



HOW THE UK COMPETENT AUTHORITY HAS DEVELOPED A RISK BASED STRATEGY FOR CARRYING OUT NON-NUCLEAR SMALL USER INSPECTIONS
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Michael Turner
H.M. Principal Inspector,
Department for Transport
Zone 2/24, Great Minster House,
76 Marsham Street, London SW1P 4DR

ABSTRACT

The IAEA carried out a Transport Safety Appraisal Service Mission (TranSas) in June 2002 on the implementation of the Transport Regulations in all relevant transport activities in the UK. One of the recommendations stated that *“It is recommended that the Department for Transport (DfT) should evaluate the adequacy of its audit and inspection programme and that the necessary resources should be provided for audits and inspections. Specifically, minor consignors and consignors of mobile sources should be more fully integrated into this programme. Priorities should continue to be risk based to maximize the effectiveness of the limited resources”*.

Since 2002, the DfT (the UK Competent Authority UK-CA) has developed and evolved a ‘risk based’ strategy to carry out non-nuclear small user inspections as part of its overall responsibility to ensure compliance with Great Britain (GB) legislation¹. These include but are not limited to: industrial radiographers, hospitals, road construction services and couriers. There are over 2500 organizations in GB registered as holders of radioactive material.

The current inspections are based on the requirements of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009¹. The majority of the requirements of these regulations are referenced from the European ADR 2009 Agreement², which, in turn, is based on the requirements of the IAEA TS-R-1³ with regard to the transport of radioactive material.

This paper presents a summary on how the system has evolved from 2002 to the present day and plans for the future:-

- Greater emphasis has been placed on questionnaire sets to assess risk, and how these have evolved with time and experience,
- Risk based inspections,
- Enforcement strategy,
- Better communication with other Agencies and enforcement bodies who have a role in either licensing premises for holding radioactive material or working with radioactive material,
- Inspector training,
- Additional security requirements,
- How information technology can help,
- Identifying industry shortfalls and implementing industry awareness training.



INTRODUCTION

In the 1990's, the role of inspecting non nuclear 'small users' such as industrial radiographers, hospitals etc was enforced by Vehicle and Operator Services (VOSA) ⁴. The UK-CA provided training to around 150 staff from the agency and issued personal protective equipment in the form of personal audible dosimeters. Staff from this agency completed a standard inspection pro-forma which was then forwarded to DfT for review. If required, a member of the UK-CA visited the company in question.

QUESTIONNAIRE

Prior to 2002-2003, the department was reliant upon the Environment Agency (EA) ⁵, covering England and Wales, and the Scottish Environment Protection Agency (SEPA) ⁶ covering Scotland. Both these agencies regulated the holding of radioactive material for both static and mobile sources as defined under the Radioactive Substances Act 1993. The system to inform the UK-CA that either a new company had registered to hold sources, modified or cancelled their registration was intermittent. Consequently the UK-CA relied upon the relevant local registrations offices for any new information; some offices provided the information whilst others did not.

Since 2003, better communication links were established with the two agencies and electronic copies of their database are obtained (for mobile source holders only) which currently number some 2500, of which approximately 700 are registered as holding 'mobile sources' which could be considered as potentially transporting radioactive material in Great Britain; Northern Ireland is responsible for their transport regulations and enforcement.

Using this dataset, each company was sent a one page questionnaire initially only to the 700+ companies registered to hold 'mobile sources'. From the returns, an assessment was made to determine those who need to be visited, those which may need a visit and those who did not warrant a visit. As with all questionnaires, trying to get a 100% return is virtually impossible, nonetheless over a 6 month period 70-80% were returned. Part of the problem is that the dataset is not provided in real time and hence it can be some months out of date. As a consequence we find that some companies have closed down; others have changed ownership or moved premises.

The returned questionnaires were assessed against the following criteria:-

- Number of transport movements made in a year,
- Types of transport packages (Excepted, Type A, Type B),
- Industry sector, for example farmers were ignored whereas radiographic companies were given a higher priority due to the fact they had one of highest user incident rates (data supplied from the Health and Safety Executive ⁷ 'HSE' who are responsible for regulating working with ionizing radiation at work),
- Other comments made on the questionnaire (i.e. no quality programme covering the transport of radioactive material).

At that time, the branch responsible for this work numbered a staff of 3 with additional responsibilities for regulating the quality and compliance assurance of:-

- All transport of radioactive material by road within GB,
- The audit of companies from all sectors including the nuclear industry,



- Quality assurance assessments of competent authority approved package designs, their manufacture and testing,
- Investigating transport related incidents reported to us as required by the transport regulations.

Following the findings of the TranSas mission of the UK Competent Authority in 2002 it was agreed to expand the team by two full time inspectors. By 2007, the inspection of transport security arrangements of organisations transporting RAM in accordance with the requirements of ADR Chapter 1.10 were transferred to the UK-CA with support for more manpower resources.

In 2007 a new questionnaire was designed and our dataset from the two agencies were updated including transport security questions. This time it was decided to send it out to all 2500+ companies. It was deemed important to ensure we captured the potential movement of all radioactive material, whether mobile or static holders, including the purchase and disposal of sources as part of the inspection programme. We also learnt lessons from the first questionnaire and re-worded some of the questions in clearer language to explain what data we required and why it was necessary.

The UK-CA has since been restructured to provide two inspection teams, one for the nuclear sector and a second covering the medical and industrial sectors.

RISK BASED INSPECTIONS

As stated above, companies were selected for inspection by assessing the completed questionnaires with regards the:-

- Number of transport movements (per a week or month),
- Types of transport packages,
- Key industry sectors,
- Other comments made on the questionnaire.

These were then assigned into one of the following criteria:-

- Companies requiring an inspection,
- Companies maybe requiring an inspection,
- Companies not requiring an inspection.

These initial assessments reduced the number of companies to be visited from 700 down to 200-250, with about 50-70 of them identified on a priority list. These initial assessments were in part by a result of the replies in the questionnaires but also heavily influenced by inspectors knowledge of the sectors.

Over the last few years, a more robust assessment system has been created to give a more consistent approach, though inspector knowledge of individual companies or industry sectors continues to have an influence. My colleague Iain Davidson is giving a presentation on “Risk based model for compliance assurance inspections for the non-nuclear section,”⁸. Which shows how we have applied a more systematic approach to reduce the inspector subjectivity.



In addition, the questionnaire is being reviewed to make it more industry sector specific and including couriers. An additional questionnaire is being developed to identify organisations that design non competent authority approved packages whether for their own use or which they sell to third parties. There is no requirement for UK designers of such packages to register with the UK-CA.

ENFORCEMENT STRATEGY

The UK-CA has always maintained a measured response to enforcement. Up to 2007, the responsibility was with the inspector involved and where possible subject to either line management and/or the Transport Radiological Advisor (Head of the UK-CA) endorsement to enable an Enforcement Notice to be issued.

The enforcement model used involves:-

- Verbal advice followed by a written letter or email;
- Written letter;
- Improvement Notice;
- Prohibition Notice;
- Prosecution.

The adopted rule was where possible was give advice and if the company followed it and complied, then no further action was taken needed apart from monitoring the situation. Where the company failed to follow advice or comply, then more formal action was taken. For the most part, this approach worked well, with few major non compliances either within the nuclear or non nuclear sectors. Apart from the major incident in 2005 involving a Co 60 radiotherapy source, the UK-CA has not needed to resort to formal legal action up to 2009.

In 2007 with the introduction of new legislation which was made under the Health and Safety at Work legislation⁹, the UK CA has had to adopt the HSE enforcement management model¹⁰ which gives a formal system to determine the prescribed outcomes from infringements in a graded, fair and transparent manner.

COMMUNICATION WITH OTHER AGENCIES

The UK-CA is in communications with other regulators and agencies involved with radioactive and or nuclear material, namely, the EA and or SEPA for storage in England/Wales and Scotland respectively, the Nuclear Installations Inspectorate (NII) which is part of the HSE and the Field Operations Inspectorate of the HSE .

Security is split between DfT for transport related issues, Safeguards (part of HSE) for nuclear isotopes and Euratom for nuclear material accountancy.

Lines of communication have also been developed with other DfT investigation branches for maritime, civil aviation and rail to support their roles in case of a incident within their modes of responsibility.

The UK-CA has also good lines of communication with the Ministry of Defense who are responsible for the majority of their own holdings (for defense and propulsion material).



The last areas where communications have been strengthened are with the UK security services (Police, Intelligence services etc) regarding transport security.

These communications may be formal such as Memo of Understanding to a more informal arrangement depending upon the circumstances.

INSPECTOR TRAINING

There is an induction programme for compliance inspectors and a matrix of competences for each level in the organisation. Formal auditor training, mentoring from senior – experienced inspectors, on the job training and following internal procedures and standards also contribute to the training of inspectors. With the change in national regulations, inspectors now have guidance using the HSE enforcement model. In addition, inspectors now receive legal awareness training provided by our Nuclear Installations Inspectorate counterpart, plus other inspector training packages.

Inspectors are also given training regarding security requirements of transport of dangerous goods.

SECURITY REQUIREMENTS

Since 2007 with the introduction of the new Carriage of Dangerous Goods Regulations and the direct referral to ADR, the UK-CA has also taken on the role of inspecting the security requirements of ADR Chapter 1.10 including High Consequence Dangerous Goods.

The questionnaire used by inspectors is a development of the DfT Transport Security department which was designed as a standard questionnaire for all classes of dangerous goods and for all other classes of dangerous goods, security inspections are carried out by VOSA.

INFORMATION TECHNOLOGY

We are looking at companies to complete the relevant questionnaires on line (though there are data protection issues asking companies to enter sensitive information) and using software to automate and score responses. This will include a weighting system to reduce the need for inspector input.

UPDATING INDUSTRY

One of the roles of the UK-CA is to analyse the data collected to identify any trends to inform the UK position in its work with the EU, IAEA or other international bodies. It also enables us to focus information / guidance in areas where industry either as a whole or by sectors may be weak in compliance. This is carried out by various means such as RAMTUC¹¹, transport seminars, presentation to trade bodies etc. My colleague David Rowe is giving a presentation on “Findings from Non Nuclear Small User Inspections in 2009/2010”¹².

CONCLUSIONS

Over the past 10 years the UK-CA has changed its mode of operation from ad hoc inspections and responding to notified incidents to having its own dedicated compliance inspection team focusing on industry sectors in GB. The scope of compliance inspections has been extended



in recent years to include transport security aspects which reduces the burden to industry by reducing the inspection bodies from two to one. Better communication between the UK-CA and other regulators-agencies has reduced burdens on industry, thereby enabling regulator resources to concentrate on areas based upon risk. Future developments include greater use of information technology to further refine the risk models based upon quantitative data based upon the results of the compliance inspection programme.

ACKNOWLEDGMENTS

David Rowe. Department for Transport UK
Iain Davidson . Department for Transport UK

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