

**Proceedings of the 15th Symposium on the
Packaging and Transport of Radioactive Materials
PATRAM 2007-10-16 October 21-26, 2007, Miami, Florida**

UKAEA Transport Emergency Arrangements

T D Kelly (Chairman of the RADSAFE Working Group)
UKAEA
Harwell
Oxfordshire

Abstract

UKAEA was established to undertake research and development in support of the British nuclear power programme. Sites were established in Great Britain undertaking all aspects of research and development. The British nuclear power programme has reached maturity and there is no longer a requirement for UKAEA to provide ongoing research and development in support of the British nuclear industry. UKAEA sites are currently being decommissioned.

UKAEA is required by regulation to have appropriate transport emergency arrangements for the carriage of radioactive material.

A key driver during decommissioning is the need to minimise costs to the taxpayer wherever possible whilst maintaining security, safety and health protection.

The UKAEA is one of the founder members of RADSAFE a mutual aid transport emergency response scheme that provides support to the emergency services in the event of an incident involving the transport of radioactive material by road or rail in Great Britain.

UKAEA has embraced RADSAFE as a way of providing cost effective emergency response whilst at the same time establishing common principles and standards for the British nuclear industry.

This paper describes the development of RADSAFE, UKAEA's part in that and its response to transport incidents.

RADSAFE has developed a single notification point, complete suite of documentation to support response, exercise management and provide technical support to responders at the scene of the incident. In addition, a learning process has been developed so that the RADSAFE community can move forward based on the output from exercises and real incidents. Of particular note are the training events delivered to RADSAFE responders and to emergency services which provide a standard level of knowledge to all those who attend and provide a point of common reference to emergency services and RADSAFE responders.

UKAEA will be part of the RADSAFE scheme whilst it is cost effective to do so.

Introduction

RADSAFE became operational on 1st August 1999 within Great Britain., prior to this a number of transport emergency response plans existed. The response plans were

- NIREP – Nuclear Industries Road / Rail Emergency Plan
- IFTFEP – Irradiated Fuel Transport Flask Emergency Plan (for England & Wales)
- SNIFTFEP – Scottish Nuclear Irradiated Fuel Transport Flask Emergency Plan.

In addition NAIR (National Arrangements for Incidents Involving Radioactivity) coordinated by the Health Protection Agency, provides a “long stop” response to an incident in case the primary response plan fails in some way.

RADSAFE went live on 1st August 1999 replacing NIREP, IFTFEP and SNIFTFEP.

Since then it has responded to RADSAFE incidents, provided standard training to hundreds of responders across the members and thousands of emergency service personnel.

In addition, it has provided standard risk assessments and documentation across the industry.

RADSAFE is a consortium of the significant members of the nuclear industry in Great Britain:

British Energy	British Nuclear Group
GE Healthcare	Imperial College
Ministry of Defence	Rolls Royce Power Engineering
Westinghouse	Safeguard International Solutions Limited
URENCO	United Kingdom Atomic Energy Authority

By pooling resources, a cost effective and nationwide response using standard procedures operates. This helps emergency services and responders alike to provide the best overall response to an incident involving the transport of radioactive material.

History

The development of RADSAFE started many years prior to it becoming operational. RADSAFE evolved from a number of existing plans.

As part of the approval for type B packages, the competent authority required that appropriate emergency arrangements were demonstrated on a regular basis. The key users of type B packages at that time were the CEGB (Central Electricity Generating Board) and the SSEB (South of Scotland Electricity Board) for the transport of irradiated fuel from their power stations to Sellafield for reprocessing. These organisations developed their own emergency plans and eventually after divisionalisation and the privatisation of the industry the following plans evolved:

- IFTFEP (Irradiated Fuel Transport Flask Emergency Plan for England & Wales)
- SNIFTFEP (Scottish Nuclear Irradiated Fuel Transport Flask Emergency Plan)

The picture became more complicated with the development of NIREP (Nuclear Industries Road / Rail Emergency Plan), coordinated by UKAEA, because of the requirement of the Ionising Radiation Regulations 1985, which required contingency plans for the transport of radioactive material.

In addition, the “long stop” emergency plan NAIR (National Arrangements for Incidents involving Radioactivity) could be activated.

Thus, there were four plans that could be activated, which obviously may have led to confusion over which plan to activate by the emergency responders. In addition, the communication hub, the UKAEA Constabulary (now the Civil Nuclear Constabulary) was the same although different telephone numbers were used, again adding confusion as to which plan to activate.

Thus, the situation was ideal for rationalisation.

A sub-group of NIREP, with active support from UKAEA, was established to consider whether there was a case and support for the development of a single scheme, which could be used by the main nuclear organisations in the Great British.

Legislation, Guidance & Advice

Within Great Britain one key set of regulations is pertinent to the transport and carriage of radioactive material and in particular the requirements for emergency arrangements, this is:

- The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2007 (Statutory Instrument 2007 No. 1573)

In addition other legislation impacts on the transport of radioactive material to a lesser extent from an emergency arrangements viewpoint:

- The Radiation (Emergency Preparedness and Public Information) Regulations 2001, SI 2001 No. 2975.

There is also significant guidance and advice on the nature and structure of transport emergency arrangements, for example:

1. INTERNATIONAL ATOMIC ENERGY AGENCY Safety Guide No. TS-G-1.2 (ST-3), 2002 ‘Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material’ ISBN 92-0-111602-0.
2. Emergency Planning Society, 2000, ‘Transportation of Dangerous Goods The Emergency Response’ ISBN 1-903526-00-0.
3. Health & Safety Executive (1994), ‘Arrangements for Responding to Nuclear Emergencies’ ISBN 0-7176-0828-X.

There is significant guidance given in the legislation and other supporting information about what should be covered in an emergency response, the requirements for individuals and organisations to act together to minimise the consequences of the emergency and specific requirements to undertake exercises.

RADSAFE – Developing the response

Establishing the RADSAFE Response

Prior to developing RADSAFE a number of key principles had to be established

- That the emergency services were our customers for the response and that RADSAFE was there to build into their local arrangements
- That wherever possible the KISS (keep it short and simple) principle would be used

RADSAFE went live on the 1st August 1999; however, a number of activities had to be undertaken before this. These included:

- Confirming that emergency services would support such a move
- Confirming that government agencies would support such a move
- Confirming that other stakeholders would support such a move
- Clearly identifying what the purpose, scope, management and extent of RADSAFE was
- Identifying what activities would need to be undertaken as part of the reorganisation
- Establishing a change management project
- Developing a business plan over the short and medium term
- Notifying all relevant agencies of the change

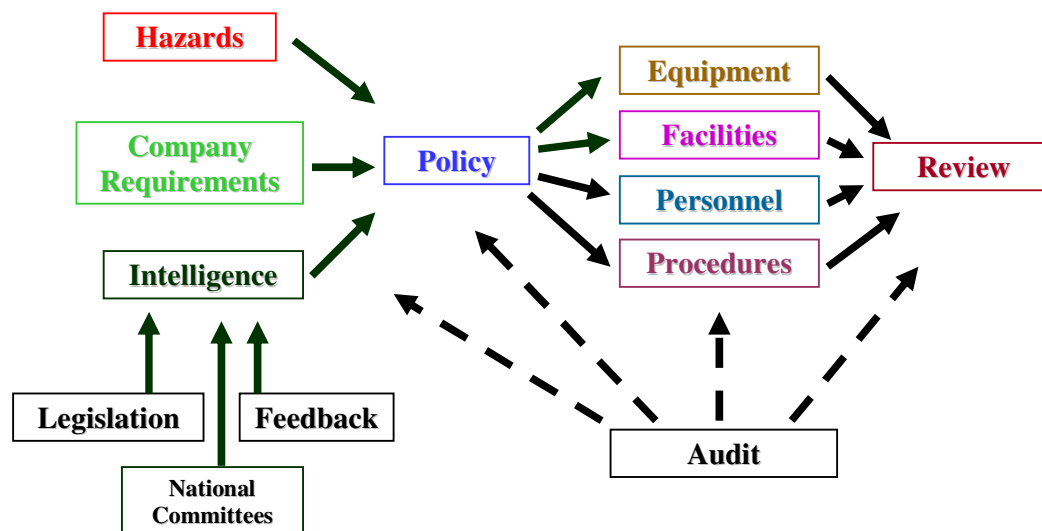
The list of activities over the short and medium term, which had to be undertaken, was significant and included:

- Developing the RADSAFE plan and accompanying material to send out with letters notifying that transport emergency arrangements were changing*
- Developing a training course for emergency services*
- Training the communications hub personnel (Civil Nuclear Constabulary, Constabulary Communications Centre)*
- Providing the initial RADSAFE package of equipment, standards and support to the RADSAFE responders*
- Production of a contract specifying what the responsibilities of RADSAFE member are*
- Ensuring that all the old plans were withdrawn from service
- Developing training for RADSAFE responders
- Developing a package handbook detailing the nature and associated hazards of packages
- Developing the RADSAFE image (company brand)
- Providing a risk assessment for responders and emergency service personnel
- Undertaking an assessment for cordon advice
- Developing a RADSAFE handbook which sits behind the plan
- Developing a RADSAFE “how to do an exercise” handbook
- Developing advertising material to raise the awareness of RADSAFE amongst relevant stakeholders
- Establishing standards for equipment, training frequency and levels of competency

- Production of scenarios for exercising response
- Development of a refresher training package

Items marked thus * were considered to be of a first priority to get RADS SAFE operational. Other items were developed subsequently.

UKAEA has chaired the RADS SAFE working group since the inception of RADS SAFE (except for a brief period when British Energy chaired the working group). UKAEA has provided direction, guidance and significant support to RADS SAFE throughout this period.



In considering what documentation or supporting equipment would be required the emergency arrangements process above was considered. Thus under the heading of procedures, the response handbook, communications centre desk instructions and how to do an exercise guidance were produced. Under the heading of equipment, the list of equipment required for a responder to have available was identified, whilst personnel gave rise to the training requirements of responders. It could also be said that all those items on the right of the diagram impact on the responder whilst those on the left are the concern of the RADS SAFE working group.

Maintaining the RADS SAFE Response

A key activity of any emergency response organisation is to ensure that there is a learning feedback to ensure continuous improvement. Any improvements must be captured within the procedures of the emergency response organisation to ensure that the learning is fixed within the overall process. Using the Plan – Do – Check – Learn process RADS SAFE intends to improve its response.

The process starts with response to exercises or to real incidents. After an exercise or an incident there must be a structured debrief of what happened identifying the good points and the areas for improvement. This debrief must particularly apply to the response but also it must apply to exercise management, which within the nuclear

industry is the key method of identifying areas for improvement because of the low level of incidents.

Within RADS SAFE the key conclusions from exercises or response to incidents are captured within summary reports produced by the Health Protection Agency on behalf of RADS SAFE. These are reviewed within the RADS SAFE working group and the identified areas for improvement are allocated to the documentation produced by RADS SAFE, principally the response handbook and the how to do exercises, but also the package handbook and the various standards and procedures to ensure the improvement is captured.

Benefits of RADS SAFE

The key benefit of establishing a mutual aid scheme across an industry is the delivery of a cost effective response, which is available 24/7. Current annual fees to members are £17,500. RADS SAFE has an overall annual budget of £170,000.

However, there are many other benefits, which accrue:

- A faster response time from a member of RADS SAFE
- A single point of contact for the emergency services
- Standard guidance for response to various types of package with differing contents
- Standard emergency service training

Issues

There will always be issues that effect an organisation like RADS SAFE. However, there are a number of key issues, which are affecting the nuclear industry, which will affect RADS SAFE.

Perhaps the key one was the introduction of the Nuclear Decommissioning Agency (NDA), the establishment of Site Licence Companies (SLCs) and the expected increase in the number of members of RADS SAFE over the medium term (2 to 5 years) all of whom will be driven by strong commercial interests as well as the need for safety.

Another issue is the business management structure of RADS SAFE, which currently rests with a small number of enthusiastic volunteers paid for by their employers led by UKAEA. The basis of this has been reviewed and the industry and NDA have agreed that RADS SAFE should become a Company Limited by Guarantee (CLG). This will have significant effects on how RADS SAFE is managed but it will lead to a more accountable structure and business risk liability will be managed. It will also allow new members to join more easily and standards to be established for acceptance of members.

The Way Forward

RADS SAFE has been operational for seven years, over that time it has operated well responding to a number of incidents. The industry is changing and this will have a number of consequential effects on the structure of RADS SAFE. RADS SAFE is however, looking forward to a period of stability in the medium term ensuring that its links with the emergency services are fully established and that its training programme for emergency services and responders is maintained.

RADSAFE is called out on average about once a year, thus it is important that an exercise programme is developed to ensure that RADSAFE continues to learn.

UKAEA has been and intends to be a key member of RADSAFE for the foreseeable future. UKAEA recognises the cost effective nature that the emergency arrangements coordinated by RADSAFE provide.