

## **EMERGENCY PLANNING AND EXERCISING** **WITHIN BRITISH NUCLEAR FUELS plc**

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### **Abstract**

Emergency planning within BNFL covers arrangements to deal with the on and off-site effects of an incident. The on-site arrangements cover measures to recover the situation at the scene of the incident and protection of the workforce. The off-site arrangements include co-ordination of the off-site emergency response, implementation of counter-measures to protect the public and information flow to the public, media and government. Regular emergency exercises held to test the arrangements may involve some 12 agencies and many hundreds of persons over a 2-day period.

### **Introduction**

The general principles of emergency arrangements are common to all British Nuclear Fuels Plc (BNFL) sites. Detailed local arrangements at each site reflect their specific hazard, their local management arrangements, and the arrangements for emergency response within their county. As an illustration the arrangements described within this paper are those specific to BNFL's Sellafield site, the UK's centre for the reprocessing of irradiated fuel and also the site of the world's first large-scale nuclear power station, Calder Hall.

### **Background**

The possibility of an accident leading to the release of sufficient radioactive material to cause interference with the normal activities of the public or requiring special arrangements to be made to protect the workforce is remote. During design of plant, safety aspects are considered to be of great importance and all credible combinations of events which could lead to an accident are taken into account. The Site Licence, issued by the Health and Safety Executive (HSE), also requires BNFL to make arrangements for dealing with any accident or other emergency on the licensed site which affects, or might affect, the safety of any person or property whether on or off the site. The emergency arrangements for Sellafield are essentially split into two broad interrelated sections, the arrangements for within the site, and the arrangements for off the site.

### **On Site Emergency Organisation**

The principal aims of BNFL's site emergency management organisation are as follows:

- i recover the situation at the scene of the incident
- ii establish lines of communication to the incident plant, the remainder of the site and off-site
- iii alert people in the affected areas of the site, and handle any resultant local site evacuation and radiological monitoring
- iv keep people on site out of the affected areas by closing roads where necessary and providing adequate diversions
- v inform the site generally of the problem, including repre-

- vi representatives of Staff Side and Trade Unions, and  
vi notify external organisations where appropriate.

The emergency management functions outlined above would be discharged from a number of emergency centres established on declaration of a Site Emergency Standby. The principal centre, the Site Emergency Control Room (SECR) would act as the focus for the co-ordination of all post-accident management control functions. It would be manned on a continuous basis by designated senior staff until cessation of the emergency.

To provide a focus for the co-ordination and organisation of rescue and recovery operations on the incident plant, an Incident Control Centre (ICC) would be established. It would be located within or as near the affected plant as conditions permit. To control access to and from the incident area an Access Control Point (ACP) would be established. At this single point of entry to the incident location all necessary radiological advice and protection would be provided to personnel involved in rescue and recovery operations. A Health Physics (HP) Monitoring Station would be set up adjacent to the scene of the incident as a centre for the measurement of all HP samples obtained from the vicinity of the incident plant.

The focus for collection, collation and interpretation of HP data and for the management of HP resources would be the Health Physics Information Room (HPIR). Radiological data received from the scene of the incident, other areas on site, and from the district monitoring teams would be processed as appropriate. Additionally a continuous direct read out from a system of remote monitoring stations located at the site perimeter is also available in this room. This information would be passed to other centres such as the SECR and District Control Centre, (See below), for action as appropriate.

Other centres designated to receive and treat personnel affected by the emergency eg emergency reception centres, medical centres and decontamination centres would be activated depending on the severity of the incident. Control and communication with personnel on the remainder of the site would be achieved from the SECR via a communication network of manned Area and Building Control Points.

#### **Off-Site Emergency Arrangements**

Responsibilities for actions offsite to protect the general public rests with local and national organisations eg emergency services, health and environmental protection agencies according to their statutory responsibilities as for other types of emergencies. Each organisation has its own detailed arrangements and an overall composite plan is prepared. To ensure a coordinated response can be provided and the general public are appropriately advised, BNFL would establish a District Control Centre (DCC) and Media Briefing Centre (MBC) in a Company hostel some 13 Km from the site. The function of the DCC is to:

- i ensure the activities of the participating organisations in the District Emergency Scheme are effectively coordinated.
- ii provide a centre where definitive advice on the course of the

incident and the effect on the public and the environment can be given.

- iii provide a focus for information on the course of the incident for the media (via the MBC), and the general public (via the Public Information Centres).

The DCC would be staffed by representatives of all agencies with a responsibility in the emergency. The organisation of the centres although a matter for local and national agreement, is generally organised around a conference facility permitting close liaison between representatives of all organisations, together with adjacent facilities for each organisation.

In order to operate successfully, the key function of the DCC is to offer definitive advice on the course of the incident and the offsite consequences of the incident in terms of potential or actual radiation exposure. Emergency environmental monitoring resources are deployed and controlled from the site. The results of the surveys would be interpreted and fed to the DCC, where, initially, a BNFL team of Health Physicists would be available to advise the agencies on the actions which should be taken to protect the general public, ie sheltering, evacuation or the issue of iodate tablets. For any incident involving offsite action to protect the public, a government representative would be appointed by the Secretary of State for Energy to report to the scene as quickly as possible and to take over responsibility from BNFL for advising the police and local authorities on actions necessary to protect the public.

A Media Briefing Centre is provided with appropriate facilities for representatives of the media. This centre would be manned continuously by BNFL and Constabulary staff, supplemented, as necessary, by representatives of other organisations manning the DCC. Media briefings would be held at regular intervals.

In the event of evacuation of the general public being required, reception centres would be established at an appropriate location dependent on the prevailing weather conditions and following consultation with representatives of the voluntary services and appropriate county and district council officers. Public Information Centres would be established in County libraries to provide information and advice to residents within the district, whose fears may have been unnecessarily aroused. All 24 hour manned Police Stations would be activated to deal with enquiries from the public about the incident.

In addition to the above local centres, national emergency centres would be established as well as the control centres of the individual organisations.

#### Exercising the Plans

In order to test the effectiveness of the emergency procedures and to develop the necessary skills of staff involved in post-accident management, regular emergency exercises are held. The scale of these exercises ranges from building emergency exercises related to specific plants to full scale Site and District Emergency exercises. The frequency of these exercises are determined by Site

Licence Provisions and exercises are independently assessed by HMNII inspectors. In addition to exercises, regular training is given to all levels of staff involved in emergency duties.

**Procedure for planning District Emergency exercises within BNFL**

The planning of District Emergency exercises which can involve some 12 agencies and several hundreds of persons over a 2 day period, follows a now well established procedure at BNFL Sellafield.

- i Planning usually commences some six or more months in advance of the proposed date of the exercise.
- ii The representatives of all organisations involved in planning and taking part in the exercise are invited by the Company to form an exercise steering group of some 20 individuals chaired by a senior representative of BNFL. The group approves the overall objectives of the exercise, including the outline technical scenario and selects a working group of representatives to undertake detailed planning.
- iii The working group and it's sub-groups progress the detailed planning of the exercise, including technical scenario derivation, driving inputs, media simulation.
- iv Documentation describing the full exercise arrangements is ultimately referred back to the steering group for endorsement at a meeting usually held 1 month before the exercise. Key documentation is used as briefing material for exercise participants.
- v The exercise is conducted according to the agreed arrangements determined during planning. The exercise is independently assessed by a team lead by the Nuclear Installations Inspectorate (NII).
- vi Within 24 hours of the end of the exercise a 'hot' debriefing meeting is held for the principal participants and assessors, chaired by the Chief Assessor. A note of this meeting is prepared and circulated to agencies promptly to enable them to submit their detailed comments in writing, within 4 weeks of the exercise.
- vii A draft follow up report is produced by BNFL and circulated to the steering group for approval within 2 months of the exercise.
- viii The detailed follow-up of exercises is vested in a small working group of representatives of key agencies who report back to the steering group at appropriate intervals, nominally 6 months.

**Conclusion**

The safety precautions taken in the design and construction of a nuclear installation and the safety standards used in operating them, reduce the chance of accidents to an extremely low level. Emergency planning provides an additional assurance that even if an accidental release of radioactive material were to occur, arrangements exist for prompt action to protect both the workforce and the general public. Major exercises are held regularly to test these arrangements and train staff involved in implementing them. Experience gained leads to constant evolution and improvement in the plans.