MANUAL Emergency Response	Reference : Man 3.001 Edition : 1 Date : 05/03/2015 Pages : 30

EMERGENCY PROCEDURE MANUAL

Distribution:
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Only the electronic version on Quality Workbench is valid

1	Creation of the document	05/03/2015
Amendments *(last three)*		
Issue n°	***Purpose of revision***	***Date***

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1. Introduction

Arkema Coatings Resins Ltd. produces synthetic resins for the paint and composite industries, a process which requires the use, handling and storage of hazardous and flammable substances.

Consequently, even though all reasonably practicable precautions are taken and all statutory duties and standards are met, there is always a residual risk, as in any enterprise, that something could go wrong.

Therefore, as part of its HSE duties the company has well defined and practised emergency / incident procedures to cover all likely emergency and major emergency situations that may occur on the site. These can all be found within this manual.

A major emergency / incident is defined as one that if it occurs is likely to cause loss of life, serious injuries, environmental damage, extensive damage to property, or serious disruption outside of the premises.

The success in controlling and minimising the effects of a (major) emergency / incident are dependent upon prompt action using pre-planned and well thought out procedures utilised by competent people in conjunction with the Emergency Services who are familiar and well trained in their application.

These procedures are designed to take account of Arkema's production regime in that they are applicable twenty-four hours a day - seven days a week and take into account the fact that personnel may be absent at certain times due to time of day, holidays or sickness etc.

2. Objectives

The procedure is designed to make maximum use of the combined resources of the site and the Emergency Services and to assist and train all personnel in understanding:

1. Site evacuation and activating the emergency procedure.
2. Summon the Emergency Services.
3. Identify missing persons.
4. Identify cause of alarm activation.
5. Safeguard people
6. Minimise damage to property and the environment.
7. Silence the alarm and reset the sprinkler system in the event of a false alarm.
8. Liaise effectively with the Emergency Services until the emergency is over.
9. Call out relevant management personnel to manage an actual incident.
10. Know the correct use of all fire and safety equipment.

3. Scope

This manual and its associated procedures are intended to cover all types of (major) emergencies that could occur at Arkema, Stallingborough and includes:

- Fire & Explosion.
- Major Spillage.
- Bomb Threat.
- Environmental Incidents.
- Emergencies arising from external sources.

4. Training in and testing of the emergency procedure

The success of any Emergency Procedure depends upon the correct and prompt action by all members of Arkema's workforce. To this end all employees as a minimum requirement will receive biennial refresher training in:

- What to do if they discover an incident;
- What to do if they hear the alarm.

In addition the Initial Incident Control Team and individuals with specific duties in the event of an emergency will receive annual training on the individual procedures and scenarios.

In order to supplement the training, the procedure will be tested at least twice a year with a full site evacuation and roll call taking place. Emergency simulation exercises will be organised to take place on site in conjunction with the local Emergency Services where deemed necessary.

The procedure and related training will be reviewed and updated if, as a result of an incident, exercise or plant modification it is felt corrective actions are needed.

5. Alarm Testing

The site alarms will be tested every week on a Monday morning at 09:00 hrs. No action is required at this time.

A different call point will be used each week to activate the alarm to ensure regular test of the alarm activation call points.

6. Evacuation and assembly points

On hearing the alarm (other than for the test described above), all employees must leave their place of work performing the minimum safe shut down procedures and shutting all doors and windows if able. They must then proceed to their designated Assembly Point for roll call. The normal Assembly Points are as follows: -

Assembly Point	Location	Personnel
AP1	Gatehouse	PMB, Gelcoats and Yard Personnel
AP2	Car Park – Adjacent cycle shelter	Polynt, Engineering and Contractor personnel

The roll call sheets are kept in a wall-mounted cabinet situated at each Assembly Point. These are updated following any organisational changes by the Plant Manager.

It is the responsibility of the first person to arrive at their designated Assembly Point to begin the roll call sheets for their department. A responsible person must then hand in the completed forms to the SMC at the Gatehouse, informing them of any persons failing to report in, or of any casualties.

7. Key elements of the emergency procedure

The procedure is based upon the safe evacuation and accounting for personnel and the effective liaison with the emergency services to bring an incident under control. In order to achieve this, specific roles have been designated as described below:

7.1 SITE MAIN CONTROLLER (SMC)

This person will exercise overall control of the incident from the Emergency Control Room (gatehouse). In the initial stages the PMB Technician will fill the role or his 'stand in', until relieved by a member of senior management.

7.2 INCIDENT ASSISTANTS

These persons will be assigned roles by the SMC, which may include being part of a search team to physically check on site to establish the location and cause of the fire alarm sounding, traffic control, log keeper or any other role that the SMC requires to ensure the incident is effectively and efficiently controlled. The SMC technician will give instructions as required.

8. Summoning the external emergency services

On hearing the alarm the SMC, after a reasonable delay to ascertain the cause of the alarm, will contact the Fire Brigade by dialling 999 if required.

It is important that when they arrive at the site that they are adequately informed and directed. The S.M.C. stationed in the gatehouse will perform this task giving them all of the information available.

If an Ambulance or the Police are required the SMC must not delay in contacting them if the Fire Brigade have not already done so.

9. Emergency Control Centre

During an incident the Gatehouse will become the Emergency Control Centre. Here the incident will be co-ordinated by the SMC, Incident assistants and the Emergency Services.

The Emergency Control Centre will be equipped with telephone, two-way radios site plans, torches and the Emergency Incident Log.

10. Alerting key personnel

During normal office hours key personnel (senior managers, engineers' etc.) will normally be available. However, at night and at the weekends assistance may be required in the event of a major emergency. A list of key personnel telephone numbers (listed below) will be situated in the Gatehouse and can be used by the SMC if required.

Name	Designation	Mobile Tel. No.
P Gabbitas	Plant Manager	07881 502527
S Carter	Unit Manager	07837 558149
M Crowe	Project Manager	07769 740614

11. Notifying external bodies

Arkema Coatings Resins Ltd aims to prevent major accidents involving dangerous substances occurring; however, in the unlikely event that one did occur, we aim to limit their consequences to people and the environment.

Consequently, we need to quickly inform both our neighbours and the relevant authorities as to the type and severity of the incident and give advice on emergency response.

In the event of a fire alarm incident our immediate neighbours (the ones highlighted in yellow) must be informed ASAP, **even if it is a false alarm.**

11.1 External Emergency Contact Numbers

External Body	Contact Number	External Body	Contact Number
Cristal Global	01469 571000	Emergency Services	999
Air Products Ltd	01469 577863	CCP Ltd	01469 552577
BOC Gases	01469 577977	Lindsey Oil Refinery	01469 563300
ABP (asst Dock Master) Immingham	01469 570505	Humber Emergency Planning Service	01482 393057
Humber Power Ltd	01469 578233 or 554414	Floodline	0845 9881188
Synthomer Ltd	01469 573361	Transco (Gas Emergency)	0800 111999
		Anglian Water	08457 145145
		YEDL Electricity	0800 375675
		HSE	0113 283 4200
		Grimsby Hospital	01472 874111
		The Environment Agency	0800 807060

11.2 Major Incident Notification Procedure

In the event of a fire, or explosion with the release of toxic vapours or fumes, that may have off-site consequences, the following procedure should be followed:

1. If it is safe to do so, ensure that all personnel are told to stay inside with all doors and windows closed and any air conditioning units switched off, until the threat of toxic gas exposure is over.

2. The Incident Controller must ensure that all immediate neighbours (Cristal Global, Air Products etc.) are informed of any potential problems using the contact numbers above).

3. The Incident Controller must ensure that members of Senior Management have been alerted and are on the way to the control centre.

4. The Site Manager or deputy will ensure that the Humber Emergency Planning Service have been informed that a major accident has occurred at Arkema Coatings Resins Ltd which could affect external areas.

5. Humber Emergency Planning Service in conjunction with the emergency services will then issue emergency warnings to people via the local radio and will be used to keep people fully briefed on any emergency situation through regular bulletins on air.

6. The Site Manager or his appointed deputy will, if necessary, conduct all communications with the media.

7. **In the event of notification of a major accident at a neighbouring plant such as Cristal Global, the above advice applies to all Arkema Coatings Resins Ltd staff.** ***Please note that their Site Fire Alarm - a continuous siren and the Toxic Gas Alarm (Chlorine and Titanium Tetrachloride) - a variable pitch siren, similar to an air-raid siren are both tested on Tuesdays between 9.30 am and 10.00 am)***

12. First aid

The primary role of the trained First Aiders is to deal effectively with injured personnel on site and, if necessary organise external treatment at Diana Princess of Wales Hospital, Grimsby.

In any Emergency, all casualties will be treated in the site First Aid Room. If the injured person cannot be moved, treatment must be given in situ, if this can be done without personal risk, prior to the external ambulance arriving.

The minimum first aid provision for each department is, one first aider on site per shift:

Reference Documents	
Proc 1.002	First Aid Procedure

13. Fire

Fire is the rapid oxidation of a fuel accompanied by the generation of sufficient heat to make the process self-sustaining. The 'fuel' includes anything, which will burn, intentionally or not, and if conditions are right even metals can burn.

13.1 The Fire Triangle

The three elements - fuel, oxygen and heat (ignition source) are needed to start the process, these form the fire triangle. Remove any one of these and the fire will not start, or it will be extinguished (if already started)

If two of the elements exist, then adding the third can be potentially devastating. The obvious examples are adding a spark to a mixture of flammable gas and air, or adding air to a building filled with hot smoke but starved of oxygen. The results can be spectacular - a fuel / air explosion can have a blast effect ten times the weight of TNT!

13.2 Classification of fires

It is important that when initially tackling a fire that the correct type of extinguisher is used depending upon what is burning or the class of fire. The EU classification is as follows:

	**Class A -** ordinary combustible or fibrous material such as wood, paper, fabric, coal, leather, sugar, rubber and some plastics.
	**Class B -** flammable liquids such as petrol, kerosene, alcohol, oil and paint thinners.
	**Class C -** Flammable Gasses such as LPG, Butane, Acetylene, Hydrogen, natural gas and methane.
	**Class D -** Combustible Metals: potassium, sodium, lithium, aluminium, magnesium and metal swarf. Fires of this class may occur in laboratories or industries that use these materials. Metal swarf fires may occur in machine shops where metal turning or milling is carried out. These fires burn at high temperatures and give off sufficient oxygen to support combustion. They may also react violently with water or other chemicals.
	**Class E -** Electrical Hazards. Fires involving live electrical equipment (e.g. computers, switchboards and power tools). As long as it's "plugged in," it would be considered a class E fire. If the electricity supply to the equipment is disconnected (plug pulled out), then the fire is not class E. It takes the class of the fuel that is burning
	**Class F -** Cooking Oil or Fat

Most fire extinguishers will have a pictograph label telling you which fuel the extinguisher are designed to fight. For example, a simple water extinguisher might have a label like the one shown, indicating that it should only be used on Class A fuels and NEVER on Class B fuels (flammable liquids) and class (E), electrical fires.

13.3 Basic rules for dealing with fires

Most fires start out small, and therefore common sense dictates that prompt action by any one discovering a fire is of the utmost importance.

Not only does it mean that the earlier a fire is detected the easier it is to put out, but also it gives more time for the other occupants of the plant to evacuate to safety. **Therefore the need to raise the alarm before tackling fires cannot be emphasised too strongly!**

13.3.1 <u>On Discovering a Fire</u>

1. **Immediately sound the alarm by using the "break glass" alarm points**. Assess the risk, try to relay information to incident controllers, such as location and severity of the incident, materials involved etc;

2. Only fight the fire if this can be done without putting yourself in danger. Use the appropriate extinguisher for the class of fire and always keep yourself between the fire and an appropriate escape route;

3. If the fire cannot be fought safely, immediately leave the room/location, closing doors and windows if possible behind you;

4. Report to assembly point;

5. Do not re-enter building.

14. ROLES, RESPONSIBILITIES AND ACTIONS

In the event of an emergency occurring on site it is imperative that prompt and efficient action is taken to mitigate the consequences and bring the situation under control. In order to achieve this, specific roles and responsibilities and actions have been assigned to individual, or groups of people as described below. Action checklists are included in the emergency log to use as an aide memoir to ensure all required actions have been considered and implemented where necessary.

14.1 ACTION WITHIN THE SITE (PMB TECHNICIAN)

In the event of an emergency the PMB Technician (or stand in) will assume the role of SITE Main Controller (SMC). It will be his duty in the initial stages of an emergency incident (until the Emergency Services arrive) to assess and control the situation and direct the efforts of the Incident Control Assistants.

During office hours the Plant or Unit Manager, depending on availability, will assist him in his duties, at night or on weekends Plant Management should be called in if the situation warrants it.

ON HEARING THE ALARM

1. Proceed quickly to the gatehouse.

2. Assess the situation in terms of type, location and severity of incident by means of verbal information, visible signs, alarm zone box, CCTV system etc. If there is enough information available use the emergency action checklist to direct the actions of the Initial Incident Response Team. (See attached list).

3. Try to establish the cause of the alarm if it is a genuine emergency ensure that the Emergency Services have been called.

4. Ensure that roll call has been, or is being carried out and that all personnel are safe and accounted for. Record information in Emergency Incident Book.

5. Once all personnel have evacuated and all personnel are safely accounted for, mute the alarm from the control box in the gatehouse.

6. After the initial assessment, appoint individual members of the Initial Incident Response Team to conduct agreed emergency response actions as per the Emergency Action Checklist. Monitor and ensure the safe return of any team member assigned an action. Record information in Emergency Incident Book. You may expect the assistants may need to perform the following duties:

    i. Assist the SMC to assess the situation, account for all personnel, direct the actions of the Initial Incident Response Team and record and relay information ready for the arrival of the Emergency Services.

    ii. If search teams are appointed, ensure they and proceed with caution to scene of incident if known, if not, initiate search of the plant to locate source of problem. Assign two-way radio, torches and one member of the Initial Response Team to act as a runner or back up in case of unforeseen communication failure or event.

iii. Ensure a two-way radio link is maintained at all times and record any relevant relayed relevant information, such as location, type and severity of incident, wind speed and direction etc. Together with the best approach route for the Emergency Services. SMC should pass this on to the emergency services.

iv. If appropriate, assistants can attempt to bring the fire under control using the appliances and resources available, but they must not put themselves, or any one else in danger. If in doubt withdraw!

7. On their arrival, liaise with the Senior Officer of the Fire Brigade. Convey all known information about the incident and what action has been taken and inform the assistants of their presence.

8. Once all relevant information has been conveyed to the Fire Brigade direct them to the scene of the incident using the site plans in the Emergency log.

9. If the incident occurs out of office hours, it is the SMC's responsibility to ensure that key management personnel are called in as appropriate.

10. Depending on the type of Emergency a decision to open a secondary Emergency Control Centre may be made, this will be done on advice from Senior Management and / or the Fire Brigade.

14.2 ACTION WITHIN THE SITE (PLANT & UNIT MANAGER)

In the event of a major emergency the Plant or Unit Manager, depending on availability, will assume overall responsibility during the initial stages in co-ordinating and controlling our internal resources and personnel. He will also assist and provide information to the emergency services in order to bring any situation to a safe and swift conclusion.

ON HEARING THE ALARM

1. Proceed quickly to assigned assembly point.

2. Register your presence to the person who is taking the roll call, don not delay your arrival at the gatehouse by undertaking the roll call.

3. Report directly to the Emergency Control Centre and liaise with the acting SMC and Assistants checking on the type, severity and location of the incident and what actions have been, or need to be taken.

4. Assume overall command and assist the acting SMC in his duties (see section 13) and help direct the Fire Brigade on their arrival.

5. In consultation with the Senior Officer, withdraw Arkema Coatings Resins Ltd personnel and if necessary open a secondary Emergency Control Centre.

6. From here, co ordinate and control all external and ancillary activities these may include:

   a) Ensuring that any casualties are being dealt with and those ambulances have been summoned if necessary.

   b) In liaison with the police, ensuring that relatives of injured personnel are informed.

c) Ensuring that a thorough chronological record of the Emergency is being maintained and that any evidence is kept for future investigation.

d) Controlling the rehabilitation of an affected area when the emergency and any danger are over.

e) Issuing authorised statements to the media if necessary after the incident is over.

14.3 ACTION WITHIN THE SITE (SECURITY STAFF)

ON HEARING THE ALARM

1. Make sure the main barriers are up for pedestrian access in order to allow a speedy evacuation of personnel.

2. Use the Fire Alarm zone panel and the CCTV system to try and gain information about the incident in order to pass it on to SMC.

3. Open Emergency Cabinet and remove the Emergency Incident Log and record date, time of alarm sounding, and the time the Fire Brigade was called.

4. On arrival of SMC hand over the printed access control personnel list along with the Emergency Log and Visitors Log.

5. Issue key 14 (green) to the designated first aider and emergency radios to SMC as required.

6. If requested by the SMC dial 999 for the emergency services.

7. Do not allow any unauthorised personnel to enter the site.

14.4 ACTION WITHIN THE SITE. (GELCOATS AND PMB PERSONNEL)

Acting under the authority and leadership of the SMC, shift personnel may be expected to assume the roles of Initial Incident Response Team or Incident Control Assistants. This will be the team because of their training, experience and round the clock availability will play a key role in the initial stages of the alarm sounding.

ON HEARING THE ALARM

1. On hearing the alarm all shift personnel, if there is no immediate danger apparent, will perform the minimum emergency shutdown procedures for their areas i.e. stop transfer and charging of all materials and turn off all reactor heating oil pumps unless the oil cooling is being used to control an exothermic reaction.

2. Shift personnel must then leave their location closing doors and windows behind them and walk quickly along an escape route to the open air and report to assembly point 1 (Gatehouse car park).

3. The first person to arrive there will collect the appropriate roll call sheet for that shift and begin accounting for and checking off all personnel as they arrive. A responsible person must then hand in completed forms to the SMC in the gatehouse.

4. The safety of visitors is the responsibility of the Arkema Coatings Resins Ltd employee they are visiting who must ensure they are safely escorted to the Assembly Point for inclusion in the roll call.

5. Once all personnel have been accounted for, the assembled shift team will wait in an orderly fashion for instructions; on no account must they re-enter the premises without specific instructions or the order to stand down.

14.5 ACTION WITHIN THE SITE (MAINTENANCE, INCLUDING CONTRACTORS)

ON HEARING THE ALARM

1. Immediately leave the workshop or area you are working in turning off all equipment, tools and gas bottles etc.

2. Use the nearest available Fire Exit and close all doors and windows behind you. Report immediately to Assembly Point 2 do not stop or return to collect personal belongings.

3. The Roll call sheets are situated in the wall-mounted boxes next to the cycle shelter. On arrival if the Roll Call is not already underway, the first person to arrive should remove the sheets and start accounting for personnel.

4. On arrival at the Assembly point the Engineering Manager will assume responsibility for ensuring all maintenance staff and contractors are safely accounted for.

5. On completion of the Roll Call the Engineering Manager or his deputy should report to the gatehouse with the completed sheets and make him available for any engineering advice that may be required during the incident.

6. The safety of visitors/contractors is the responsibility of the Arkema Coatings Resins Ltd employee they are visiting who must ensure they are safely escorted to the Assembly Point for inclusion in the roll call.

7. Do not re-enter the plant unless you have been authorised to do so.

14.6 ACTION WITHIN THE SITE (DAYWORKERS)

ON HEARING THE ALARM

1. Immediately leave the building closing all doors and windows behind you, park fork trucks in an orderly fashion and away from the main gates and roads so as not to obstruct emergency vehicles.

2. Report to Assembly Point No 1 (Gatehouse car park) for Roll Call.

3. The Roll call sheets are situated in the wall-mounted box next to the entrance to the First Aid room. On arrival if the Roll Call is not already underway the first person to arrive should remove the sheets and start accounting for personnel.

4. On completion the finished sheets must be handed in to the SMC at the Gatehouse informing him of any missing personnel.

5. Do not re-enter the plant unless you have been authorised to do so.

Spillage Containment Procedure

1.0 Reference Documents

1. Site Drainage Plan.

2.0 Application

1. Site procedure to deal with spillages that could have a safety or environmental impact.

3.0 Special Notes

1. Personal safety is always the first priority; before approaching the spillage consults the MSDS to identify the hazard and controls necessary. If further advice is required please consult with the Process Support Department.
2. In the case of a flammable liquid spill ensure any activity in the area that could produce an ignition source is stopped immediately and the area is cordoned off. If the spillage is significant apply a foam blanket to minimize flammable vapour.
3. If any material does enter the drainage system, precautions must be taken to ensure it does not reach the Effluent Treatment Plant.

4.0 Procedure

1. On discovering a spillage, isolate the source of the leak and alert the Team Leader.
2. Wearing the appropriate PPE for the material contain and cover the spillage with absorbent to prevent it entering the drains.
3. Transfer the absorbent to a UN approved drum using a spark-proof shovel. Ensure an appropriate label is attached to the drum e.g. (Resin + Absorbent)
4. When the material has been absorbed and removed, the floor must be washed with hot water and detergent. (In the case of a significant spillage care must be taken that large amounts of detergent are not transferred to the effluent treatment plant.)
5. Any drums or I.B.C.'s used must be removed to the waste reception area and the incident must be reported using IMPACT.
6. In the event of a powder spillage refer to the MSDS and clear spillage wearing the appropriate PPE.

5.0 Maintenance and inspection of spillage kits

1. In the event of a spillage of liquid resin or raw material it is imperative that the spillage is contained and removed as per the Emergency Spillage Procedure.
2. For this purpose six large portable Emergency Spill Containers, each containing a suitable absorbent have been placed at strategic points around the site. The locations of these containers are:

- Styrene tank
- Polynt Resin Offloading system
- Gelcoats
- Waste Area
- Diesel tank
- Polyester Mixing Building

3. As part of their daily environmental duties the Yard Team must tour the site and check that the spill kits are in the correct location and contain a suitable quantity of absorbent sufficient to deal with a spillage.
4. If the container is found to be missing it must be found and put back in its designated area.
5. If the container is in need of filling the Day Gang Teamleader will arrange to have it filled.
6. For this purpose two one tonne FIBC's of absorbent will be stored in the Warehouse. When one is empty the Yard Section Leader on day shift will inform the Process Support Manager who will arrange delivery of a replacement.

Emergency Scenarios – Environmental Protection

1. INTRODUCTION

This procedure outlines the emergency scenarios that could result in environmental damage occurring on the Arkema site and outlines the actions to be taken.

2. MAJOR FIRE AND EXPLOSION SCENARIOS

2.1. Scenarios

Major on-site fires could occur as a result of ignition of flammable liquid releases from storage or process areas. Those areas with the greatest flammable liquid inventory, e.g. the raw material and product storage tanks/areas have the greatest potential for causing off-site damage.

2.2. Potential Impacts

A major on-site fire has the potential to adversely affect the surrounding environment by the following means: -

- High heat radiation damaging areas of woodland, vegetation or farm land. Generally only the areas closest to the source tend to be affected by the heat.
- Fire water run-off washing contaminants into local watercourses and thus allowing the spread of contaminants through the environment. The effects of this scenario will tend to be the same as for a major spillage, but on a reduced scale.
- Producing copious quantities of toxic hydrocarbon smoke, which can cause serious health and environmental damage.
- The potential environmental effects resulting from a major on-site explosion typically include the following:-
- The high blast over-pressures generated causing physical damage to areas of farmland. Woodland or vegetation.
- Projected missiles damaging areas of farmland, woodland or vegetation.
- Contamination of ground and surface water courses as a result of firewater run-off during the fire fighting activities.

2.3. Environmental Protection Procedures

Mitigating Procedures

For major fires or explosion scenarios there are no actions that can mitigate the environmental effects of the thermal radiation or blast pressure generated, once ignition has occurred. In such cases all the standard procedures contained within the Arkema Emergency Manual will serve to control the incident and thus reduce the duration of the incident and hence exposure of vulnerable environmental targets to heat.

Further actions may be required to prevent the spread of contaminants through the environment via the surface water run-off generated during fire fighting

operations. Depending on the nature of the incident this run-off could contain a combination of hydrocarbon products, resin, and fire fighting chemicals. These substances have potential to be carried to sensitive sites by overland flow, surface water flow or ground water flow.

During the course of a major fire all firewater run off will be contained within Arkema's effluent treatment plant tanks/bund, with no effluent discharge being allowed to leave the site. Should the capacity of the buffer tank be exceeded the water will be allowed to overflow into the effluent treatment plant bund which will provide further containment. ***See appendix 3 below for fire water containment.***

Incident Monitoring

As discussed the major potential environmental threat that can be minimised is from firewater run-off. Therefore, simultaneously with the control of the incident, it may be beneficial to monitor the flow of the surface water run-off through the site drainage into the Buffer tank. A visual assessment of the flow will give an indication as to potential contaminants and also allow the amount of fire water containment remaining within the Effluent Treatment plant bund to be monitored

Short Term Monitoring

In the time period immediately after the incident if outside contamination has occurred, there may be a requirement to assess the level of environmental damage and how the affected areas are initially responding. The effects of the incident may, for example, manifest itself in the form of significant adverse effect on flora and fauna several days after the incident if the fire water run-off is heavily contaminated.

Long Term Monitoring

In the long-term period, after a major fire or explosion Arkema may have a responsibility to monitor the recovery of the affected areas. If that is the case then the Plant Manager shall establish procedures for monitoring affected areas, which shall include: -

- who should co-ordinate the monitoring programme;
- sampling frequencies (if ground water/surface water or areas of land become contaminated);
- if specialist advice or service is required and if so what companies should be used; and
- the best applicable remediation techniques.

3. SMOKE & TOXIC GAS RELEASE

3.1. Scenarios

If there was a major fire or explosion on site large plumes of smoke and toxic gases from the products of combustion are likely to be generated. The level of dispersion of such a release in the atmospheric environment is dictated by wind speed, direction and atmospheric stability.

3.2. Potential Impacts

The smoke plume has the potential to damage large areas of vegetation and woodland as well as cause health problems and nuisance to neighbouring factories and domestic dwellings. The damage could extend along any direction from the site, depending on the wind direction and climatic conditions during the release.

3.3. Environmental Protection Procedures

Mitigating Procedures

For major fires or explosion scenarios there are no actions that can mitigate the environmental effects of the smoke release, once ignition has occurred other than the speedy and safe containment of the incident by the emergency services and Arkema 's personnel. In such cases all the standard procedures contained within the Arkema Emergency Procedure will serve to control the incident and thus reduce the duration of the incident and hence exposure of vulnerable environmental targets to smoke and toxic gas contamination.

Incident Monitoring

There may be a requirement to monitor the spread of the smoke as it is actually happening. Basic hand calculations with reference to wind speed and direction would be utilised to give an estimation of the ground level concentration that may be experienced at sensitive sites. Such sites include neighbouring premises and all residential or populated areas, nature reserves or other valuable environmental areas.

Short Term Monitoring

For smoke and gas release the main emphasis of the environmental emergency response will be on post accident monitoring and remediation. In the period immediately after the incident, there is likely to be a responsibility for Arkema to establish what the impacts have been on the local environment and what impacts occur in the short term.

For smoke and gas release the main impacts are likely to be initial health and nuisance damage to populated areas as well as vegetation and faunal losses which may be followed by further losses in the period shortly after the incident. The Process Support Department shall establish procedures for monitoring such losses.

Long Term Monitoring

The affected or damaged areas will need to be monitored over the long term to establish the level of damage, associated costs and recovery of contaminated areas.

4. MAJOR SPILLAGE

4.1. Scenarios

For this site and its associated operations major spillage of substances can occur as a result of accidents on site.

4.2. Potential Impacts

A range of substances are used and stored in bulk quantities on the Arkema site, including UPR resin and styrene. All these substances, if released during a major incident, have the potential to contaminate the sites effluent discharge stream and ultimately the River Humber. They also have the potential to cause soil and ground water contamination.

Initially the spilled substances will enter the environment by surface run-off or the site drainage system.

As well as travelling in the form of overland flow, a proportion of the spill has the potential, depending upon the geology, to permeate vertically and contaminate the ground water. Such ground water contamination could manifest itself in the long term several years after the incident has occurred.

4.3. Environmental Protection Procedures

Mitigating Procedures

A major spillage scenario is the only one in which it is possible to minimise the level of environmental damage as the incident is occurring. This minimisation can be achieved by preventing the spread of the spilled liquids around the site and the local environment. This is achieved in the first instance by the tank, storage area bunds and tertiary containment measures.

As the main vulnerable sites in the area are those that border the surrounding farmland, the surface water drains on Laporte Road and the dyke, then it is essential that efforts are made to monitor the spread of the spilled substances and facilitate their capture and treatment.

In the case of spread of the spillage via overland flow or surface gullies (i.e. drainage channels), it is essential that efforts are made to prevent the spill reaching the drains/interceptor. This should be achieved by using absorbent or earth bunds constructed in the path of a spill. To prevent seepage into the ground water, it is essential that any pooled areas are removed as soon as possible, using the spillage procedure in *Appendix 1*. Once the spread of the

spilled substance has been stopped then the emphasis shall be to collect, remove, treat and dispose of the substance in a safe manner.

Incident Monitoring

As with the other two major hazard categories, the Plant Manager shall establish procedures to monitor how the substance is spreading through the environment and in particular which areas may be at risk. Such monitoring will be achieved visually and by monitoring and analysis of our effluent. Such information will be of use Cristal Global who may have to utilise their own response procedure, therefore early warning of a potential problem is essential.

Short Term Monitoring

The short term monitoring procedures for major spillage scenarios should include assessment of the effects and state of recovery during the clean up operations.

Long Term Monitoring

The Plant Manager shall establish procedures, which monitor the recovery of the affected environment in the long term after the incident. These procedures will be similar to the short term monitoring ones for all incidents, but there may be an additional requirement for sampling and monitoring of ground water or aquifer supplies, which may be adversely affected after a period of several years.

5. NOTIFICATION OF RELEVANT BODIES

In the event of a major accident, involving environmental damage, there are a range of representatives of statutory and other bodies who require to be notified. Typically such bodies include:-

- Millennium Inorganic Chemicals
- Health and Safety Executive
- Emergency Services
- Environment Agency
- Ministry of Agriculture, Fisheries and Food
- Local Council
- North East Lindsey Drainage Board
- English Nature
- Lincolnshire Trust for Nature Conservation
- Waterways (Canal and Navigation)

Firewater Containment Procedure

1.0 Reference Documents

EP0.002 – Emergency Scenarios – Environmental Protection

EP0.005 – Major Emergency Procedure

2.0 Application

This procedure is to be used in the event of a major fire on site. It is designed to ensure that any fire water generated during an incident is contained within the boundaries of the site in order to prevent environmental harm.

3.0 Special Notes

During a major fire there may be copious amounts of fire water generated. This water may pick up contamination from the material that is burning which if it were to leave could cause harm to the local environment.

All the valves and pumps listed below are tagged with signs indicating what action to take in the event of an emergency in order to prevent unnecessary confusion in the middle of an incident.

4.0 Operating Instructions/Definitions

4.1 On the effluent discharge manifold behind solvent recovery

⇒ **CLOSE the following valves**

- Direct discharge valve to Cristal Global from interceptors
- Discharge valve from effluent treatment plant to Cristal Global
- Recirculation valve from the effluent treatment plant

⇒ **OPEN the following valves**

- Feed valve to the effluent treatment plant from the interceptors

This ensures that the feed from the interceptors is being sent to the effluent treatment plant and not directly off site to Cristal Global and also prevents material being pumped from the effluent plant to Cristal for the duration of the incident

4.2 In the Effluent Treatment Plant

⇒ **CLOSE the following valves**

- Inlet and outlet valves of the buffer tank transfer pump
- Overflow valve from the aeration tank to the settlement tank.
- Inlet and outlet valves of the final effluent pumps
- Inlet and outlet of the sludge extraction pump

⇒ **ISOLATE the following pumps at the local isolators**

- Transfer pump on the buffer tank to the aeration tank
- Buffer tank circulation pump
- Discharge pumps from the final effluent tank
- Sludge extraction pump

This prevents potentially contaminated material being transferred to the aeration tank which may kill off the bugs within the system. It also prevents material being pumped back into the buffer tank which could contribute to an overflow.

5.0 Record Keeping/Operational Notes

None

6.0 Non Standard Operations

None

Emergency Flood Procedure

1. Application

1.1. This procedure sets out Arkema's proposed emergency plan for managing flood risk to its site. Although the site has no history of flooding situated as it is on the south bank of the Humber estuary the plan is in place, acknowledging the changes being imposed by climate change and sea level rise.

1.2. It is necessary, therefore, to define a procedure for determining the possibility of flooding and for notifying the site and individual departments that might be affected directly by flood conditions.

1.3. The procedure will define the actions that are required to minimize potential damages to the environment, property, equipment, materials and danger to staff and the public. The basic actions that will be carried out are:

- Moving items, materials to be protected from ground floor levels to upper floors;
- Moving equipment and vehicles from buildings, parking spaces, and the site, to higher ground;
- Taking whatever steps are necessary to protect items that cannot be relocated.

2. Flood Warning

2.1. It is the EA's responsibility to maintain and operate flood defences on river Humber and coastlines and giving warnings to those who may be at risk from flooding

2.2. For up to date reports on the flooding situation in the Humberside area please see the Environment Agency Flood line website. A 24-hour Flood line telephone number is also available. To access the 24 hour Flood line please call 0845 988 1188.

2.3. For information relating to severe weather please refer to the Met Office website. This site will inform you of the details of weather warnings that are in currently in force in our area.

3. Major Imminent Flooding

3.1. If available information indicates that due to severe weather or a breach in the sea defences that the river is likely to go over the sea wall and affect the lower areas of the site. Departments will be advised to implement the Arkema Emergency Flood plans. This will include the following actions:

Emergency Flood Procedure

Process

i. Factory and processes stopped steady state – **Section Leaders & PMB Technicians**

ii. Gel coat ground floor mixing suspended and product removed to mixer platform – **Gel Coat Operators**

Chemical Storage

i. Raw materials Dry Store - all dry chemicals moved from lower tier racking onto 2nd tier or onto PMB / gelcoats platform areas – **Yardmen / Section Leaders / Operators**

ii. Interceptor pits emptied into Buffer Tank – **PMB Technicians**

iii. Isolate delivery valve on all Raw Material/Resin tanks and vessels – **Engineering / PMB Technicians**

iv. Part used drums moved to PMB / Gelcoats mezzanine areas – **Yardmen / Operators**

v. Drums and IBC's checked for integrity and sealing – **Yardmen / Production Staff**

Office & labs

- All essential office/lab equipment and records removed to second floor of office block or engineering building – **Office Staff / Section Leaders / Engineering / Production Staff**
- Sand bags should be put down at all office/ lab doors to help impair the ingress of water – **Yardmen / Production staff**
- Control centre moved to 2nd floor of CCP offices – **Management Team**

Utilities

- Non Essential LTAC sub stations isolated - **Engineering**
- Gas supply to site isolated - **Engineering**

General

- Inform CCP office and production buildings of flood warning being issued – **Gatehouse / Plant Management**
- All Vehicles removed off site – **All Staff / Logistics department**
- Site evacuated as far as possible – **All Staff**

4. Record Keeping

4.1. In the event of a serious flood a detailed Incident report must be completed using the Impact event reporting system as described in the QSHE event reporting procedure (Proc 8.001).

4.2. All serious flooding must be reported to the Environment Agency as part of our IPPC authorisation the Plant Manager will keep copies of all records.

4.3. An in depth **'Serious Incident Investigation'** will be conducted and the report and actions will be distributed internally and made available externally within the group.

Bomb Threat Procedure

1. INTRODUCTION

This section describes the procedures for managing a bomb threat. Information relating to a potential terrorist or bomb threat can be received in a number of ways, either by a direct approach to Cray Valley or via a branch of the Government's Security Service or the Police.

2. ACTION REQUIRED ON RECEIVING A BOMB THREAT

The person receiving the bomb threat call should immediately start to record all relevant information on the Arkema, Bomb Threat Call Checklist (below). Every effort should be made to keep the caller talking and to extract as much information as possible. If the message is received from the Police, they shall be telephoned back for confirmation that the call was genuine.

2.1. The telephonist shall inform the following personnel:-

(a) Plant Manager – Paul Gabbitas

(b) Unit Manager – Steven Carter

(c) Project Engineer – Mick Crowe

(d) Polynt Composites – Shane Lowery

(e) The Police using the 999 system, request they attend the site, reporting on arrival to the Security Gatehouse.

2.2. The fire alarms will then be sounded in order to evacuate all personnel to their Assembly Points in order for a roll call to be taken.

2.3. The person who took the call will liaise with the management team to decide what further action is required. They shall also liaise with the Police on their arrival at the Plant.

2.4. If a definite time has been given for a device to explode, consideration must be given to immediately evacuating the site, for a period of not less than 30 minutes before and not less than 30 minutes after the time has elapsed or as directed by the Police. (Safe distance minimum of 200 metres).

2.5. Under no circumstances must a search be initiated before a senior member of management has given authorisation. If a search is initiated no radios or mobile devices must be taken on site as these could in some circumstances set off certain devices.

2.6. Personnel must be assigned to ensure that no vehicles enter the site; vehicles will be allowed to exit only, and to ensure the roadway is kept clear at the Main Gate and the approach road.

3. SEARCH PROCEDURE

3.1. The responsibility for carrying out a search of the Plant rests with Arkema Coatings Resins Ltd and the decision to search the plant will be made by a senior member of management after consultation with the Police.

3.2. If a search is deemed necessary volunteer staff with particular local knowledge of the area to be searched shall carry it out.

3.3. Any search will be co-ordinated by the area supervisor/section leader with the help and guidance of the management team.

3.4. The search will be carried out systematically using a plan of the Site and giving priority to those areas which, if damaged, could result in a major emergency or disablement of the plant for a long period.

3.5. Divide the site up into specific areas for searching; making sure that there is an overlap of areas to ensure that nowhere is overlooked.

3.6. Each area must be searched in pairs when carrying out the search of an area, be systematic - Search below waist level first over the whole area, next search up to eye level and above. Each floor to be followed in the same manner.

3.7. Once a building is searched, close and seal the doors on each room report back to the main control that that area is clear.

4. IF A DEVICE IS FOUND

Inform the Police and request that the Army Bomb Disposal Unit be advised. Under no circumstances shall any object found be touched or moved. **Do not use radios ot other electronic devices in the area, as this may set off a device**

4.1. Cordon off the area.

4.2. Control access to the area.

4.3. **Do not** alter any light switches.

4.4. If the device is in a building, open all the doors and windows.

4.5. If the device is located on a running process unit, a decision shall be made as to whether it is advisable to shut the unit down.

5. ROAD TANKER

5.1. If the threat refers to a bomb having been placed on a road tanker that has gone off site, the logistics company should be informed immediately. They should be advised to search the tanker, which will include cab interior, engine compartment, running gear, tank compartments and hose bores.

5.2. If the threat refers specifically to a vehicle on the Arkema site premises at the time, the full procedure above shall be followed. In all cases involving vehicle bomb threats, a decision to evacuate the premises shall take into account the possibility of persons evacuating towards, rather than away, from the bomb risk. Evacuation shall be planned and controlled accordingly.

After any bomb threat that is not obviously a hoax, all tankers must be checked by their driver before entry to the Plant for a period of 8 hours

Bomb Threat Procedure

Bomb Threat Checklist

DATE CALL RECEIVED	
TIME CALL STARTED:	
TIME CALL TERMINATED	
CALLER ID NUMBER THAT DISPLAYED:	
CALL RECEIVED BY:	

DESCRIPTION OF THREAT: (USE CALLER'S EXACT WORDS IF POSSIBLE)

QUESTIONS TO ASK CALLER: (KEEP CALLER ON THE LINE AS LONG AS POSSIBLE)

When is the bomb going to explode?	
Where is the bomb right now?	
What does it look like?	
What kind of bomb is it?	
What will cause it to explode?	
Why did it get put here?	
What is your address?	
What is your name?	

Ask the caller to repeat the message - tell the individual you are having difficulty hearing the message. Point out to the caller that the plant is occupied and that the detonation of a bomb could result in death and/or serious injury to many innocent employees. Ask the caller if he or she has any grievances they might want to discuss with you.

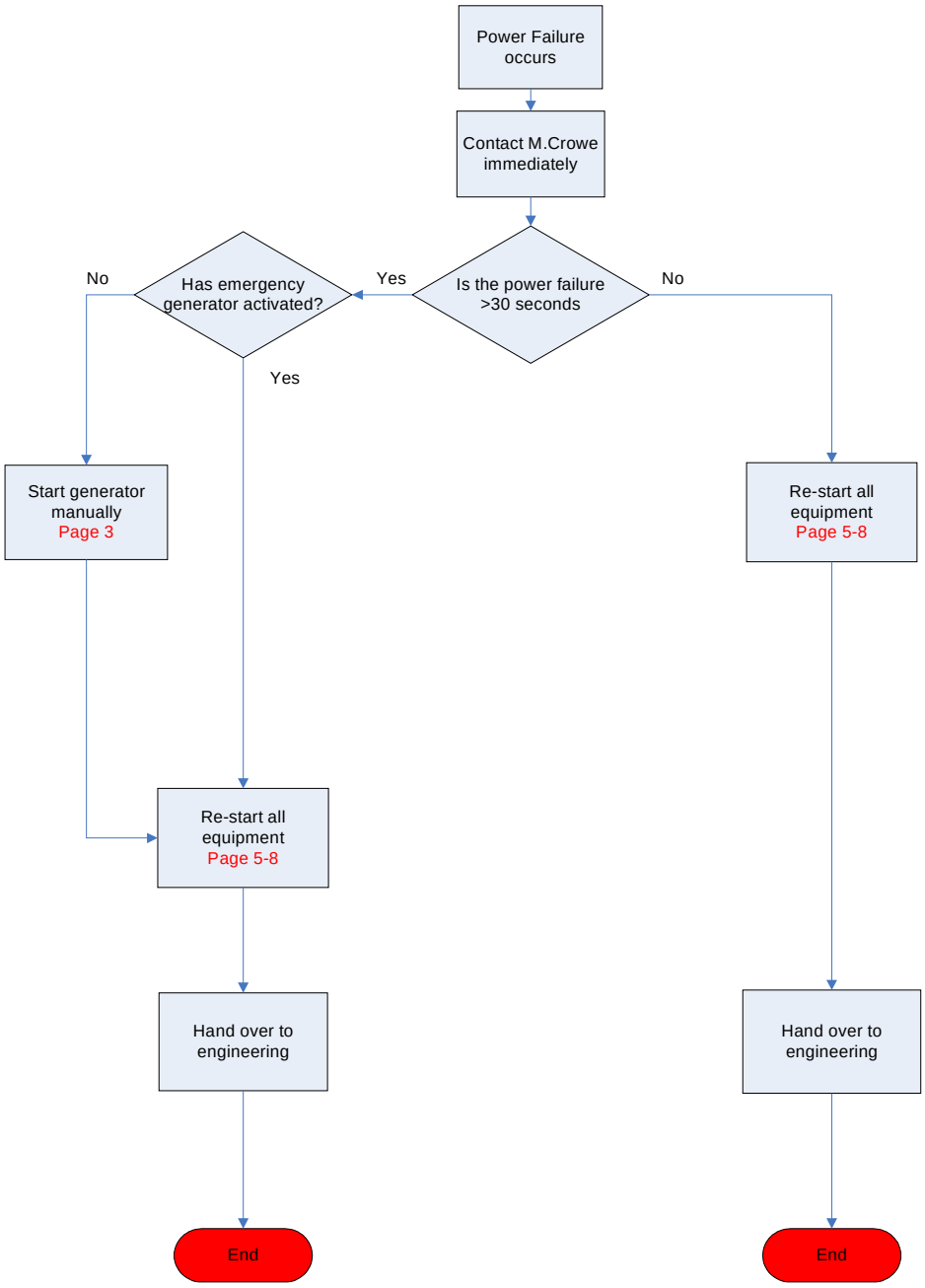
DESCRIPTION OF THE CALLER'S VOICE: (TICK APPROPRIATE TRAITS AND NOTE DESCRIPTION IN BOX BELOW)

MALE		**FEMALE**		**YOUNG**		**OLD**		**HARSH**		**FOREIGN**	
ACCENT		**CALM**		**EXCITED**		**INTOXICATED**		**LISP**		**OTHER**	

Is the voice familiar?	**Yes**	**No**	If yes, who does it sound like?	

Pay particular attention to background noises such as motors running, traffic, background music, or any other noise, which may give a clue as to where the call is being placed from (pub, factory, office, school etc.). Record anything identified below.

Emergency Power Failure Procedure



Emergency Power Failure Procedure

1. Introduction

1. In the even of a mains power failure, the standby generator should automatically start if the power is out for more than 30 seconds, in the event it does not automatically start, the generator will have to be started manually. This procedure describes the steps to complete to cover both scenarios of wither the generator automatically starts, or it has to be started manually.

2. This procedure also covers a small power outage that will cause machinery to stop but not instigate automatic standby generator start sequence; this would be a sudden, but short duration power cut, causing some or all electrical contactors to fail. Power cut is of short duration; a matter of seconds, but plant must be re started manually

2. Special notes

1. In the event of any mains power failure M.Crowe must be contacted immediately. If out of hours (evenings and weekends) the contact numbers are as follows:

    - Mob:07769 740614
    - Home: 01472 887285

    Note: The following areas of the plant are **NOT** connected to the standby power supply:-

    1. Gel Coats Building
    2. Engineering

    Also the Electric Sprinkler Pump is inhibited, although the diesel set remains operational.

2. The generator **WILL** provide sufficient power for:-

    1. Compressed Air Systems
    2. Lighting, Telephone and Alarm Systems etc:-
    3. any other process equipment connected to the emergency supply.

3. Generator Start Procedure

3.1 Generator starts automatically

3. Obtain key No.12 (Generator Building):
    - Engineering Key cabinet
    - Gatehouse Emergency Key Cabinet, Blue key Fob)

Note: Ear protection must be worn when entering Generator Building

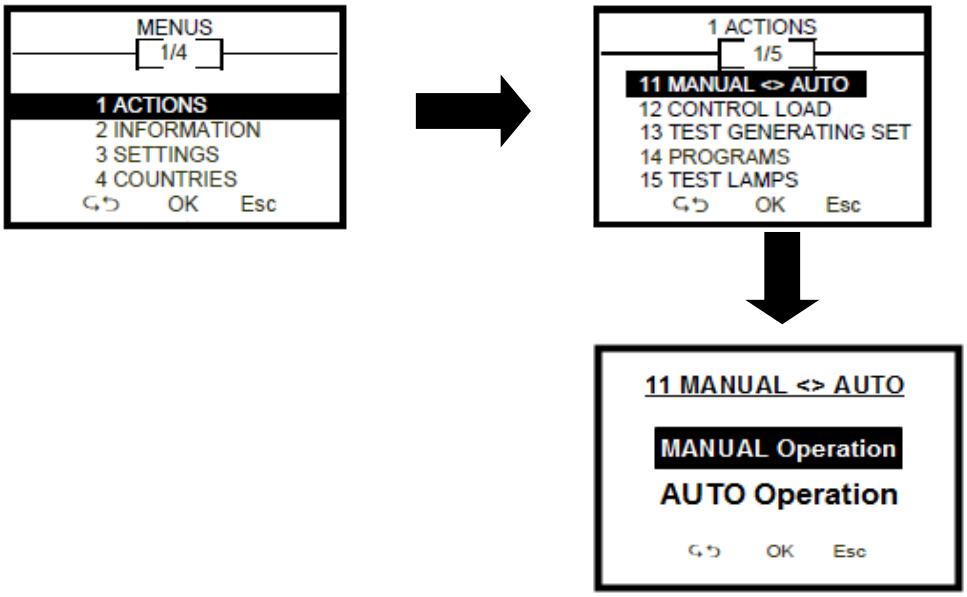
4. Open roller doors to enable sufficient cooling for generator set.

5. Re-start services / equipment as described in section ? below:-

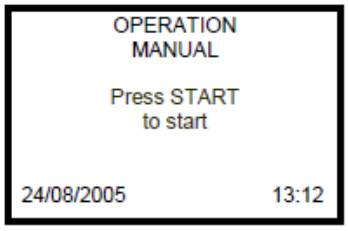
3.2 Manual start up of generator required

1. In the event of the generator set failing to start up automatically, or a fault occurring with the generator, you will have to switch to Manual Control by following the instructions below:

   - Use the scroll selection wheel to highlight **"actions"** field, press the scroll wheel to access menu.
   - Use the scroll selection wheel to highlight **"Manual <> Auto field"**, press the scroll wheel to access menu.
   - Select "**MANUAL Operation"** and again press the scroll wheel to activate.



   - Having successfully selected MANUAL control the following message will be displayed.



   - The generator set can now be started using the green push button (Start), item 6 (below).

2.1.1 View of the front panel

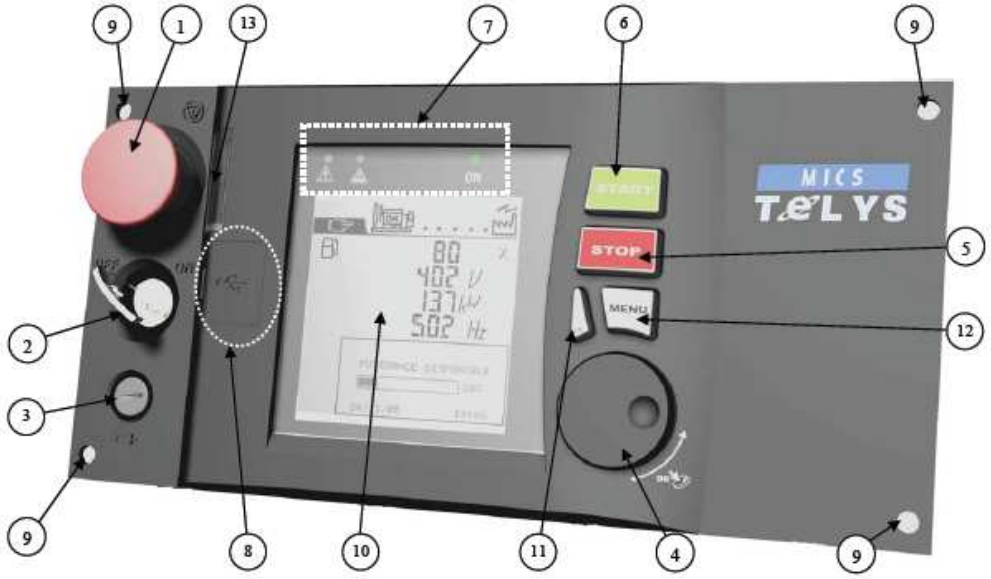


Fig. 2.1 – View of the front side

1	Emergency stop button for switching off the generating set in the event of a fault which could endanger personnel or damage equipment
2	Key switch for starting up/shutting down the module
3	Electronic board protection fuse
4	Scrolling and selection wheel for scrolling through screens and selecting items simply by pressing the wheel
5	STOP button, press to switch the generating set off
6	START button, press to switch the generating set on
7	Power ON LEDs and fault warning LEDs
8	Location of USB ports
9	Mounting bolt.
10	LCD for displaying alarms and faults, operating status, electrical and mechanical quantities.
11	ESC button: return to the previous selection and fault RESET function
12	MENU button to access the menus
13	Lighting for emergency stop button

4. Thermal Overload / Over Current

1. It is possible to “Trip” the Circuit Breaker; this could be caused by overloading the Generator capacity.

2. The circuit Breaker is located below the generator control panel, the control screen will indicate tripped fault.

3. The Circuit Breaker can be reset but allow a minimum of 5 minutes between resets.

Figure 1 - 400amp circuit breaker shown in the on position

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5. Re-starting plant and equipment

5.1 Compressed Air Systems

1.1 Failure symptoms

- Gauge on Air Receiver less than 90 psi and main compressor not running

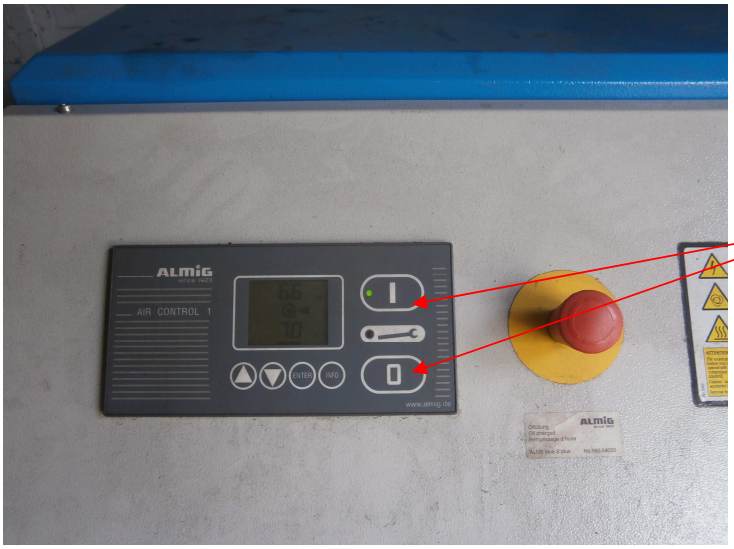
1.2 Actions

1. There are two compressors located in the compressor house, it will be necessary to start one compressor only whilst running on the emergency standby generator.

2. You should re-start the large compressor by selecting the start button on the control interface, as shown below. If the compressor doesn't start then try turning the power supply off and on, then re-try.

3. If this is unsuccessful then switch to the smaller compressor and again press the start button located on the control interface as shown below.

Large Compressor Start/Stop Button



Small Compressor Start/Stop Button

5.2 Local Exhaust Ventilation fans and Fresh air blower.

1. All will require re-starting by pressing local start buttons.

5.3 Bio Treatment Plant.

1. The PLC programme that controls the operation of the Bio treatment plant may lose its control settings and default to the manufacturers settings. All of the alarms will sound due to system failure.

2. To silence the alarms, acknowledge them all on the alarm screen and press the mute TK107 button on the same screen.

3. Contact M.Crowe if you experience any difficulties

5.4 Main Admin block Server Room Air Conditioning.

1. Servers are sensitive to over heating, and air conditioning will need restarting.

2. From Security, obtain Keys No: 7 and 7a from and check air conditioning units are running in Server Room. It may be necessary to switch off and re start using the mode switch selecting: **"Cooling"** and lower the temperature setting to 18ºC.

3. Note: there are 2 server rooms, but only one is used presently. The one with the Air conditioning unit in that will require resetting is the one at the rear of the IT managers office, the door being in the back left corner of the office.

4. The old server room, accessed from the corridor, does not need checking as it only has some telephone switchgear in it.

DO NOT SELECT DRY RUN MODE.

5. Dry running starts the de-humidifier function and Server Room has no facilities to cope with water drainage.

6. Fixed Conditioning unit can be started from remote control device select "ON" and enter a set point of 18°C.

5.5 Fire Alarms

1. Reset power failure alarms in Security building.

5.6 PMB Building

PMB Load Cell control panel.

1. Reset control panel in Sub Station No: 8 labelled PMB Load Cell Panel. This is to be found in cubical 25 about halfway along the junction boxes on the RHS of the substation.

Mixer 8 PMB.

1. Mixer 8 control panel is at the rear of the substation. The panel has an illuminated display. This will display and instruction “Choose program” if it has tripped on power failure. Using the keypad, select **“1”** for the program required, then **“C”** to confirm the selection, then **“Accept”** to store the selection.

2. This is part of the control system for the hydraulic motor, which controls the raise and lower function of this mixer.

5.7 Gel Coat Building.

1. M8 GC and M6 GC emergency stop reset buttons (Sub Station 12).

5.8 Label Printer.

1. The label printer may lose one of its settings on power outage, and on reinstatement of power, labels may be printed without the prefix **“UN”** before the 1866 code.

2. Check this function after printing labels. If you experience any difficulties, contact Polynt as soon as possible for reset/repair

6. Checklist

Date		Completed by	
Time			

No:	Item Description	Completed
1	**CONTACT M.CROWE**	
2	Air Compressor checked and re-started	
3	Fire Alarm reset	
4	PMB Load Cells Reset	
5	Mixer 8 PMB Hydraulic PLC Reset	
6	Gel Coats Mixers 6 & 8 emergency stops reset	
7	All LEV Extraction Fans restarted	
8	Bio treatment system checked and alarms acknowledged	
9	Server Rooms Air Conditioning checked and re-started	
10	Checked “UN” setting on label printers	