

# REGULATING NON-NUCLEAR TRANSPORT WITHIN GREAT BRITAIN

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## ABSTRACT

Within Great Britain, there are several hundred organisations whose business involves the transport of radioactive material. These include hospitals, industrial radiographers, universities, test laboratories, oil and gas producers, and couriers.

Some of these organisations transport small amounts of radioactive material only a few times per year, whereas others transport more significant amounts on a daily basis.

In order to ensure that transport is being carried out in as safe a manner as possible, we have had to answer several questions:

- How should we find out what involvement each organisation has with the transport process?
- How should we prioritise which organisations to inspect for compliance with the transport regulations?
- How should we carry out the inspection?
- How can we demonstrate that we are being consistent and reasonable with all organisations?
- How should we deal with non-compliance?
- How can we promote knowledge of the regulations, and improve compliance?

This paper explains the process which we have developed and followed, beginning with the requisition of information from the organisations which have a permit or registration to keep radioactive material, through processing the feedback and assessing priorities for inspection, then conducting the actual inspection, resolving non-compliance issues, closing out the inspection and assessing any trends in compliance.

## INTRODUCTION

The non-nuclear radioactive material world contains a broad spectrum of organisations, ranging in size from several thousand employees dispersed across a number of sites and carrying out many different functions, through to those with just a few employees in one location carrying out a single process. These organisations include, for example, medical facilities such as hospitals (usually radiopharmacies) and veterinary surgeries, together with universities (research departments), the oil and gas industry, the construction industry, test laboratories and couriers.

Regulating such organisations presents us with many issues, as there is often no specialist or team within those organisations, dedicated to compliance with the transport regulations. It is also difficult to establish the extent of involvement with the transport of radioactive material within such organisations.

With only a very small team of inspectors, it is not possible to provide complete coverage of all of these duty holders on a regular basis. In order to satisfy the Government and the British public that transport is being carried out safely, we have established a programme which enables us to:

- Understand the extent of the non-nuclear transport activities,
- Prioritise and inspect those organisations where we consider there to be the greatest risk,
- Inspect to a consistent standard.
- Promote knowledge of the regulatory requirements via various industry forums and the ONR website.

## **ESTABLISHING THE EXTENT OF NON-NUCLEAR TRANSPORT ACTIVITY**

All organisations which keep or use radioactive material, which is above the exemption limits within Great Britain, are required to hold a registration or a permit. The registration or permit, however, is not specific to transport. Several years ago, we were provided with a database showing all registration or permit holders, and we devised a simple, one-page questionnaire which we sent to all such duty-holders, to establish their transport involvement. However, by the end of 2012, the data which we were using as a basis for inspections was significantly out-of-date. A new survey was therefore prepared and conducted, along similar lines to the above, asking:

- Do you transport radioactive material?
- What type of business do you operate?
- What type of packages do you use for the transport of radioactive material?
- What type of vehicles do you use for the transport of radioactive material?
- How often do you transport radioactive material?
- Do you use couriers to transport radioactive material?
- How do you control the transport of radioactive material?

## **ANALYSIS OF THE TRANSPORT ACTIVITY**

From the (approximately) 1600 letters sent, we received towards 1000 replies, in paper and electronic format (we are still considering what action to take regarding the remaining 600+ who did not reply!).

We have conducted a detailed analysis of the replies, and arranged the findings in tabular, graphical and pictorial formats, to provide a breakdown of industries, number of transports per industry, geographical distribution, transport by package type and the couriers used by each organisation (the details are not a part of this paper). The outputs can be summarised as follows:

Table 1. Numbers of Duty-Holders and Package Movements Per Year

Type of Organisation	Number of Duty-Holders	Package Movements / Year
Hospital or Medical	140	30,000
University or Research	120	14,000
Industrial Radiography or Test	80	10,000
Manufacturing	70	4,000
Oil Industry	50	1,200
Courier	130	25,000

### Distribution of Organisations

Apart from London, with 45 organisations (mainly hospital / medical), the distribution was in the range of 3 to 21 organisations in each county or region of Britain.

### Package Types

By far the most significant number of transports were Type A packages (53%), followed by Excepted packages (33%) and Type B packages (5%).

### Couriers

The names and addresses of 135 courier companies were provided by the respondents. In most cases (91) however, the courier only provided a service to one organisation.

## **INSPECTION PRIORITY**

We have always used a simple prioritisation model, giving a high priority to the organisations which transported the most material, the most frequently. However, we are now re-considering this, for a number of reasons, such as:

- An organisation which transports material every day should be very familiar with the regulations (and should therefore be compliant), whereas someone who rarely transports may have forgotten what is required.
- We have experience, on several occasions, of inspecting two organisations carrying out similar duties at a similar frequency of transport, where one organisation has been in almost total compliance with the regulations, and the other has been non-compliant against a number of significant requirements.
- The latest data provides a break-down of the vehicle types used by the organisations, with 51% using small vans and 27% either using company or private cars. It could be argued that small vans and cars, being faster, are more at risk of an accident than larger vehicles, and the packages may be more at risk of damage, although larger vehicles, carrying more material, are less manoeuvrable, and may be more at risk of an accident, with more serious consequences!
- Despite the higher activity of the contents, there may be less overall risk when transporting a Type B package, compared to a Type A, due to the enhanced package design, test and certification of the Type B package.

Clearly, the arguments about priority can run backwards and forwards, and there will never be a definitive answer. However, we need to move forward with our programme, and we intend to inspect duty-holders across the spectrum so that we can have more certainty about which organisations should be a high priority in future.

## **THE INSPECTION PROCESS**

Our inspections are based on the requirements of the current regulations<sup>(1, 2, 3)</sup>.

The preliminary arrangements include verbal and written agreements concerning the date, time and location(s) to be inspected, and an explanation of our duties and legal powers of enforcement.

The requirements of the above regulations are complex and extensive. In order to ensure a consistent approach, whatever the organization, and whoever is conducting the inspection, we have created and evolved a checklist, which includes the main regulatory requirements. This is used as a basis from which the Inspector can explore each requirement in greater depth, depending upon the information which the organisation's representative(s) provide and the evidence seen.

At the end of the inspection, the findings are discussed with the organisation's representative(s), in terms of non-compliances and advisory items, and an action plan is agreed, to bring the organisation's procedures and practices into line with the requirements of the regulations. A letter is then sent to the company, to confirm the findings and timescale for completion of the actions. We ensure that any actions are followed up rigorously, in order to close out the inspection in as efficient a manner as possible.

## **NON-COMPLIANCE TRENDS**

In recent years, all non-compliances, from all inspections, have been recorded on a database, in order to monitor any compliance trends in, for example, specific industries, specific areas of the regulations or overall compliance movements. The results can be summarized in Table 2, as follows:

Table 2. Non-Compliance Statistics

Year	Average Non-Compliances (NC) per Organisation	NC Spread	>10 NCs
2009	10.4	3 - 29	50%
2010	8.3	0 - 24	32%
2011	6.9	0 - 17	26%
2012	7.2	0 - 19	31%

From an initial measure of 10.4 non-compliances, and a spread of between 3 and 29 non-compliances per inspection in 2009, there was a clear downward trend in 2010 and 2011. However, the 2012 figures suggest that the improvement has stopped and, if anything, slightly reversed.

We have always regarded inspections as a two-way, face-to-face process in which we inspect the organisation while at the same time advising them on regulatory issues, so one possible way to bring the trend back to a downward direction would be to carry out more inspections. However, in the current economic climate, we are under pressure to reduce costs, which means carrying out less inspections, using less staff, so we needed to find alternative ways to promote compliance.

Our approach has been as follows:

- We have taken a more active role in several industry committees, and used these forums as a means to provide industry representatives with updates on developments in the regulations and inspection trends such as that shown above, which can then be circulated to their members.
- Beginning in 2014, we are intending to arrange short seminars, aimed at the non-nuclear organisations and, very importantly, their Radiation Protection Advisors and Dangerous Goods Safety Advisors.
- On the ONR website, there is a facility to sign up for our electronic bulletins<sup>(4)</sup>. We will be using the bulletins to keep the nuclear and non-nuclear worlds informed of regulatory issues and developments.
- There has been a considerable amount of publicity accompanying the formation of ONR, and we have taken the opportunity to provide links from the ONR website<sup>(5)</sup> to transport regulatory guidance documents.

## CONCLUSIONS

We are satisfied that, through conventional systematic inspection, we have improved compliance with the regulations in recent years. Now, as circumstances have changed, we have begun to adopt a broader, educational approach to the non-nuclear world, with the objective of resuming a downward trend in non-compliance.

## REFERENCES

- (1) The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009, as Amended.
- (2) The European Agreement Concerning the International Carriage of Dangerous Goods by Road, 2013.
- (3) The IAEA Regulations for the Safe Transport of Radioactive Material.
- (4) <http://www.hse.gov.uk/nuclear/>
- (5) <http://www.hse.gov.uk/nuclear/transport/>