



Nuclear Generation Limited

Company Specification

Sizewell B Nuclear Power Station Emergency Plan

Originated by:	Hannah Grainge SZB Emergency Preparedness Engineer	Date: October 2020
Reviewed by:	Mark Scrancher SZB Technical and Safety Support Manager	Date: October 2020
	John Frankland SZB Quality Management Group Head	Date: October 2020
Approved by:	Robert Gunn Station Director	Date: October 2020

Revision	Amendment	Impact level	Date
015	Typos, REPPiR update and organisation name changes. Other minor changes to align with the Generic Emergency Handbook. ERO structure updated AR 1181045	Minor	October 2020
For previous history refer to earlier revisions			

© 2020 Published in the United Kingdom by EDF Energy Nuclear Generation Ltd.
All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, including photocopying and recording, without the written permission of the copyright holder, EDF Energy Nuclear Generation Ltd, application for which should be addressed to the publisher. Such written permission must also be obtained before any part of this publication is stored in a retrieval system of any nature. Requests for copies of this document should be referred to Sizewell B Document Control Centre, EDF Energy Nuclear Generation Ltd, Nr Leiston, Suffolk IP16 4UR (Tel: 01728-653233). The electronic copy is the current issue and printing renders this document uncontrolled. Controlled copy-holders will continue to receive updates as usual.

LIMITATION OF LIABILITY – Whilst EDF Energy Nuclear Generation Ltd believes that the information given in this document is correct at the date of publication it does not guarantee that this is so, nor that the information is suitable for any particular purpose. Users must therefore satisfy themselves as to the suitability of the information for the purpose for which they require it and must make all checks they deem necessary to verify the accuracy thereof. EDF Energy Nuclear Generation Ltd shall not be liable for any loss or damage (except for death or personal injury caused by negligence) arising from any use to which the information is put.

edfenergy.com

Contents

1	GENERAL.....	3
1.1	Introduction.....	3
1.2	Stages of an Accident or Emergency.....	6
1.3	Consequences of an Accident or Emergency.....	8
1.4	Definitions of Site Incident and Off-Site Nuclear Emergency.....	11
2	THE SITE EMERGENCY ORGANISATION.....	13
2.1	Emergency Preparedness.....	13
2.2	Response.....	13
2.3	Declaration Conditions.....	15
2.4	Initiation of an Emergency Response and Cancellation.....	17
2.5	Warnings on Site.....	18
2.6	Notification.....	19
2.7	Accounting for Personnel.....	19
2.8	Stable Iodine Tablet Issue On-Site.....	20
2.9	Site Emergency Facilities.....	20
2.10	Emergency Personnel.....	24
2.11	Site Emergency Response Capability.....	26
2.12	Off-Site Survey and Protective Actions.....	27
2.13	Emergency Equipment.....	29
2.14	Management of Emergency Exposure.....	30
2.15	Communications.....	30
2.16	Warning Notices.....	30
2.17	Training.....	31
2.18	Emergency Exercises.....	31
2.19	Strategic Coordination Centre (SCC).....	31
2.20	Central Emergency Support Centre (CESC).....	32
2.21	Support Between EDF Energy Power Stations.....	33
2.22	Multiple Stations Declaration.....	33
3	COLLABORATION WITH EXTERNAL ORGANISATIONS.....	34
3.1	Planning Phase.....	34
3.2	Emergency Phase.....	34
4	DEFINITIONS.....	35
5	REFERENCES.....	37
6	RECORDS.....	38
FIGURE 1	NOTIFICATION CHAIN FOR A SITE INCIDENT.....	39
FIGURE 2	NOTIFICATION CHAIN FOR AN OFF-SITE NUCLEAR EMERGENCY.....	40
FIGURE 3	EMERGENCY RESPONSE ORGANISATION (ON-SITE).....	41
FIGURE 4	EMERGENCY RESPONSE ORGANISATION (OFF-SITE).....	42
APPENDIX A	DETAILED EMERGENCY PLANNING ZONE (DEPZ).....	43

1 GENERAL

1.1 Introduction

- 1.1.1** The siting, design, construction and operation of EDF Energy Nuclear Generation Ltd (EDF Energy NGL) nuclear power stations are subject to the granting of a Nuclear Site Licence by the Health and Safety Executive (HSE) and must comply with the conditions attached to the Licence. The Office for Nuclear Regulation (ONR) is responsible for ensuring compliance with statutory requirements described in the Energy Act 2014 and for ensuring that proper standards of nuclear safety and security are achieved at all times.

A Nuclear Site Licence is granted only after ONR has fully satisfied itself that the licensee is a capable operator and has made an adequate Safety Case for the station and developed appropriate safety standards. The implementation of these standards reduces to a very low level the chance of an accidental event which might lead to the release of even small amounts of radioactivity. Nevertheless it is a condition of each Nuclear Site Licence that there shall be arrangements, approved by ONR, for dealing with an accident or emergency. No changes to these arrangements shall be made without subsequent approval from ONR. These arrangements incorporate procedures and actions for ensuring that appropriate measures are available for protecting the public, the workforce and satisfy the requirements of Health and Safety at Work Act (HSWA) so far as is reasonably practicable.

- 1.1.2** This Emergency Plan describes the principles of the emergency arrangements and fulfils Emergency Arrangements Condition 11(1) and (2) of the Nuclear Site Licence, whilst also supporting compliance with Regulation 10 of Radiation Emergency Preparedness and Public Information Regulations (REPPiR). This Site Emergency Plan and the Site Emergency Handbook [1] together form the "Operator's Plan" as required by REPPiR. The Plan and Handbook are provided to the ONR as the Operator's Plan for REPPiR compliance because the quantities of radioactive substances on site exceed the limits of radionuclides identified in Schedule 1 and a radiation emergency situation could occur on the site that would result in an annual effective dose to persons off the site of greater than 1mSv.

The Emergency Plan also supports compliance with the Nuclear Industries Security Regulations 2003, as amended 2006 (NISR). The Site Emergency Plan, Site Emergency Handbook, Nuclear Site Security Plan (NSSP) and Joint EDF Energy Nuclear Generation and Civil Nuclear Constabulary (CNC) Response Procedures provide the principles on which the Site's security response will be based.

The initiating events which can cause an accident are not limited to internal plant failures and the emergency arrangements are developed on a cause agnostic basis. Although this document primarily describes the arrangements for dealing with accidental events involving the release of radioactivity, it also outlines the principles to be adopted in dealing with the large range of situations that could affect the operating conditions on-site and the need for resilience of the response arrangements.

The emergency organisation is assigned activities and responsibilities to achieve the following objectives:-

- a) To activate the site emergency arrangements by making an appropriate declaration.
- b) To issue appropriate warnings at the correct time and ensure the safe withdrawal of all persons on site from potentially hazardous areas and to pre-arranged assembly points.
- c) To notify rapidly all persons and external organisations concerned with implementing remedial actions (See Figures 1 and 2) and activating the off-site emergency plan.
- d) To assemble and deploy, when necessary, emergency teams to assess and minimise the consequences of the accident or event.
- e) To maintain the safety and security of the site and nuclear materials held thereon.
- f) To assess the risk and extent of any potentially hazardous situation and ensure timely advice is given on appropriate measures to safeguard the public and that appropriate measures are taken to safeguard station personnel or the need to trigger a response within the outline planning zone.
- g) To take measures necessary during accidents to consider and mitigate any potential environmental harm which could result from the event itself or as a result of emergency intervention activities.
- h) To minimise and then terminate any radiological or toxic releases and make the affected plant safe.
- i) To provide authoritative radiological protection advice to the Police, Local Authorities and others responsible for taking the necessary action to protect the public. This advice will be provided initially by the site Emergency Controller and subsequently by the CESC controller via the EDF Energy Company Technical Adviser until relieved of the responsibility by the Scientific and Technical Advice Cell (STAC) Chair.
- j) To provide accurate and timely information for the Local Authority to inform the public via the news media.
- k) To maintain an accurate record of events for later analysis and protect evidence in case a crime scene is established.

- l) To ensure the safety of unaffected plant.
- m) To develop criteria for stand-down and transition to recovery from the event.

1.1.3 The primary objective of emergency preparedness is to ensure that arrangements in this Emergency Plan are always available to implement, whenever action is necessary to prevent any member of the public or station personnel from being exposed to a significant health risk as a consequence of a nuclear accident or other hazardous events at the power station. For accidents where members of the public might be exposed to radiation Public Health England Centre for Radiation, Chemicals and Environmental Hazards (PHE-CRCE) has issued formal guidance on the criteria to be used in assessing the need for protective actions, the use of which is allowed for under relevant health and safety regulations. EDF Energy has adopted the PHE-CRCE guidance as the basis for formulating advice on the need for urgent protective actions.

If an event should ever occur resulting in a release to the environment of significant quantities of radioactive material then, in addition to the operator, many off-site organisations would be involved and called upon to take actions to protect the public. These organisations include the Police, Fire and Rescue Service, Ambulance Service, Local Authorities, Government Departments and National Agencies. Each of these groups has its own emergency responsibilities and procedures. These procedures are co-ordinated in the Off-Site Emergency Plan by the Local Authority, which fulfils the requirements under Regulation 11 of REPPiR.

1.1.4 The Emergency Plan and the Off-Site Emergency Plan are consistent with the arrangements described in the Approved Code of Practice and Guidance For The Radiation (Emergency Preparedness and Public Information) Regulations 2019 [2] and appropriate government guidance. The Emergency Plan is also consistent with the Security Assessment Principles (SyAPs), which support implementation of the Nuclear Industries Security Regulations (NISR) 2003.

1.1.5 The detailed instructions and guidance for EDF Energy response personnel are given in the Site Emergency Handbook and the Central Emergency Support Centre (CESC) / Strategic Coordination Centre (SCC) Handbook. The roles and responsibilities of the off-site organisations are described in their plans. A major feature of nuclear emergency arrangements for any nuclear power station is the need to ensure good co-ordination between those organisations directly involved; this is maintained by regularly holding

Emergency Planning Consultative Committees (EPCC) to meet the requirements of REPPIR.

For site and Emergency Workers, consultation on emergency arrangements is managed through personnel and contractor representative groups; this will include actions to take in a radiation emergency and the radiation dose limits which will be controlled in accordance with REPPIR and other relevant regulations issued under the HSWA.

1.1.6 The ability of EDF Energy to implement the Plan has to be demonstrated to ONR by regular exercises. During these exercises the training and competence of personnel together with the adequacy of resources are comprehensively tested. Off-site organisations are encouraged to test their arrangements to support the operators plan at the same time.

1.2 Stages of an Accident or Emergency

The range of activities involved in the routine operation of a nuclear power station can produce visual and audible indications to onlookers off-site which may be perceived as an emergency situation on site. The communication planning associated with the emergency arrangements will be utilised to reassure public concerns.

Depending upon the nature and duration of an accident or emergency, the emergency organisation may evolve in three stages:-

1.2.1 Stage 1

Stage 1 starts with the initiation of the emergency response organisation as a result of the declaration of a Site Incident, Off-Site Nuclear Emergency (see Section 1.4) or other event which requires an emergency response but is not part of a Site Incident or Off-Site Nuclear Emergency. In a security incident, a Site Incident will not be automatically declared as this would require personnel to muster, when lockdown may be a more appropriate method for protecting personnel and enable the CNC to deal with the event would be to prevent personnel movement around site by implementing lockdown procedures. However, when lockdown has been lifted and if required, a Site Incident will be declared.

The Plan is initiated when a declaration is made and trained station personnel then form a site emergency response organisation under the command of the Emergency Controller based on the site (see Section 2.2). They operate from emergency facilities (see Section 2.9), with primary and alternative facilities available as a minimum. The Emergency

Controller is responsible for initiating the emergency actions to be taken by EDF Energy personnel and for ensuring the off-site organisations which have responsibility for initiating protective actions to protect the public are alerted. The station is permanently resourced in such a way that a site emergency response organisation can be set up immediately. Additional key station personnel are available on call.

For an Off-Site Nuclear Emergency a SCC and associated Media Briefing Centre (MBC) will be activated by the Police.

1.2.2 Stage 2

Stage 2 occurs approximately 1 hour later when EDF Energy establishes a CESC at the EDF Energy offices in Barnwood as the primary location, or at an alternative location if appropriate. Activities depend on the event declaration status (see Section 1.4):

- a) Site Incident - The CESC resourced by EDF Energy will provide technical support to the station as necessary and, at the appropriate time agreed with the Emergency Controller, take over responsibility for issues such as off-site radiological monitoring, interfaces with company and external organisations whilst continuously assessing the possibility of the Site Incident developing into an Off-Site Nuclear Emergency. The CESC Controller provides oversight of the event to consider the potential safety impact on other EDF Energy power stations.
- b) Off-Site Nuclear Emergency - The CESC resourced by EDF Energy together with other relevant organisations will continue to provide technical and liaison support to the station as necessary. At the appropriate time, as agreed with the site Emergency Controller, the CESC takes over control of the deployment of the off-site monitoring resources, assessment of the need for protective actions and provision of expert advice to the SCC. The CESC will also coordinate technical information for dissemination within the company, including to external agencies and the media.

During this stage the Emergency Controller is responsible for on-site actions and the CESC Controller for deployment of EDF Energy environmental monitoring resources, the provision of expert advice on protective actions to the SCC and the dissemination of information to external agencies.

On arrival at the SCC the EDF Energy Company Technical Adviser will assume responsibility for the provision of authoritative advice to the Police, Local and Health Authorities and other agencies on early protective actions to protect the public. The EDF Energy Company Technical Adviser will utilise expert advice supplied initially by the Emergency Controller and subsequently by the CESC Controller, once the responsibility has been transferred.

1.2.3 Stage 3

Stage 3 occurs in an Off-Site Nuclear Emergency only, when the STAC is declared fully operational and the STAC Chair assumes responsibility for giving authoritative advice to Police, Local and Health Authorities and other external organisations on any actions necessary to protect the public. The EDF Energy Company Technical Adviser and team will support the ONR Team and continue to liaise with the CESC/Emergency Control Centre (ECC) Controller. The Strategic Commander will coordinate media briefing.

1.3 Consequences of an Accident or Emergency

1.3.1 The most likely outcome of a radiation emergency at a nuclear power station which involves the release of radioactive material is that no member of the public would be significantly harmed. However, there is a potential for the consumption of foodstuffs to be restricted. The main potential hazard lies in the radioactivity which accumulates in the nuclear fuel while the reactor is operating. If an event led to a release of radioactivity to the atmosphere then some of the gaseous and volatile radioactive material could be transported by the wind from the site. The dispersion of such material by the wind has been extensively studied and the emergency response organisation is equipped to assess its effects. The release could be of a relatively short duration or it could be spread over a longer period of time depending on the nature of the incident. The radioactive material dispersed would be invisible but would behave in a similar way to a plume or cloud of smoke, dispersing in the atmosphere and depositing some of its contents on the ground. The concentration of radioactivity in the plume would decrease with distance from the site, being diluted and dispersed as it moved downwind, and the hazard would consequently decrease rapidly with distance from the initial point of release.

The need for urgent protective actions has been identified through the REPIR Hazard Evaluation and Consequences Assessment (HECA) process. The HECA process identifies all hazards on the site with the potential to cause a radiation emergency and evaluates the full range of consequences which could result from these hazards. Through a defined selection and assessment process, the distances to which it is deemed proportionate to

pre-determine protective actions is developed and provided to the host local authority in a Consequences Report. The local authority use this report as the basis for the determination of the Detailed Emergency Planning Zone (DEPZ).

For the range of hazards that could occur at Sizewell B Power Station for which it is proportionate to plan in detail for, refer to the Sizewell B Power Station Consequences Report, SZB/TZR/135 [8].

1.3.2 Provision of company advice to the Police on the need (if any), for protective actions to be undertaken to safeguard the public is the responsibility of the Emergency Controller or CESC Controller and will be given by the responsible EDF Energy Company Technical Adviser until relieved by the STAC Chair. In formulating such advice, consideration will be given to:-

a) The results of actual measurements and assessments of the radiological hazard off-site. Advice will be based on the potential reduction in dose that could be offered by the implementation of protective actions according to the principles set out by PHE-CRCE.

Or

b) The potential for an off-site radiological hazard to develop, such that protective actions should be implemented on a precautionary basis.

The following protective actions would be considered on and off-site:

a) Sheltering

Sheltering indoors in a solidly built structure, shutting doors and windows and shutting off sources of ventilation is a simple and effective measure for reducing exposure to direct and inhaled radiation. When sheltering is to be implemented, local residents would be advised of the need to stay indoors, and take other simple protective measures.

b) Administration of Stable Iodine Tablets

Stable iodine reduces the uptake of radioactive iodine in the thyroid and reduces the risk of thyroid cancer. It is most effective when taken slightly before or immediately after exposure to radioactive iodine and therefore advice to take stable iodine should be issued promptly. Stable iodine is pre issued to residents within the Detailed Emergency Planning Zone. This protective action will normally be combined with (a) and/or (c).

c) Evacuation

Evacuating the public from an affected area will reduce the risk of prolonged exposures to radioactivity in the plume, and, in later stages, to radioactivity deposited from the plume. However this action carries with it some risk if undertaken without proper coordination.

d) Food and Water Control

Controlling potentially contaminated food and water supplies will be achieved through the duties placed on the appropriate UK statutory bodies and the equivalent for the National Assembly for Wales, or the Scottish Government.

The responsibilities for carrying out the above measures are detailed in the relevant Local Authority's Off-Site Emergency Plan (see Section 3).

Suffolk County Council has determined a Detailed Emergency Planning Zone (DEPZ) in accordance with Regulation 8 of REPIR (Appendix A). As detailed in the emergency handbook EDF Energy is responsible for deployment of environmental monitoring resources and the provision of expert advice on protective actions to the SCC. The determination of the DEPZ takes account of the information provided in the site Consequences Report and local geographic, demographic and practical implementation issues. Such arrangements are however flexible and the distance for implementation of protective actions can be extended if necessary within the Outline Planning Zone of 30km radius. Arrangements for the extension of protective actions are considered within Outline Planning in the Local Authorities off-site plan. The restrictions on the distribution of milk and other foodstuffs could extend beyond the DEPZ distance and EDF Energy maintains arrangements for monitoring radioactivity to a distance of 40 kilometres. The amount of radioactivity beyond this distance would be extremely small but possibly still measurable.

The Local Authority has identified an area in which urgent protective actions could be required in the event of an Off-Site Nuclear Emergency. This urgent protective actions area is identified in the Sizewell B Off-Site Emergency Plan prepared by Suffolk Joint Emergency Planning Unit on behalf of Suffolk County Council/Suffolk Resilience Forum.

PHE-CRCE will co-ordinate environmental monitoring by Government Departments and Agencies to provide additional information for longer term decisions on the possible restriction of milk, foodstuffs and water supplies.

1.3.3 EDF Energy recognises the need for the local community in the vicinity of the Power Station to be alerted and kept informed on the progress of any accident and its effects. Arrangements are in place for informing not only people in the affected sectors where protective measures may need to be taken, but also people outside those sectors so that they do not suffer unnecessary stress or concern.

EDF Energy will co-operate with the Police and Local Authorities, who have the responsibility for communicating advice or instructions directly to members of the public, primarily using local radio or TV and other available methods/facilities. Advisory information has been issued by the Local Authority, in accordance with Regulation 21 of REPPiR, to local residents within the DEPZ explaining actions that may have to be taken during an emergency.

1.3.4 Following the declaration of an Off-Site Nuclear Emergency, EDF Energy will, as soon as reasonably practicable, and in consultation with other responders, provide a report on the circumstance of the event, benefits of actions taken to limit radiation exposure and measures taken to prevent further release of radiation. Within 12 months of the event, a full report of the consequences of the event and the effectiveness of the emergency response will be prepared and submitted to ONR within 28 days of the report's completion. The report or copy will be retained for 50 years.

1.4 Definitions of Site Incident and Off-Site Nuclear Emergency

1.4.1 Site Incident

Definition: "A hazardous condition which is confined in its effect to within the boundary of the site aligned with the perimeter fence monitoring system".

A Site Incident does not call for the full implementation of the Emergency Plan or, necessarily, the alerting of all the Emergency Services. However, the emergency organisation detailed in this plan will be adapted to respond effectively to the specific circumstances of the event. The declaration of a Site Incident may identify when mitigating actions are required to prevent a radiation emergency occurring. To this end the possibility of a Site Incident developing into an Off-Site Nuclear Emergency would be continuously assessed.

1.4.2 Off-Site Nuclear Emergency

Definition: "A hazardous condition which results, or is likely to result, in the need to consider urgent protective actions to protect the public outside the boundary of the site, which may be supported by perimeter fence monitoring system information, from a radiological hazard".

The declaration of an Off-Site Nuclear Emergency identifies when mitigating action may be required to prevent a radiation emergency occurring or that a radiation emergency has begun. In this case a radiation emergency is as defined in REPPiR Regulation 2.

2 THE SITE EMERGENCY ORGANISATION

2.1 Emergency Preparedness

The Station Director assigns responsibility for the preparedness of the emergency arrangements to a specific post within the site organisation. The post holder, together with EDF Energy central support, is responsible for ensuring that the arrangements on site adequately meet the objectives of the Site Emergency Plan and for liaison with the Local Authority for the preparation of the Off-Site Emergency Plan. The post holder, together with EDF Energy central support is also responsible for ensuring the arrangements on site adequately meet the objectives of the Nuclear Site Security Plan.

2.2 Response

Depending on the nature and duration of an event the emergency organisation may evolve in three stages. For a Site Incident only Stage 1 and a limited part of Stage 2 will apply.

2.2.1 Stage 1

The Shift Manager is Emergency Controller and will assume command until the ECC on site is established, when the duty Emergency Controller will take command (including during out of hours) from the Shift Manager. The Shift Manager remains the duly authorised person for plant operations throughout the event.

The Emergency Controller will establish an emergency organisation and is responsible for:-

- a) Determining the condition of the event, declaring a Site Incident or Off-Site Nuclear Emergency and carrying out the relevant notification as required by the Plan (see Figures 1 and 2).
- b) Ensuring the immediate safety of personnel on site.
- c) Making the plant safe (although in practice this will be managed by the Shift Manager).
- d) Security of the site.
- e) Providing advice or reassurance messages to the Police to ensure the protection and safety of the public until the CESC and SCC becomes operational.
- f) Requesting assistance from the Emergency Services as necessary.
- g) Deploying the site emergency personnel as appropriate.
- h) Liaising with the CNC and Home Office Police/Police Scotland, as necessary.
- i) Monitoring and assessing the levels of radioactivity on and off-site as necessary.
- j) Preparing an initial press statement and liaising with the Public Relations personnel.

- k) Assessing the course of the accident and reviewing its status.
- l) Keeping personnel on the site informed of the situation.
- m) (in conjunction with the Shift Manager and ECC personnel and for specific security threats the CNC) Formulate an appropriate response to the event and bringing the situation under control.
- n) Authorising emergency exposure limits.
- o) Liaising with the senior emergency services officers regarding any response activities on-site.
- p) Liaison with the adjacent station Emergency Controller regarding any implications for its personnel.

2.2.2 Stage 2

In the event of a Site Incident, the CESC will be set up to initially carry out 2.2.2 (a), (c), (e) and (f) only.

When the CESC and SCC is operational the CESC Controller can, at the appropriate time as agreed with the Emergency Controller, assume responsibility for:-

- a) The co-ordination, direction and control of company off-site monitoring within the DEPZ.
- b) Provision of expert advice on urgent protective actions for protecting the public:-
 - [i] Initially direct to the Police
 - [ii] Via the EDF Energy Company Technical Adviser when in post at the SCC
 - [iii] Via the STAC Chair when in post at the SCC
- c) Liaison with Government Departments, Agencies and other organisations having responsibilities in an emergency.
- d) The coordination, direction and control of off-site monitoring beyond the DEPZ out to the distance specified in 1.3.2.
- e) Providing any necessary support to the site and ensuring that the full resources of EDF Energy are directed to assist.
- f) Media interface support.

2.2.3 Stage 3

The affected site and CESC will establish a recovery plan. The plan will be made available to the SCC through the EDF Energy Company Technical Advisor.

The STAC Chair will assume the responsibility at the SCC for giving authoritative advice to the Police, Local and Health Authorities on any action necessary to protect the public. The EDF Energy Company Technical Adviser will support the STAC.

2.3 Declaration Conditions

The reactor is fully equipped with automatic protection and the data displayed in the Main Control Room, which is resourced at all times, provides detailed information on the state of the plant. In the event of this information indicating abnormal conditions the Shift Manager will carry out an immediate investigation and assessment. If the situation demands, the Shift Manager as Emergency Controller will initiate actions in accordance with the conditions for declaring a Site Incident or an Off-Site Nuclear Emergency listed in Table 2.3.1.

2.3.1 Pressurised Water Reactor

Table 2.3.1

CONDITION		STATE
[a]	Any fission product barrier is believed to be or is breached or challenged in either an extreme or severe manner as defined in SOI-8.1 Series Critical Safety Function Monitoring.	Site Incident
[b]	A rapid increase in Reactor Coolant System activity coupled with a Chemical and Volume Control System let down radiation high alarm.	
[c]	An increase in containment radiological and/or environmental conditions is observed.	
[d]	An accident occurs during irradiated fuel handling operations resulting in high radiation and/or airborne activity alarms in the Containment or Fuel Building.	
[e]	The inability of the charging system to maintain primary circuit water inventory is observed.	
[f]	An uncontrolled increase in any steam generator level coupled with an increase in steam generator outlet N-16 measurements is observed.	
[g]	Initiating of both a condenser off gas activity high alarm and a steam generator blow down radiation high alarm.	

CONDITION		STATE
[h]	An occurrence with the potential to harm persons on-site requiring accounting for personnel across site, such as a major fire, flooding, severe weather, a significant release of gas or liquid which could present an asphyxiation or toxic hazard.	
[i]	A significant increase in site radiation levels is observed.	
[j]	Emergency Services personnel are required to make access to a Radiological Controlled Area (RCA) in significant numbers.	
[k]	Evacuation of the Main Control Room.	
[l]	There is a loss of shutdown cooling coupled with high radiation and/or airborne activity in containment.	
[m]	An external hazard which could affect the safety of the site.	
[n]	The person empowered to declare a Site Incident considers that the circumstances demand such action or that there is an operational safety benefit in initiating the emergency organisation.	
[o]	Two or more fission product barriers are believed to be or are breached or challenged in either an extreme or severe manner as defined in SOI-8.1 Series Critical Safety Function Monitoring, except in the case of Steam Generator Tube leak(s) when a Site Incident under Condition (f) may be more appropriate.	
[p]	In conjunction with plant indications signifying raised radioactivity levels on plant, Perimeter Monitoring Equipment Alarms are confirmed on two or more adjacent operating detectors indicating that a quantity of airborne radioactivity is being released from site.	
[q]	The person empowered to declare an Off-Site Nuclear Emergency considers that the circumstances demand such action.	

2.4 Initiation of an Emergency Response and Cancellation

2.4.1 Site Incident, Off-Site Nuclear Emergency or Site Lockdown

A declaration or initiation of the emergency response organisation will be made as early as possible when it is suspected that normal control or management of the site cannot be maintained or site lockdown is required. This enables the emergency response organisation to be in place prior to the full consequences of the event occurring. By taking a conservative and precautionary approach it is accepted that the emergency arrangements may be invoked without becoming operational.

A Site Incident or Off-Site Nuclear Emergency will only be declared by an authorised Emergency Controller (including the Shift Manager).

A Site Lockdown will only be initiated by authorisation of the Emergency Controller (including Shift Manager). The EDF Energy Security Guard in the Site Security Control Room also has a standing delegation to initiate a Site Lockdown in a site security emergency.

Any change of state will be notified to all persons and organisations already notified.

2.4.2 Cancellation of a Site Incident, Off-Site Nuclear Emergency or Site Lockdown

Once the situation which gave rise to the declaration of a Site Incident or Off-Site Nuclear Emergency has been brought under control the declaration of that state may be cancelled. The responsibility for issuing that cancellation will rest with the Emergency Controller or the CESC Controller depending upon the stage reached in the Site Incident or Off-Site Nuclear Emergency, with the STAC chair (once established) responsible for ordering the cessation of urgent protective actions, as follows:

- a) Following the declaration of a Site Incident, the Emergency Controller will cancel the declaration at any appropriate time. Consulting with the CESC Controller before cancelling the declaration if the CESC is operational.
- b) Following the declaration of an Off-Site Nuclear Emergency as described in section 2.4.1, and prior to the SCC becoming operational, the Emergency Controller may in consultation with the CESC Controller, and other relevant organisations, cancel the declaration of an Off-Site Nuclear Emergency and give advice to the Police and Local Authorities accordingly that the declaration has been demonstrated to be precautionary.

- c) When the STAC is fully operational and the STAC chair is in place, the STAC Chair will advise Police and Local Authorities on the cessation of any urgent protective actions which may have been initiated. The police will advise when the off-site emergency plan has met criteria to transition to recovery. The responsibility for cancelling the on-site declaration always remains with the Emergency Controller, who may consult the CESC Controller. EDF Energy will advise ONR of their intentions in advance.
- d) Once the situation which gave rise to the initiation of a lockdown has been brought under control, the lockdown can be cancelled. The responsibility for issuing that cancellation rests with the Emergency Controller after liaison with the Force Incident Manager (FIM).

2.5 Warnings on Site

2.5.1 The warnings on site consist of:

- a) A general site warning of an event or other significant occurrence requiring the activation of the emergency response organisation and internal accounting for all site personnel will be given, on the authorisation of the Emergency Controller in the form of a Site Internal Muster Alarm which consists of a high pitched wailing siren.
- b) A general site warning of an event requiring “lockdown” and all site personnel to rapidly secure themselves in situ will be given on the authorisation of the Emergency Controller. The site warning will take the form of a Public Address System (PAS) announcement.

2.5.2 Should a Site Incident or Off-Site Nuclear Emergency be declared, the Site Internal Muster Alarm will be followed immediately by a PAS announcement containing at least the following:-

“Attention all personnel, a Site Incident/Off-Site Nuclear Emergency is now in force”

to indicate that the Emergency Plan has been initiated.

The initial announcement should include any action required by personnel on site e.g. making themselves safe, the requirement to muster, potential hazardous areas of the site, any immediate actions to take to avoid exposure to hazards and reassurance statements.

2.5.3 A change in state from Site Incident to Off-Site Nuclear Emergency will be announced over the PAS, preceded by a site alarm. Cancellation will also be announced over the PAS.

2.5.4 The Site alarm(s) required for the accounting of personnel or instructing lockdown will be audible in all accessible areas of the site. In normally accessible areas, where noise levels are high, the alarm will be indicated by visual signals.

2.6 Notification

Following the declaration and initiation of the site emergency response, the Emergency Controller is responsible for ensuring that the relevant off-site organisations are informed of the declaration. See Figure 1 and 2.

2.7 Accounting for Personnel

The purpose of accounting for personnel is to determine whether or not all personnel are safe and to establish the names and last known positions of any persons who are missing. The Emergency Controller will be kept informed of the status of the muster process to inform priorities for the response organisation.

All personnel on-site are required to report to assembly points designated for mustering on the first sounding of the Site Alarm. The number of muster points are sufficient for timely mustering and provide an appropriate level of shelter. Emergency responders carrying out mitigating actions for the event, under the control of the Shift Manager may be directed at the time to report to a different location. The conditions at the assembly points will be monitored for tenability. Details of these arrangements are contained in the Warning Notices (see Section 2.16).

After the sounding of the alarm, a correlation of the muster will be completed as soon as possible, to determine a list of personnel who have not recorded their safe presence.

The Emergency Welfare and Administration Officer, or delegate, will correlate the muster results during office hours. The Shift Manager, or delegate, will perform this duty out of office hours, until relieved by the Emergency Welfare and Administration Officer.

During lockdown accounting for personnel should be undertaken as soon as reasonably practicable, to confirm the safety, security and presence of personnel.

2.8 Stable Iodine Tablet Issue On-Site

All personnel on-site will take stable iodine tablets on the declaration of an Off-Site Nuclear Emergency. In the event of Site Incident, stable iodine tablets will only be taken on the instructions of the Emergency Controller.

2.9 Site Emergency Facilities

Facilities have been identified for use in an emergency. These are detailed below in 2.9.1 - 2.9.4. For each facility there is a primary facility identified. However, should the primary facility be untenable then one or more alternative locations have been identified.

It is recognised that some emergency command centres (such as the ECC) may not be able to be established during Lockdown and that other arrangements may have to be established in this situation, based on the nature of the hazard (such as intruders to site).

A District Survey Laboratory is available for undertaking the gamma spectrometry of samples as directed by the Emergency Health Physicist.

2.9.1 Emergency Control Centre (ECC)

The ECC is a dedicated facility to manage the site, command the response organisation (including Emergency Services on the site) and, in the initial phase, interface with external agencies. Should the need arise an alternative ECC is available. The locations of the primary emergency command centres and alternatives can be found in the Site Emergency Handbook.

The basic equipment provided in each ECC includes: maps, station procedures, drawings, communications equipment, tenability monitoring equipment, wind speed and direction indicators, plotting equipment, log sheets and general stationery.

The ECC personnel will include the following key Suitably Qualified and Experienced Personnel (SQEP) (available on a 24 hour standby rota), to become operational:-

- Emergency Controller
- Emergency Health Physicist
- Emergency Nuclear Engineer
- Emergency Welfare and Administration Officer

For a protracted event they will be assisted by Assistant Controllers and appropriate ECC support personnel to carry out plotting, communications, radio operation and security liaison as necessary (see Figure 3).

2.9.2 Access Control Point (ACP)

For any event which creates an uncontrolled hazard, an Incident Area will be established, including an entry and egress point to command and control activities safely in the area. The control point will be located as appropriate for the event, taking into account the prevailing conditions. In its simplest form this may be a single barrier, e.g. in a road for minor fires.

However, for reactor plant based events an ACP will be established at a suitable pre-planned location to provide safe, controlled and rapid access to the incident area. The initial location of the ACP will depend upon the location of the event and the prevailing environmental conditions. Should the need arise an alternative ACP would be available. The location of the primary fixed ACP and alternatives can be found in the Site Emergency Handbook.

All access to the incident area will be made through an ACP. Exceptionally other routes may be used but only with the agreement of the Access Controller.

The ACP is equipped with means of communicating directly with Emergency Teams, the MCR and the ECC.

There is adequate space, equipment and facilities for the contamination, radiation dose and breathing apparatus control necessary for the safe and effective dispatch and reception of emergency teams, including Emergency Services, and for the initial treatment of casualties. A Medical Decontamination Facility is available should the need arise. The facility will be resourced by a designated first-aider.

2.9.3 Main Control Room (MCR)

Within the station MCR there are dedicated facilities to enable the initial management of the site, command of the response organisation and interface with external support during an emergency. Once the duty Emergency Controller takes responsibility these facilities will be used to manage and co-ordinate the ongoing activities in the Incident Area and to make the plant safe. The facilities include: maps, station procedures, drawings, communications equipment, tenability monitoring equipment, wind speed and direction indicators, plotting

equipment, log sheets and general stationery. The initial location will normally be the MCR. Should the need arise, an Auxiliary Shutdown Room (ASR) for the reactor would be available.

2.9.4 Security Control Facilities

Within the site there are dedicated facilities to enable the site to be secured, muster to be initiated and to manage access and egress from the site including by the Emergency Services during an emergency. The facilities include: maps, emergency procedures, communications equipment and tenability monitoring equipment.

The Main Gatehouse will normally be used for managing site access. Should the need arise an alternative location is available. The locations of the primary emergency command centres and alternatives can be found in the Site Emergency Handbook.

There is also a dedicated Site Security Control Room (SSCR) which is equipped with site surveillance and communications equipment. It will initiate lockdown and control immediate CNC and security personnel activity. Should the need arise this functionality is also available within a number of other locations, including the Main Gatehouse.

2.9.5 Shift Minimum Emergency Personnel Resources

A record of the current shift personnel is available from the MCR indicating cover for emergency roles which will meet or exceed the minimum personnel requirements as detailed below.

Location	Post	Sizewell B
MCR	SM	1
	MCRS	1
	RO & AEO	2
	Total	4
ACP (ERT)	Initial Controller	1
	Fire Team Leader	1
	BAECO	1
	First Aid	1
	Other	2
	Total	6
ERDT*	Total	2
Security**	ESSCo	1
	ESLO	1
	Roll Call	1
	Med Decon	2
	Total	5
TOTAL		17

* Emergency Response Deployment Team (ERDT) personnel two (2) per shift are required to fulfil the emergency role. In addition two (2) ERDT members hold a standby position each week. At any time there are four (4) ERDT personnel available for an emergency response if required.

** these are the roles to be covered by security in support of the emergency response. The minimum personnel levels for security is determined by ONR (Civil Nuclear Security and Safeguards) requirements.

2.10 Emergency Personnel

2.10.1 All Personnel

The actions to be taken by station personnel are similar for either a Site Incident or an Off-Site Nuclear Emergency.

Mustering procedures will be implemented upon sounding the alarm. Once mustered, Emergency Teams will promptly report to the appropriate location to initiate response duties unless already engaged in action to mitigate the event. Visitors and contractors will be advised of their muster arrangements on arrival at the site.

All personnel will be alerted and informed of what specific immediate actions to take in accordance with the detailed arrangements contained in the Emergency Handbook. Personnel responsible for plant operation will take steps to safeguard the plant and to minimise the effects of the accident. Further instructions will be issued to personnel not having specific emergency duties.

The Emergency Handbook provides detailed instructions of what to do in a lockdown situation.

All personnel undertaking emergency scheme roles are SQEP to undertake these duties.

2.10.2 Emergency Controller

- a) Certain senior members of the station personnel are authorised in writing, in accordance with approved arrangements, to act as Emergency Controller. The current list of those authorised to be Emergency Controllers is posted on Site Licence Noticeboards. In the event of a Site Incident or an Off-Site Nuclear Emergency the duty Emergency Controller will take control of the emergency organisation. There is a standby rota to ensure that an Emergency Controller is always available.
- b) The Emergency Controller is in overall command of the site, the emergency organisation at the time and has responsibility for the co-ordination of the safety and security of personnel on site, the operation and protection of the plant, authorising dose control limits as specified in the Emergency Handbook, the notifications external to the site to initiate company support and the Off-Site Emergency Plan, the provision of information to any adjacent nuclear site and the initial provision of advice for the protection of the public. The Emergency Controller and supporting personnel will be based in the ECC.

- c) It is probable that the first indication that an event at the station has either occurred or is imminent will be received by the Shift Manager. The duty Emergency Controller will be notified immediately.
- d) Should emergency actions be initiated by the Shift Manager, they will continue to perform the duties of the Emergency Controller until relieved by a member of staff authorised to undertake the duty of Emergency Controller.

2.10.3 Emergency Health Physicist

The Emergency Health Physicist will advise the Emergency Controller on all the radiological aspects of the emergency and direct the on-site and initial off-site health physics activities from the ECC.

There is a standby rota to ensure that an Emergency Health Physicist is always available.

2.10.4 Emergency Nuclear Engineer

The Emergency Nuclear Engineer will advise the Emergency Controller on reactor safety and any necessary emergency reactor operation.

There is a standby rota to ensure that an Emergency Nuclear Engineer is always available.

2.10.5 Emergency Welfare and Administration Officer

The Emergency Welfare and Administration Officer will advise the Emergency Controller on all ECC administrative matters, the welfare of personnel on-site and status of responding emergency personnel. The Emergency Welfare and Administration Officer will be responsible for directing the muster and resources for the emergency organisation.

There is a standby rota to ensure that an Emergency Welfare and Administration Officer is always available.

2.10.6 Shift Manager

The Shift Manager will perform the duties of Emergency Controller until relieved. Thereafter the Shift Manager will be responsible to the Emergency Controller for emergency teams carrying out any remedial actions on the site necessary to protect public, personnel and to render the plant safe. The Shift Manager will be responsible for the safe reception and deployment on site of external Emergency Services.

2.10.7 Access Controller

The Access Controller will set up and direct operations at the ACP and will control the movement of all personnel through the ACP. The Access Controller will be responsible for the deployment and safety of teams at the ACP, for all those in the Incident Area, and for the provision of stores, communications and logistical support. After the initial assessment has been made, the Access Controller will co-ordinate and instruct teams on the remedial actions necessary in the affected area and, as necessary, will manage dose control within the limits authorised within the Emergency Handbook. The Access Controller will be in direct communication with the Shift Manager to take direction, advice and information into account. The Access Controller will keep the Shift Manager informed of the situation in the Incident Area.

2.10.8 Emergency Site Security Coordinator (ESSCo)

Emergency Site Security Coordinator (ESSCo) will direct incoming Emergency Services via a safe route to the appropriate location and ensure they are suitably briefed (through supervision of Security Guards), maintain the security functions for the site, including accounting for personnel on-site and advising the Emergency Controller on any specific actions required relating to site security.

2.11 Site Emergency Response Capability

2.11.1 Intervention

There are a minimum number of SQEP personnel to form Incident Response Teams (IRT) who immediately assemble on the declaration of a Site Incident or an Off-Site Nuclear Emergency. Emergency team direction is the responsibility of the Shift Manager.

An adequate number of trained Emergency Workers will be available on the site or on standby at all times to perform concurrently the tasks below:-

a) Access Control to Incident Area

The ACP will be under the supervision of the Assistant Access Controller who (under the direction of the Access Controller) will be responsible for the provision of breathing apparatus, decontamination and radiation dose control. When available, additional personnel will be deployed as necessary at the ACP for the effective support of teams in the incident area.

b) Incident Response

An incident response team will be formed from personnel trained and competent to carry out in an emergency, as required, an initial assessment of the Incident Area together with radiation and temperature measurements, rescue of missing persons, firefighting, first aid, emergency plant operations and damage control.

c) Site Security Guards

Site Security guards will control site access and egress and undertake the site security duties and muster activities required.

2.11.2 Damage Repair Team and ACP Support

Non-shift personnel will be available to form an emergency response team. This resource will be available on standby or by call in arrangements to provide support to the shift teams and specialist advice. Key objectives are:-

- a) To engineer permanent damage repairs under the direction of the emergency response team's leader.
- b) To carry out site surveys, if required, under the direction of the Emergency Health Physicist.
- c) To support personnel at the ACP such as organising resources and returning teams.
- d) To support ERT in emergency tasks such as rescue of missing people and emergency first aid.

2.11.3 On-Site Survey

On-site hazards will be monitored to protect site personnel. The primary hazards will be radiation, fire or chemical release. Information from the Perimeter Fence Monitoring System and installed plant monitoring systems will be used to provide advice on protection of site personnel.

The ACP will provide personnel to survey levels of radiation, airborne activity and signs of damage to buildings as required.

2.12 Off-Site Survey and Protective Actions

2.12.1 Off-Site Survey

On declaration of a Site Incident or Off-Site Nuclear Emergency the off-site survey vehicles will be deployed immediately without any consideration of need. If following deployment the off-site survey vehicles are not required consideration for stand-down of the off-site survey

vehicles will be made by the Emergency Controller. Having contacted the MCR or ECC, the teams will proceed initially to pre-determined sampling points where they will take air samples and radiation dose rate measurements. The results of these measurements will be promptly transmitted to site and the CESC as appropriate.

A gamma spectrometry assessment of air samples will be made as directed by the Emergency Health Physicist. The results will be communicated to the ECC or CESC to enable an assessment of any release and formulate any necessary expert advice on actions to protect and reassure the public.

When the CESC has been declared operational the responsibility for directing the off-site survey and providing expert advice may be transferred to the CESC Health Physicist.

2.12.2 Assessment and Protective Actions

a) Predetermined Protective Action Advice

An agreement has been established with the Director of Public Health for Suffolk authorising the Emergency Controller to advise the public and personnel on-site when appropriate to take stable iodine tablets. This will enable the protective actions of sheltering and taking of stable iodine tablets to be urgently introduced on the declaration of an Off-Site Nuclear Emergency throughout the Urgent Protective Action Area based on the principle for the precautionary use of protective actions to protect the public. It should be recognised that the predetermined protective action area will be identified in the off-site emergency plan and may not be the same as the REPIR Detailed Emergency Planning Area.

b) Hazard Assessment

Total Alpha activity will be measured on all the samples used for Gamma Spectrometry. If an alpha air activity greater than 30 Bq/m³ above natural background is measured then evacuation (possibly excluding the issue of stable iodine tablets) will be initiated.

c) Protective Action Advice

The Emergency Controller on being advised of off-site survey results, that exceed the dose to the thyroid of 300mSv (the PHE-CRCE lower Emergency Reference Level (ERL) for evacuation) will, irrespective of any protective actions previously implemented, advise the Police of the need to implement protective actions for all persons exposed in the affected areas. This is unless the release has, or will imminently cease, or the isotopic composition indicates that the dose averted by the actions will not approach the lower ERL for the justification of the relevant protective action.

2.12.3 Ground Deposition

Measurements of deposited radioactivity will be made as appropriate to assess radiation exposure and any requirement for protective actions.

If circumstances prevail that dose rate measured would cause an exposure to a member of the public exceeding the lower ERLs in 6 hours, consideration would be given to advising the implementing of suitable protective actions to restrict access or evacuate.

2.12.4 Emergency Plume Gamma Monitoring System/ Site Boundary Monitoring System

Gamma radiation monitors are installed at intervals around the perimeter of the site to provide a time-related profile of any airborne radioactivity released from the site. Continuous readings of gamma dose rate are logged and are available in the ECC and MCR.

The system will also provide real time indication of increasing or decreasing trends in the airborne release.

2.13 Emergency Equipment

All emergency locations have designated emergency response equipment to support the initial response. This may include Personal Protective equipment, monitoring equipment and equipment for undertaking repairs. In addition survey vehicles are available and equipped for operation.

Supplies of additional emergency equipment are available in special stores located at appropriate locations to enable the implementation of this Plan in response to an external natural hazard, such as flooding, seismic events or other extreme weather events. This includes both equipment stored on-site and away from the site, which can be deployed to support the restoration of critical safety functions in an emergency. Equipment is also stored on-site for immediate deployment and use.

Equipment assigned to support this Plan is monitored and maintained in accordance with written schedules. This equipment will be available continuously.

2.14 Management of Emergency Exposure

Emergency exposures, as defined in REPIR 2019, will be managed through the identification of emergency workers, use of reference levels and a schedule of emergency dose limits necessary to bring help to endangered people, prevent exposure of a large number of people, and prevent harm to the environment or save valuable property, plant or goods. The overall responsibility for the control of radiation exposures on the site during a radiation emergency is the Emergency Controller for all personnel on-site and will authorise the use of emergency dose limits for emergency workers, including situations for lifesaving intervention when the emergency dose limits may be exceeded.

Facilities are available for urgent dose assessment of the external radiation received by persons during an emergency using approved dosimeters. An Approved Dosimetry Service would carry out internal dose assessment and record keeping. Following assessment medical surveillance will be established for individuals as appropriate.

2.15 Communications

The site is served by a number of communication systems including internal and public telephone networks. The ECC has a direct phone to the MCR. A public address system and emergency notification system covers all areas of the site.

A radio communication system covering the surrounding area is used for co-ordination of the off-site survey and can be operated from the ECC and the CESC. Portable two-way radios are available for on-site communications.

The CNC has communications and radio equipment to support their operations on the site. Their equipment is compatible with that of 'blue light' responders.

2.16 Warning Notices

Warning Notices are posted in all permanent site buildings giving brief and concise instructions to occupants in the case of an accident.

The notices include:

- a) Notification to the MCR of an event.
- b) The Site Alarm signals.

- c) General actions to be taken before leaving working positions.
- d) Locations of Muster Points and instructions for the Muster.
- e) Emergency actions for contractors and other visitors to the site.
- f) What to do in the event of a site lockdown order.

2.17 Training

All personnel with emergency duties receive specific training. Details of this training are contained in the Company's Generic Emergency Scheme Training (GEST) documentation e.g. Role Training Guides, Mentor Guides, and Lesson Plans. All members of the emergency scheme are suitably qualified and experienced to perform their assigned role in an emergency. For emergency workers, the training will include radiological risks and the use of protective equipment.

All personnel, contractors and visitors receive induction training to enable correct actions to be followed in an emergency.

2.18 Emergency Exercises

Regular emergency exercises are carried out as part of the capability assessment for all personnel, involving participation by duty emergency role holders. Certain exercises are demonstrated formally to ONR and external organisations are encouraged to participate in emergency exercises. As part of the assessment process "Areas for Improvement" are identified and fed back through the continuous improvement process.

2.19 Strategic Coordination Centre (SCC)

Associated with the site is a SCC located at Suffolk Police Headquarters, Martlesham. The prime function of the SCC is to decide on the actions to be taken off-site to protect the public, to ensure that those actions are implemented effectively and to ensure that authoritative information and advice on these issues is passed to the public. The operational status and functions of the SCC are co-ordinated by the Police "Gold" Commander/Strategic Coordinator who is responsible for the executive management of the off-site aspects of the incident.

The SCC initially receives expert advice on protective actions from the Emergency Controller. When operational, the CESC will supply expert advice on protective actions to the SCC. The EDF Energy Company Technical Advisor uses this expert advice to provide authoritative advice to the SCC Strategic Co-ordinator until relieved by the STAC Chair.

There is a MBC associated with the SCC to pass authoritative information and advice to the public via the media. The MBC is run by the Police.

2.20 Central Emergency Support Centre (CESC)

The CESC at Barnwood will be set up for a Site Incident or an Off-Site Nuclear Emergency.

The CESC will include the following key roles available on a 24hr standby to enable the CESC to become operational within an hour:-

- CESC Controller
- CESC Controller's Secretary
- CESC Health Physicist
- CESC Technical Support Team Leader
- Plant Status and Liaison Officer
- CESC Security Liaison Officer
- Off-Site Survey Radio Operator
- Communications Coordinator
- CESC Welfare and Support Officer

For a protracted event these roles will be supported by assistants and specialists available on standby within a similar timescale. For a protracted event resource may be called upon to support from other sites as appropriate.

The CESC is under the overall direction of the CESC Controller, who is responsible for ensuring that the CESC operates in such a way as to fulfil its functions of serving and supporting the affected SCC and on site response. See Figure 4.

The prime function of the CESC is to acquire and assess all necessary technical data that has a bearing upon the radiological hazard to the public and to pass clear advice based upon that technical assessment to the SCC in such a form that those at the SCC can make informed and timely decisions on the need to take action to protect the public. This function is primarily discharged by the Radiological Assessment Team.

The CESC also provides a technical support service to the affected station and acts as the focal point for routing advice and material assistance to the affected station. The Technical Support Team primarily discharges this function.

The CESC also provides authoritative advice on any security aspects of an event and the strategies needed to maintain security to the affected site and the rest of the company. It will coordinate company and external resources to provide the required advice or assistance. The CESC will also brief the Executive Team and liaise with relevant external organisations.

The CESC will also take responsibility for the onward transmission of monitoring results and the outcome of radiological assessments to external agencies such as the Food Standards Agency and to the SCC as well as supplying information to the company's Chief Officers. This function is primarily discharged by the Information Support Team using EDF Energy's Incident Information Management System.

2.21 Support Between EDF Energy Power Stations

Shift Managers on duty at other Stations will be called upon to assist in an emergency. They will automatically provide additional off-site survey teams, Health Physics personnel, and equipment in accordance with the predetermined response or as requested by the CESC/SCC.

It is recognised that the provision of such assistance will temporarily reduce the unaffected stations' normal level of emergency scheme personnel and equipment. This will be coordinated and managed by the CESC.

Providing support for other sites will not compromise a sites capability to respond to an incident on its own site. Appropriate actions will also be undertaken to minimise the likelihood of an event taking place on the unaffected site(s), as far as reasonably practicable.

2.22 Multiple Stations Declaration

Arrangements are in place to manage the circumstances where more than one station is required to declare a Site Incident or Off-Site Nuclear Emergency at the same time. These are described in the Emergency Handbook and CESC handbook. Sufficient supplies of equipment are available at various off-site storage depots to support an incident at more than one location.

3 COLLABORATION WITH EXTERNAL ORGANISATIONS

3.1 Planning Phase

EDF Energy, not being a category 1 or 2 responder, collaborates with the external organisations locally through the EPCC and nationally through a Business, Energy & Industrial Strategy (BEIS) led forum to ensure that local and national Off-Site Emergency arrangements are co-ordinated with the Sizewell B Emergency Plan. External organisations, identified in REPPIR regulation 10(5) are formally consulted on changes to the operator's emergency plan and developments to the LC 11 arrangements where these have a bearing on the off-site response or how external agencies respond in support of the site. In addition, consultation is undertaken with relevant Radiological Protection Advisors for the emergency services regarding Emergency Workers.

3.2 Emergency Phase

During an Off-Site Nuclear Emergency the Police, Local Authorities and other organisations may need to take actions to protect the public, as in the case of many other kinds of civil emergencies. These actions form part of the overall response plan however EDF Energy is not responsible for their implementation. Each organisation has its own Emergency Plan based on statutory duties and specialism which, together with the EDF Energy Plan, comprise the emergency arrangements to protect the public from any harm which might be caused by a nuclear accident. The plans are flexible and can be extended in scope because they are integrated into the plans for dealing with other kinds of major accidents or disasters, such as extensive flooding or a toxic chemical release.

For a Site Incident, Emergency Services will be informed or called to site as appropriate in support of the site emergency response.

Details of the role, actions and responsibilities of the external organisations are contained in the Sizewell B Off-Site Emergency Plan prepared by Suffolk Joint Emergency Planning Unit on behalf of Suffolk County Council/Suffolk Resilience Forum

4 DEFINITIONS

Abbreviations / Acronyms

ACP	Access Control Point
AEO	Assistant Engineer Operations
BAECO	Breathing Apparatus Entry Control Officer
BCD	Burst Can Detection
BEIS	Department for Business, Energy and Industrial Strategy
CCR / MCR	Central/Main Control Room
CCRS / MCRS	Central/Main Control Room Supervisor
CESC	Central Emergency Support Centre
CNC	Civil Nuclear Constabulary
DEPZ	Detailed Emergency Planning Zone
E/AIC	Emergency/Alternative Indication Centre
ECC	Emergency Control Centre
EDF Energy	EDF Energy Nuclear Generation Ltd
EPCC	Emergency Planning Consultative Committee
EPGMS / SBMS	Emergency Plume Gamma Monitoring System / Site Boundary Monitoring System
ERDT	Emergency Response Deployment Team
ERL	Emergency Reference Level
ESLO	Emergency Services Liaison Officer
ESSCo	Emergency Site Security Coordinator
FIM	Force Incident Manager
GEST	Generic Emergency Scheme Training
HSE	Health and Safety Executive
HSWA	Health and Safety at Work Act
IRT	Incident Response Team
MBC	Media Briefing Centre
NISR	Nuclear Industries Security Regulations
NSSP	Nuclear Site Security Plan
ONR	Office for Nuclear Regulation
PAS	Public Address System
PHE-CRCE	Public Health England Centre for Radiation, Chemicals and Environmental Hazards
RCA	Radiological Controlled Area
REPPiR	Radiation Emergency Preparedness and Public Information Regulations
RO	Reactor Operator
SEPA	Scottish Environment Protection Agency
SERT	Standby Emergency Response Team

SCC	Strategic Co-ordination Centre
SM	Shift Manager
SOI/M	Station Operating Instruction / Manual
SSCR	Site Security Control Room
SQEP	Suitably Qualified and Experienced Personnel
STAC	Science and Technical Advice Cell
SyAPs	Security Assessment Principles

Terms

Emergency Exposure	An exposure of an employee engaged in an activity of / or associated with the response to a radiation emergency or potential radiation emergency in order to bring help to endangered persons, prevent exposure of other persons or save a valuable installation or goods, whereby one of the individual dose limits referred to in paragraphs 1 and 2 of Part 1 of Schedule 3 to the 2017 Ionising Radiation Regulations could be exceeded
Emergency Worker	Any person who has a defined responding role in an operator's emergency plan or a local authority's off-site emergency plan, and who might be exposed to radiation as a result of a potential or actual radiation emergency. For EDF Energy Emergency Workers are: IRT, SERT, ACP personnel, ECC personnel, MCR/MCR personnel, Site Security personnel, On-site Survey personnel, Off-site Survey personnel Forward Deployment Service.
Lockdown	The rapid implementation of measures to stop people and vehicles entering, leaving or moving about on a site.
Radiation Emergency	When used in context of REPPIR: a non-routine situation or event arising from work with ionising radiation that necessitates prompt action to mitigate the serious consequences:- (a) of a hazard resulting from that situation or event; (b) of a perceived risk arising from such a hazard; or (c) to any one or more of:- (i) human life; (ii) health and safety; (iii) quality of life; (iv) property; (v) the environment

5 REFERENCES

1	SZB EM HBK *	Sizewell B Emergency Handbook (* Series)
2	ISBN 9780717667284	Approved Code of Practice and Guidance For The Radiation (Emergency Preparedness and Public Information) Regulations 2019
3	https://www.gov.uk/government/publications/emergency-preparedness	Emergency Preparedness, Cabinet Office, 2012
4	https://www.gov.uk/government/publications/emergency-response-and-recovery	Emergency Response and Recovery, Cabinet Office, 2013
5	ISBN: 9781780454818	Preparing Scotland: Scottish Guidance on Resilience
6	BEG/ICP/DM/006	Records Management
7		Radiation Emergency Preparedness and Public Information Regulations 2019
8	SZB/TZR/135	Sizewell B Power Station Consequences Report

6 RECORDS

No.	Record Title	Template No./Identifier	Record No./Identifier or Link to Record	Requirement for Record	Record Originator	Record Owner	Retention Period	Storage Location	Security Classification
01	Full report of the consequences of the event and the effectiveness of the emergency response	N/A	N/A	This document	EDF Energy	EDF Energy	50 years	EDF Energy	Not Protectively Marked

Records associated with this SPEC shall be controlled, stored and archived in accordance with the requirements of BEG/ICP/DM/006 [6].

FIGURE 1 NOTIFICATION CHAIN FOR A SITE INCIDENT

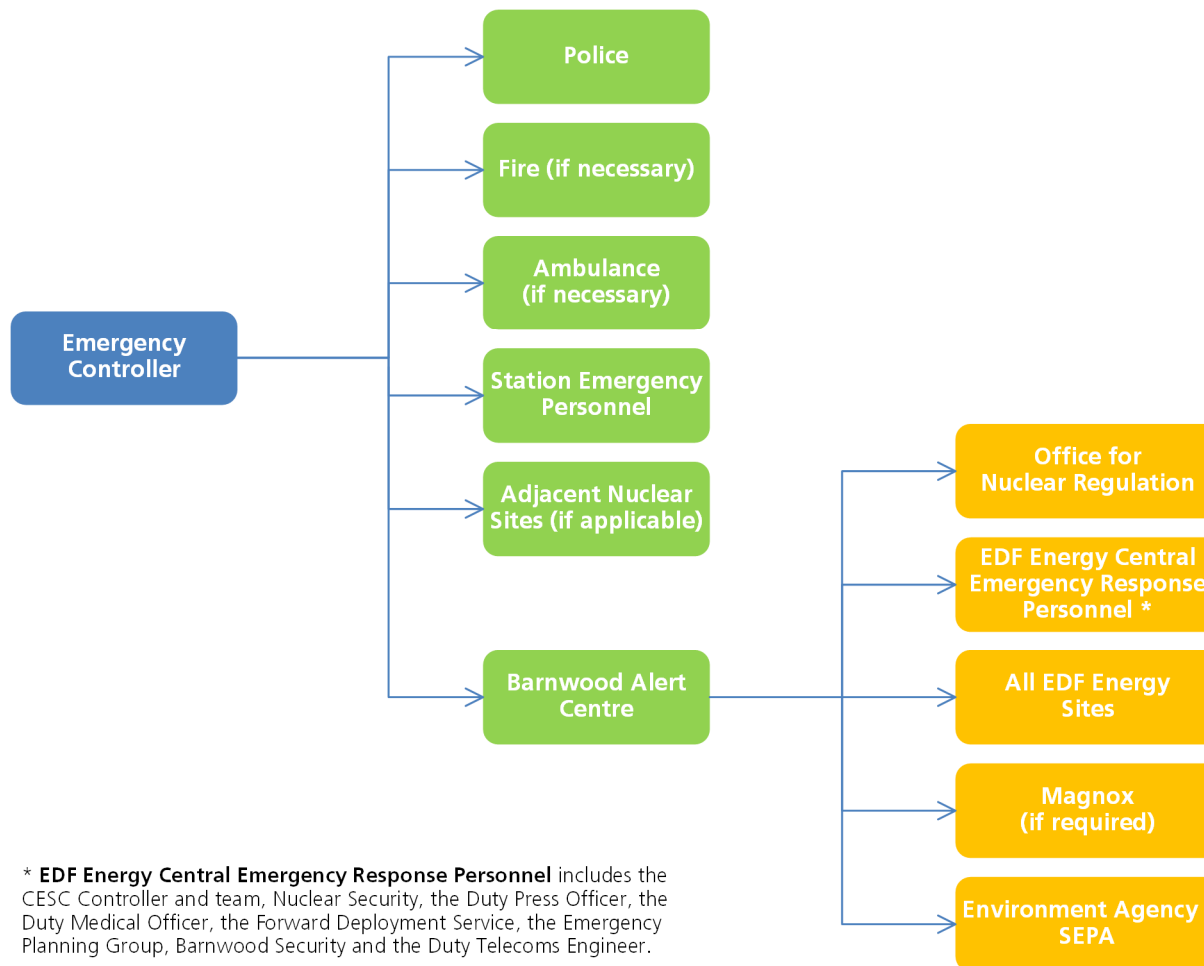
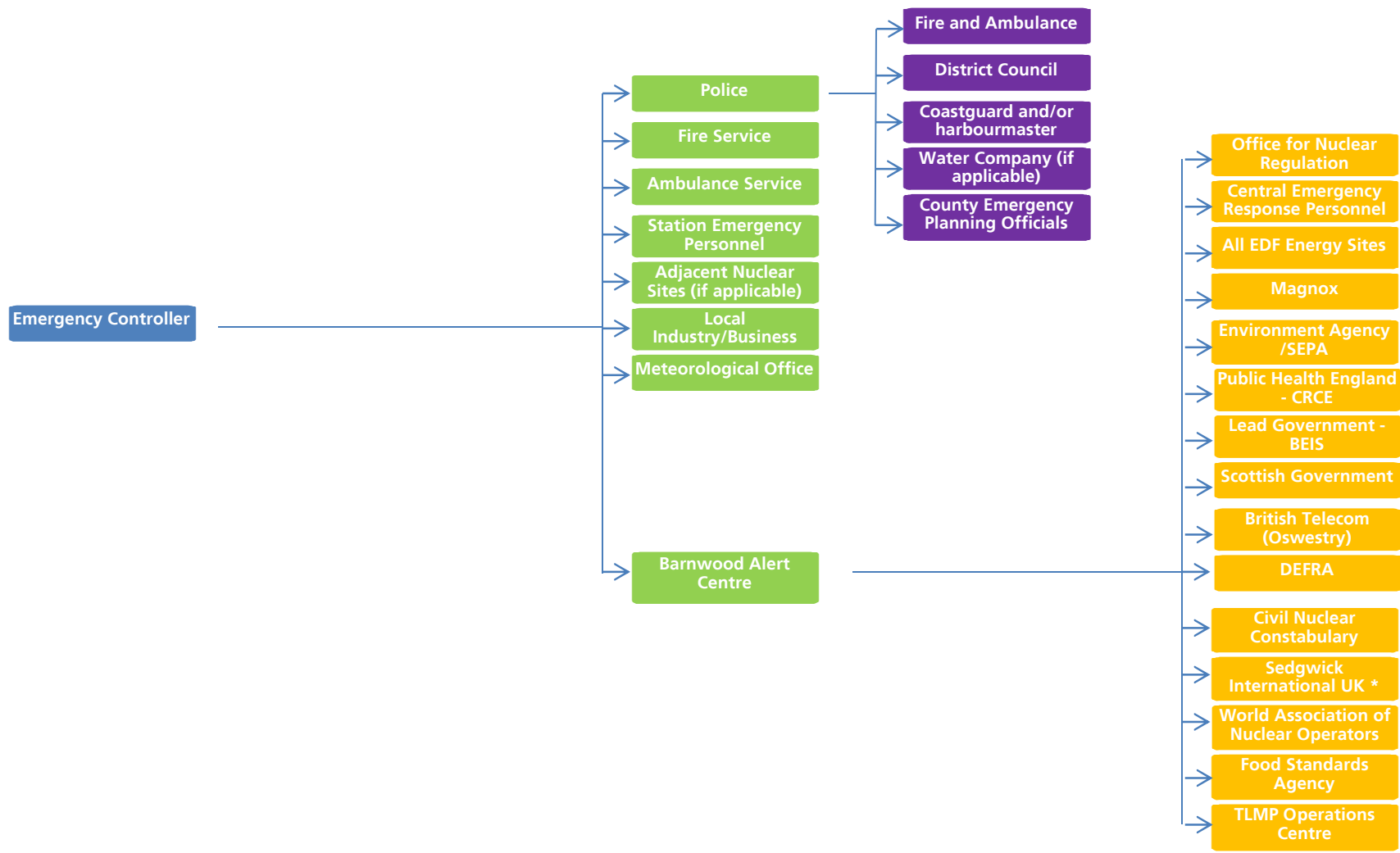
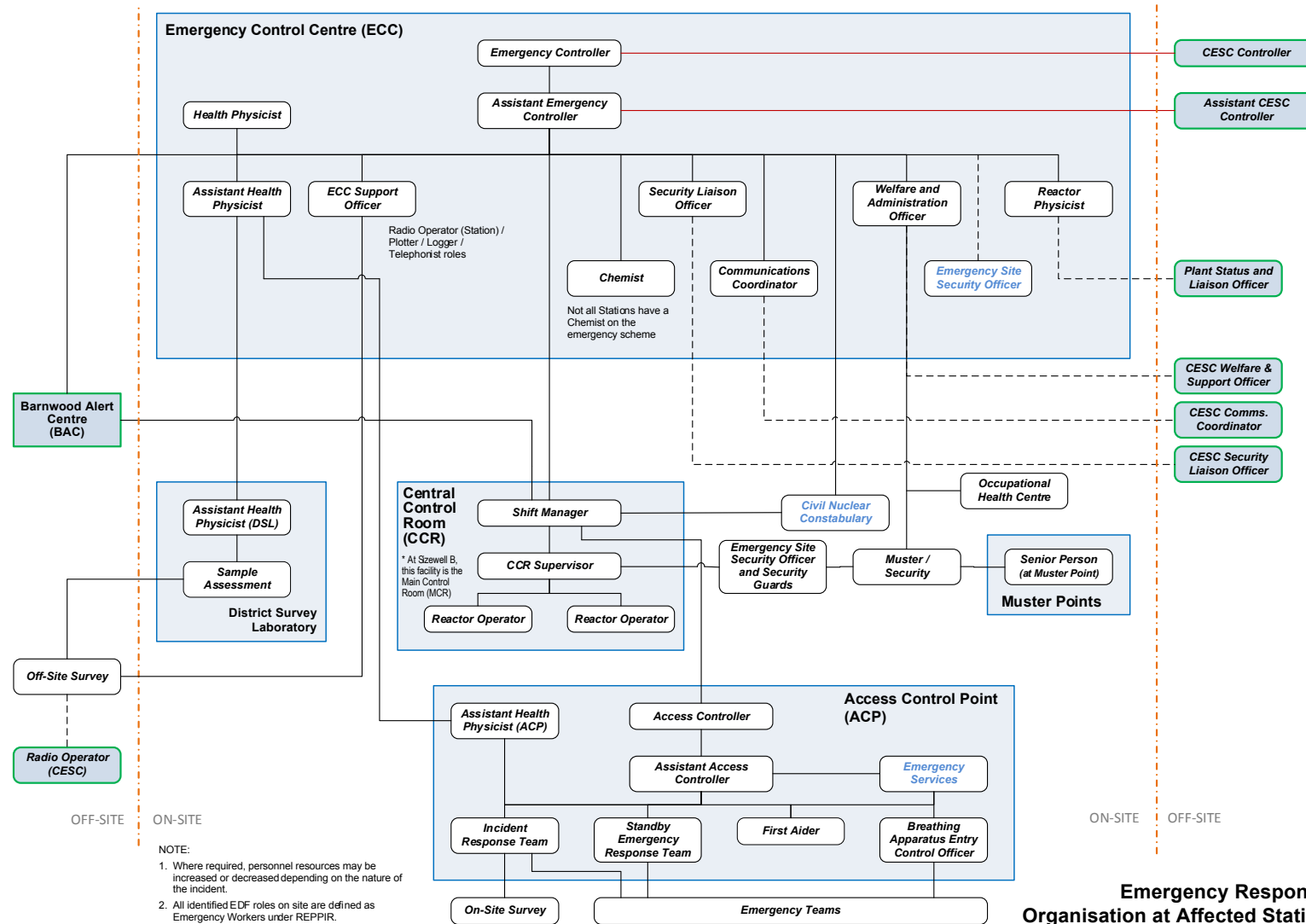


FIGURE 2 NOTIFICATION CHAIN FOR AN OFF-SITE NUCLEAR EMERGENCY



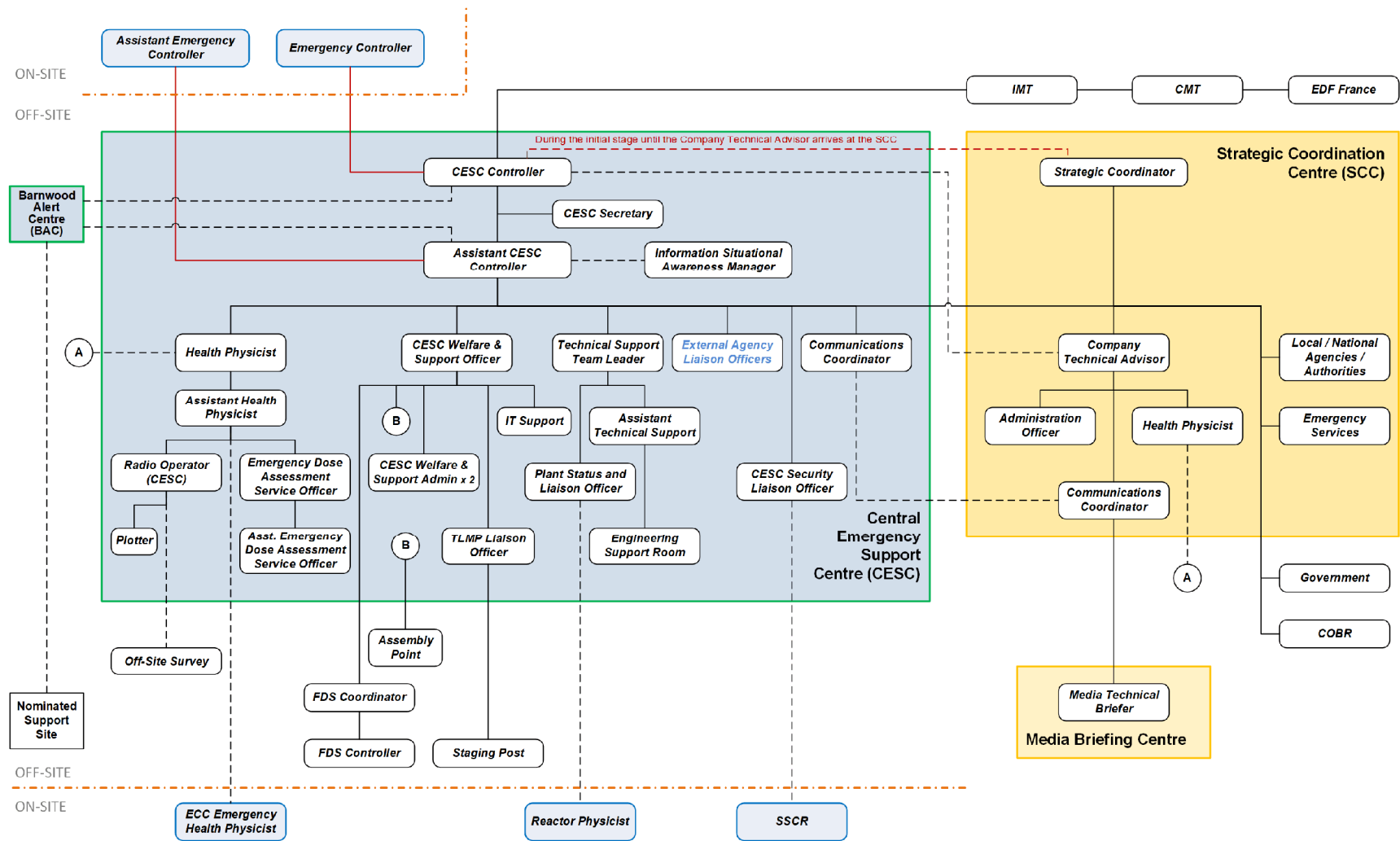
* Sedgwick International UK are the loss adjusters appointed by the company's insurers Elini.

FIGURE 3 EMERGENCY RESPONSE ORGANISATION (ON-SITE)



Emergency Response Organisation at Affected Station

FIGURE 4 EMERGENCY RESPONSE ORGANISATION (OFF-SITE)



The FDS Controller, FDS personnel and off-site survey roles are defined as Emergency Workers under REPIR

Where required, personnel resources may be increased or decreased depending on the nature of the incident

Emergency Response Organisation (Off-site)

APPENDIX A DETAILED EMERGENCY PLANNING ZONE (DEPZ)

