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**RADSAFE: Meeting Industry Needs for Transport Emergency Arrangements:
Training Development**

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Abstract

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RADSAFE became operational on 1st August 1999 as a single radioactive material transport emergency response scheme for the British nuclear industry, combining the best aspects of previous emergency response plans. The current RADSAFE members are:

EdF Nuclear Generation	Rolls Royce
Magnox	Westinghouse
Imperial College	MOD
GE Healthcare	Reactor Sites Restoration Ltd
United Kingdom Atomic Energy Authority	URENCO
Low Level Waste Repository	Dounreay Site Restoration Ltd
Sellafield Sites	
Scientific and Technical Funding Council	

RADSAFE CLG (Company Limited by Guarantee) was formed in March 2009 as a standalone company which is self-regulating and responsible to its owners and members. The Office of Nuclear Regulation (ONR), Radioactive Materials Transport Division is supportive of the work that RADSAFE has undertaken to deliver a consistent approach to transport emergency arrangements.

RADSAFE CLG has always recognised that it is important its responders are trained to the same standards across the various member organisations and that they have a wide knowledge of the packages transported throughout Great Britain. In addition, the emergency services play a significant and important role in the response. As such RADSAFE CLG has developed two strands of training:

- 1) To raise the awareness of the emergency services about RADSAFE CLG, what it does, who is involved and capacity
- 2) To provide RADSAFE CLG responders with information about the packages transported in Great Britain, response site management and response simulation.

It has been recognised that this training provision requires further upgrade to ensure that the courses and particularly the RADSAFE Responders course is more immersive in the delivery

of the training to provide better situational awareness for the responders. A new RADS SAFE Responders course has been developed and the initial phase of the development of an improved Awareness course is being undertaken.

This paper describes the history, development and on-going improvement of RADS SAFE CLG training courses and how these have been tailored to the requirements of the RADS SAFE CLG responders and emergency services.

1.0 Introduction

RADS SAFE CLG (RADS SAFE) is a scheme which operates in Great Britain to provide a transport emergency response capability, as required by CDG 2009, [1] to its members 24hr a day, 7 days a week on the rail network and public highway. RADS SAFE CLG is a Company Limited by Guarantee, was established by the main British nuclear companies and is owned by them.

The benefits of the scheme are

- Cost
- Coverage throughout Great Britain
- 24/7 Response
- Standardisation
 - Documentation
 - Equipment
 - Training
 - Response

When RADS SAFE was established a number of transport response plans were brought together, these included

- NIRREP, Nuclear Industries Road / Rail Plan
- IFTFEP, Irradiated Fuel Transport Flask Plan
- SNITFEP, Scottish Nuclear Irradiated Fuel Transport Flask Emergency Plan

In Great Britain a voluntary “long stop” response plan also exists NAIR (National Arrangements for incidents Involving Radioactivity) but this is not a formal response plan. However, all current members of RADS SAFE provide a response under NAIR.

The RADS SAFE historically RADS SAFE responders had different knowledge and experience. In addition the emergency services were not aware of RADS SAFE and its capability. Thus when RADS SAFE was established there was a requirement to:

1. Provide awareness training to the emergency services which RADS SAFE will work alongside in an incident so that the emergency services fully understand what capability RADS SAFE provides (RADS SAFE Awareness course)
2. Provide specific training to RADS SAFE responders about the various packages, radionuclides and other hazards that may be present along with information on how the emergency service operate on an incident ground (RADS SAFE Responders course).

These courses have been delivered for many years and it is now considered appropriate that they are revised to take account of the developing requirements of the RADS SAFE responders.

2.0 Purpose

This paper describes the process and inputs taken account of in developing the RADSAFE training courses.

3.0 Scope

In this paper two training courses are considered:

- RADSAFE Awareness and
- RADSAFE Responders

The history and development of these courses will be identified. In addition practical advice on how the courses were developed will be given.

4.0 Discussion

The development of the RADSAFE Awareness and Responders course was a significant step in tailoring the training courses to the attendees and ensuring that the correct and appropriate output is delivered. It is of little use if the subject matter experts do not cover all the aspects of the required output. Likewise it is of little use if the scope of the training does not deliver the full breadth of that the experience required and equally it is of little benefit if the balance between knowledge delivery as opposed to experience and reinforcement of the training is not fully understood.

Thus it is perhaps worthwhile understanding the historic training requirements of RADSAFE before moving on to the development of RADSAFE training courses.

4.1 History

Historically RADSAFE brought together a number of organisations under one scheme. Each organisation had considered training needs but only in the context of their response. In addition no consideration been given to the requirements of the emergency services and what support they may require.

Thus two requirements were established:

1. Establish an awareness / briefing course describing the RADSAFE response
2. Develop a comprehensive training course RADSAFE responders

4.1.1 RADSAFE Awareness

This was the first course that RADSAFE developed and was for the emergency services because they needed to understand the RADSAFE response.

In delivering this course limited analysis was undertaken which consisted of interviewing local fire-fighters to understand their requirements. Thus in developing the course the following areas were seen as important.

- Fundamentals of radiation protection
- Instrumentation and monitoring
- Overview of transport arrangements
- RADSAFE arrangements

- NAIR
- Desktop and practical exercises

In developing training sessions it was considered important that there was a mixture of formal lecturing with practical sessions to reinforce any learning.

Thus within these sessions there was an emphasis on

- What is RADS SAFE
- What activities it will undertake
- How it will work with the emergency services
- What are the limitations of RADS SAFE

A secondary aspect of the training was to ensure that the emergency services were aware of RADS SAFE and key to the success of the courses are that they are free to the emergency services. This had the benefit of raising the profile of RADS SAFE at a time when it had just been established.

The structure and content of the course was established by a small group of industry experts who had fire-fighter advice and this was monitored by course feedback at the end of each course.

4.1.2 RADS SAFE Responder

RADS SAFE brought together a number of organisations each of which had provided specific training to its responders. Thus no one organisation had a full understanding of the range of radioactive material emergency response it could respond to. Thus the first RADS SAFE responder course was a compilation of the various individual organisation courses to ensure the same knowledge was distributed throughout all the responders. In addition, it was considered worthwhile to provide guidance on the management of an incident scene by the emergency services.

Thus the topics included:

- Overview of RADS SAFE
- RADS SAFE organisation specific packages
- Fuel Flasks
- UF6
- Radiopharmaceuticals
- MoD Shipments
- Incident Management
- NAIR arrangements

Feedback was requested at the end of each course which was generally favourable.

4.1.3 The Need for Change

For many years the above courses were considered to be appropriate. However, with constant monitoring of the feedback from the courses it became evident that the structure and format of the RADS SAFE responders course were not delivering what was required in particular the following issues were identified

- Insufficient reinforcement of the training
- Insufficient interaction within the course

In addition, it was considered that the courses, in particular the RADS SAFE responders course could deliver a more experiential event that would move some way to providing experience of response.

4.2 Development of RADS SAFE Training Courses

Training is defined in the Oxford Dictionaries [2] “as the action of teaching a person or animal a particular skill or type of behaviour”. The Oxford Dictionaries [2] defines skill as “the ability to do something well; expertise”. Thus there appears to be a need to not only consider the information requirements but to consider how the information is delivered through a skill.

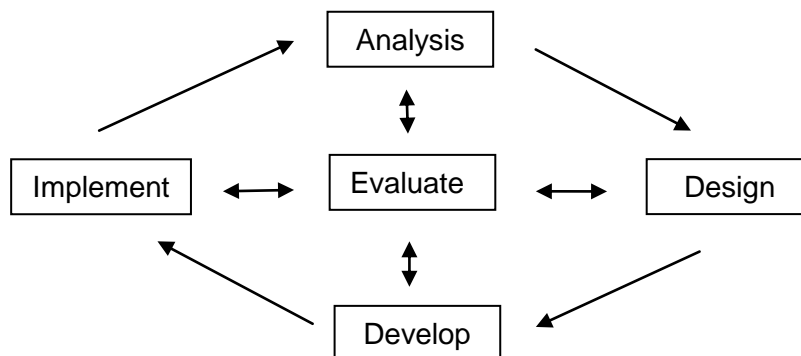
In paragraph 313 of SSR-6 “Regulations for the Safe Transport of Radioactive Material”, 2012 [3] it states that individuals will receive

- General Awareness / Familiarisation Training
- Function Specific Training
- Safety Training

This provides an envelope of the areas that need to be considered in any training .

In addition, use of the,

Analysis, Design, Develop, Implement, Evaluate



process ,Morrison, GR, Designing Effective Instruction, 6th Edition, John Wiley & Sons 2010[4] has given a clear structure to developing training courses. The Systematic Approach to Training which draws heavily on the ADDIE process ensures that the development of training courses is relevant and appropriate.

Thus using these approaches the following courses were updated:

- RADS SAFE Awareness
- RADS SAFE Responders

4.2.1 RADSAFE Responders Course

In developing the RADSAFE Responders course the following inputs were considered as part of the analysis phase.

- Feedback from previous courses
- Interviews with potential delegates
- Input from fire service personnel
- Emergency Response Owners within member organisations

A specialist designer was employed to give structure, appropriate format and interface appeal for any presentations whilst identifying transitions from formal learning to delegate interaction and involvement.

Based on the above an outline format was produced which was the subject of a review from which clear indications of how the course should be developed. From this development phase further development based on input has been undertaken and as a consequence a one day pilot was undertaken. The purpose of the pilot was to gather a full critique of the course from a wide spectrum of stakeholders. This has allowed the final course to be updated and is being fully rolled out to RADSAFE members. Over the coming year the course will be the subject of detailed feedback so that final improvements can be made in due course.

4.2.1.1 Points to consider

In developing the course a number of issues became apparent which will need to be considered by other groups undertaking a similar exercise

- Time
- Resource requirements
- What is the end point of the project

Initial indications for the project were that a period of about six months would be sufficient to deliver the end product. The final time requirement was double this primarily caused by availability of subject matter experts and the time required to coordinate across a large number of individuals.

In developing a training product which is the best available there is significant resource required. The resource required will range from individual availability to video, pictures and all those other aspects required to produce a quality product.

Perhaps the most difficult issue was defining when the product was finished. Numerous viewpoints had to be reconciled to establish when the endpoint had been reached. It is important that either a clear endpoint is defined or a clear process is identified to be followed.

4.2.2 RADSAFE Awareness Course

A similar process was followed in developing the RADSAFE awareness course, although this has not progressed to the extent as the RADSAFE Responders course. It is expected that this will be delivered in financial year 14/15.

5.0 Conclusion

RADSAFE training courses were identified as requiring update and development. The identification of standard development processes and expected areas for consideration assisted the development of the courses. However, significant time, a clear understanding of resource availability and the need to reconcile many viewpoints all need to be built into the project plan.

However, it is considered that the new RADSAFE Responders training package is a significant improvement over the previous version.

6.0 References

- 1 Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009, CDG 2009, SI 2009 No 1438
- 2 Oxford Dictionaries: <http://oxforddictionaries.com/>
- 3 Regulations for the Safe Transport of Radioactive Material, 2012 Edition, Specific Safety Requirements SSR-6, ISBN 978-92-0-133310-0
- 4 Morrison, GR, Designing Effective Instruction, 6th Edition, John Wiley & Sons 2010