13688:2013	For professional use only.
	Anti-slip work shoes	CE CAT II	EN ISO 20347:2012 EN ISO 20344:2011	None

F.- Additional emergency measures

Emergency measure	Standards	Emergency measure	Standards
 Emergency shower	ANSI Z358-1 ISO 3864-1:2002	 Eyewash stations	DIN 12 899 ISO 3864-1:2002

Environmental exposure controls:

In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

For complete information see the product datasheet.

Appearance:

Physical state at 20 ºC:	Liquid
Appearance:	Viscous
Color:	Amber
Odor:	Characteristic

Volatility:

Boiling point at atmospheric pressure: Non-applicable *

*Not relevant due to the nature of the product, not providing information property of its hazards.

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Safety data sheet
According to 1907/2006/EC (REACH), 453/2010/EC

Phos-Chek 1x3 AR-AFFF - [POLYFOAM 1/3]

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continue)

Vapour pressure at 20 ºC:	Non-applicable *
Vapour pressure at 50 ºC:	Non-applicable *
Evaporation rate at 20 ºC:	Non-applicable *
Product description:	
Density at 20 ºC:	1040 - 1080 kg/m³
Relative density at 20 ºC:	Non-applicable *
Dynamic viscosity at 20 ºC:	80 cP
Kinematic viscosity at 20 ºC:	Non-applicable *
Kinematic viscosity at 40 ºC:	>7 cSt
Concentration:	Non-applicable *
pH:	6,5 - 7,5
Vapour density at 20 ºC:	Non-applicable *
Partition coefficient n-octanol/water 20 ºC:	Non-applicable *
Solubility in water at 20 ºC:	Non-applicable *
Solubility property:	Highly water-soluble
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	Non-applicable *
Flammability:	
Flash Point:	Non Flammable (>60 ºC)
Autoignition temperature:	Non-applicable *
Lower flammability limit:	Non-applicable *
Upper flammability limit:	Non-applicable *

9.2 Other information:

Surface tension at 20 ºC:	Non-applicable *
Refraction index:	1,383

*Not relevant due to the nature of the product, not providing information property of its hazards.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

No hazardous reactions are expected if the following technical instructions storage of chemicals. See section 7.

10.2 Chemical stability:

Chemically stable under the conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

10.4 Conditions to avoid:

Applicable for handling and storage at room temperature:

Shock and friction	Contact with air	Increase in temperature	Sunlight	Humidity
Not applicable	Not applicable	Precaution	Avoid direct impact	Not applicable

10.5 Incompatible materials:

Acids	Water	Combustive materials	Combustible materials	Others
Not applicable	Not applicable	Avoid direct impact	Avoid direct impact	Not applicable

10.6 Hazardous decomposition products:

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO2), carbon monoxide and other organic compounds.

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According to 1907/2006/EC (REACH), 453/2010/EC

Phos-Chek 1x3 AR-AFFF - [POLYFOAM 1/3]

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

No experimental information is available on the product itself in relation to the toxicological properties. When performing the danger classification on corrosive or irritant effects the recommendations included in section 3.2.5 of Annex VI of Directive 67/548/EC, in paragraphs b) and c) of section 3 of article 6 of Directive 1999/45/EC and in section 3.2.3.3.5. of Annex I of CLP Regulation were taken into account.

Contains glycols. With possibility of effects that are hazardous to the health, it is recommended not to breathe the vapours for long periods of time.

Dangerous health implications:

In case of exposure that is repetitive, prolonged or at concentrations higher than recommended by the occupational exposure limits, it may result in adverse effects on health depending on the means of exposure:

A.- Ingestion:

Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous for consumption. For more information see section 3.

B- Inhalation:

Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous for inhalation. For more information see section 3.

C- Contact with the skin and the eyes:

Produces eye damage after contact.

D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for the effects mentioned. For more information see section 3.

E- Sensitizing effects:

Prolonged contact with the skin can result in episodes of allergic contact dermatitis.

F- Specific target organ toxicity (STOT)-time exposure:

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

G- Specific target organ toxicity (STOT)-repeated exposure:

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

H- Aspiration hazard:

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

Other information:

Non-applicable

Specific toxicology information on the substances:

Identification	Acute toxicity		Genus
Ethane-1,2-diol	LD50 oral	500 mg/kg	Rat
CAS: 107-21-1	LD50 dermal	9530 mg/kg	Rabbit
EC: 203-473-3	LC50 inhalation	Non-applicable	
Non-ionic hydrocarbon surfactant 6607730000	LD50 oral	5100 mg/kg	Rat
CAS: Non-applicable	LD50 dermal	2380 mg/kg	Rat
EC: Non-applicable	LC50 inhalation	Non-applicable	
Amphoteric hydrocarbon surfactant 6201213000	LD50 oral	5100 mg/kg	Rat
CAS: Non-applicable	LD50 dermal	Non-applicable	
EC: Non-applicable	LC50 inhalation	Non-applicable	
Methanol	LD50 oral	100 mg/kg	Rat
CAS: 67-56-1	LD50 dermal	300 mg/kg	Rabbit
EC: 200-659-6	LC50 inhalation	3 mg/L (4 h)	Rat

SECTION 12: ECOLOGICAL INFORMATION

The experimental information related to the ecotoxicological properties of the product itself is not available

12.1 Toxicity:

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Safety data sheet
According to 1907/2006/EC (REACH), 453/2010/EC

Phos-Chek 1x3 AR-AFFF - [POLYFOAM 1/3]

SECTION 12: ECOLOGICAL INFORMATION (continue)

Identification	Acute toxicity		Specie	Genus
2-(2-butoxietoxi)etanol	LC50	1300 mg/L (96 h)	Lepomis macrochirus	Fish
CAS: 112-34-5	EC50	2850 mg/L (24 h)	Daphnia magna	Crustacean
EC: 203-961-6	EC50	53 mg/L (192 h)	Microcystis aeruginosa	Alga
Ethane-1,2-diol	LC50	53000 mg/L (96 h)	Pimephales promelas	Fish
CAS: 107-21-1	EC50	51000 mg/L (48 h)	Daphnia magna	Crustacean
EC: 203-473-3	EC50	24000 mg/L (168 h)	Selenastrum capricornutum	Alga
Non-ionic hydrocarbon surfactant 6607730000	LC50	310 mg/L (96 h)	Oncorhynchus mykiss	Fish
CAS: Non-applicable	EC50	Non-applicable		
EC: Non-applicable	EC50	Non-applicable		
Amphoteric hydrocarbon surfactant 6201213000	LC50	1,9 mg/L (96 h)	Cyprinus carpio	Fish
CAS: Non-applicable	EC50	1,9 mg/L (48 h)	Daphnia magna	Crustacean
EC: Non-applicable	EC50	Non-applicable		
Methanol	LC50	15400 mg/L (96 h)	Lepomis macrochirus	Fish
CAS: 67-56-1	EC50	12000 mg/L (96 h)	Nitrocra spinipes	Crustacean
EC: 200-659-6	EC50	530 mg/L (168 h)	Microcystis aeruginosa	Alga

12.2 Persistence and degradability:

Identification	Degradability		Biodegradability	
2-(2-butoxietoxi)etanol	BOD5	0.25 g O2/g	Concentration	100 mg/L
CAS: 112-34-5	COD	2.08 g O2/g	Period	28 days
EC: 203-961-6	BOD5/COD	0.12	% Biodegradable	92 %
Ethane-1,2-diol	BOD5	0.47 g O2/g	Concentration	100 mg/L
CAS: 107-21-1	COD	1.29 g O2/g	Period	14 days
EC: 203-473-3	BOD5/COD	0.36	% Biodegradable	90 %
Amphoteric hydrocarbon surfactant 6201213000	BOD5	Non-applicable	Concentration	100 mg/L
CAS: Non-applicable	COD	Non-applicable	Period	28 days
EC: Non-applicable	BOD5/COD	Non-applicable	% Biodegradable	95 %
Methanol	BOD5	Non-applicable	Concentration	100 mg/L
CAS: 67-56-1	COD	1.42 g O2/g	Period	14 days
EC: 200-659-6	BOD5/COD	Non-applicable	% Biodegradable	92 %

12.3 Bioaccumulative potential:

Identification	Bioaccumulation potential	
2-(2-butoxietoxi)etanol	BCF	0,46
CAS: 112-34-5	Pow Log	0,56
EC: 203-961-6	Potential	Low
Ethane-1,2-diol	BCF	10
CAS: 107-21-1	Pow Log	-1,36
EC: 203-473-3	Potential	Low
Methanol	BCF	3
CAS: 67-56-1	Pow Log	-0,77
EC: 200-659-6	Potential	Low

12.4 Mobility in soil:

Identification	Absorption/desorption		Volatility	
2-(2-butoxietoxi)etanol	Koc	48	Henry	7,2E-9 Pa·m³/mol
CAS: 112-34-5	Conclusion	Very High	Dry soil	No
EC: 203-961-6	Surface tension	33950 N/m (25 ºC)	Moist soil	No
Ethane-1,2-diol	Koc	0	Henry	1,327E-1 Pa·m³/mol
CAS: 107-21-1	Conclusion	Very High	Dry soil	No
EC: 203-473-3	Surface tension	49890 N/m (25 ºC)	Moist soil	No
Amphoteric hydrocarbon surfactant 6201213000	Koc	3063	Henry	Non-applicable
CAS: Non-applicable	Conclusion	Low	Dry soil	Non-applicable
EC: Non-applicable	Surface tension	Non-applicable	Moist soil	Non-applicable

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Phos-Chek 1x3 AR-AFFF - [POLYFOAM 1/3]

SECTION 12: ECOLOGICAL INFORMATION (continue)

Identification		Absorption/desorption		Volatility	
Methanol	Koc	Non-applicable	Henry	Non-applicable	
CAS: 67-56-1	Conclusion	Non-applicable	Dry soil	Non-applicable	
EC: 200-659-6	Surface tension	23550 N/m (25 ºC)	Moist soil	Non-applicable	

12.5 Results of PBT and vPvB assessment:

Non-applicable

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

Code	Description	Waste class (Directive 2008/98/EC)
16 05 08*	Discarded organic chemicals consisting of or containing dangerous substances	Dangerous

Waste management (disposal and evaluation):

Consult the authorized waste service manager on the assessment and disposal operations in accordance with Annex 1 and Annex 2 (Directive 2008/98/EC). As under 15 01 (2000/532/EC) of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. We do not recommended disposal down the drain. See paragraph 6.2.

Regulations related to waste management:

In accordance with Annex II of Regulation (EC) nº1907/2006 (REACH) the community or state provisions related to waste management are stated
Community legislation: Directive 2008/98/EC, 2000/532/EC: Commission Decision of 3 May 2000

SECTION 14: TRANSPORT INFORMATION

This product is not regulated for transport (ADR/RID,IMDG,IATA)

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

Candidate substances for authorisation under the Regulation (EC) 1907/2006 (REACH): Non-applicable

Regulation (EC) 1005/2009, about substances that deplete the ozone layer: Non-applicable

Active substances for which a decision of non-inclusion onto Annex I (Regulation (EU) No 528/2012): Non-applicable

Regulation (EC) 649/2012, in relation to the import and export of hazardous chemical products: Non-applicable

Limitations to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII, REACH):

Non-applicable

Specific provisions in terms of protecting people or the environment:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of the local circumstances in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Relevant instructions for use:

This product is intended for the production of foam for fire extinguishing purposes. For this purpose it should be diluted in water and used with appropriate foam-generating equipment. Use at 1% on hydrocarbon and 3% on polar solvent fires.

Other legislation:

Non-applicable

15.2 Chemical safety assessment:

The supplier has not carried out evaluation of chemical safety.

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Safety data sheet
According to 1907/2006/EC (REACH), 453/2010/EC

Phos-Chek 1x3 AR-AFFF - [POLYFOAM 1/3]

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) Nº 1907/2006 (Regulation (EC) Nº 453/2010)

Modifications related to the previous security card which concerns the ways of managing risks. :

Non-applicable

Text of R-phrases considered in section 3:

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

Directive 67/548/EC and Directive 1999/45/EC:

R11: Highly flammable
R22: Harmful if swallowed
R23/24/25: Toxic by inhalation, in contact with skin and if swallowed
R36: Irritating to eyes
R38: Irritating to skin
R39/23/24/25: Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed
R41: Risk of serious damage to eyes
R43: May cause sensitisation by skin contact

CLP Regulation (EC) nº 1272/2008:

Acute Tox. 3: H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled
Acute Tox. 4: H302 - Harmful if swallowed
Eye Dam. 1: H318 - Causes serious eye damage
Eye Irrit. 2: H319 - Causes serious eye irritation
Flam. Liq. 2: H225 - Highly flammable liquid and vapour
Skin Irrit. 2: H315 - Causes skin irritation
Skin Sens. 1: H317 - May cause an allergic skin reaction
STOT SE 1: H370 - Causes damage to organs

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

http://esis.jrc.ec.europa.eu
http://echa.europa.eu
http://eur-lex.europa.eu

Abbreviations and acronyms:

- ADR: European agreement concerning the international carriage of dangerous goods by road
-IMDG: International maritime dangerous goods code
-IATA: International Air Transport Association
-ICAO: International Civil Aviation Organisation
-COD: Chemical Oxygen Demand
-BOD5: 5-day biochemical oxygen demand
-BCF: Bioconcentration factor
-LD50: Lethal Dose 50
-CL50: Lethal Concentration 50
-EC50: Effective concentration 50
-Log-POW: Octanol–water partition coefficient
-Koc: Partition coefficient of organic carbon

- END OF SAFETY DATA SHEET -