

Feedback from the IAEA TranSAS appraisal mission in France

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Abstract

In 2002, France requested the International Atomic Energy Agency (IAEA) to organise a mission to assess its organisation for the control of transport of radioactive materials and its implementation of international regulations. The TranSAS (Transport Safety Appraisal Service) mission was conducted in 2004 by a team composed of thirteen independent experts. The scope of the appraisal was broad and covered all aspects of the implementation of regulations for the safe transport of radioactive materials. The main conclusion is that the implementation of the Transport Regulations is performed in accordance with IAEA requirements. Still, this mission issued three recommendations and sixteen suggestions. It led France to strengthen its control of non-competent authority approved. Moreover, the findings include twelve good practices that can serve as a model for other competent authorities, in particular in the area of maritime transport. This paper presents the French Nuclear Safety Authority's feedback from this mission, in order to reach a high safety level in the field of transports.

Introduction

In 2002, France asked the IAEA to carry out an appraisal of its Competent Authority for transport of radioactive materials (ASN: Autorité de sûreté nucléaire). The TranSAS (Transport Safety Appraisal Service) mission took place from 29 March to 8 April 2004. The team that carried out the appraisal comprised fourteen experts from nine different countries (Canada, Egypt, Germany, Ireland, Japan, New Zealand, Panama, the United Kingdom and the United States of America) plus two experts and a technical writer from the IAEA. In its report, the appraisal team presented its findings as:

- recommendations concerning areas in which the implementation of international transport regulations must be improved by ASN;
- suggestions concerning areas in which ASN could improve its efficiency;
- good practices that can serve as a model for other Competent Authorities for transport of radioactive materials.

A follow-up appraisal was carried out in November 2006 by IAEA. It was observed that recommended or suggested actions had on the whole been completed or their implementation was well under way. These appraisals required a considerable investment on the part of ASN, whether in terms of preparation, time spent with the appraisal team, or implementation of improvement measures. However, this appraisal was highly positive in that it enabled ASN to improve its practices and identify areas requiring particularly close attention.

A few examples of good practices

One is not always aware of one's strong points and the outside opinion of the IAEA's appraisal team gave us a clearer idea of them. The goal of course is not to rest smugly on our laurels, but rather to consolidate our strengths and make them really work for us.

The first good practice highlighted by the appraisal concerned ASN's actual prerogatives. It is in charge of everything concerning the control of the safety of transport of radioactive materials and works hand in hand with the other French administrations, particularly those responsible for transporting other hazardous materials. Agreements have therefore been signed and meetings and joint inspections are regularly organised. The IAEA appraisal mentioned that one consequence of this was considerable efficiency in the preparation of the inspection programme, allowing a judicious allocation of its resources. More generally, it is clear that because ASN is not only in charge of regulating everything to do with the transport of radioactive materials, but also of all installations using ionising radiation, from nuclear power plants to paint lead detectors, it has access to all facets of the nuclear situation in France, enabling it to see the broader picture and gain a complete grasp of the subject.

A second good practice revealed by the TranSAS mission is emergency preparedness. The appraisal team members were thus able to observe that ASN assist the *Préfets* in drafting emergency plans specifically designed to cover accidents involving the transport of radioactive materials: PSS-TMR (emergency plan for the transport of radioactive materials) in each *département*, NUCMAR Plan for the particular case of an accident involving a transport of radioactive materials in the Channel. Furthermore, actual implementation of these plans is regularly tested through periodic emergency exercises.

Maritime transport is the third area in which the TranSAS mission recognised good practices in France, with the following having been made mandatory by the regulations:

- Implementation of recommended requirements on training of personnel under the IMDG code;
- Implementation of the most recent editions of the IMO's "Medical First Aid Guide (MFAG)" and the "Emergency Response Procedures for Ships Carrying Dangerous Goods (EmS)";
- Implementation of the recommended requirements under the INF code or ISM (International Safety Management) code.

On this basis, and aware of the potential risk from a radioactive material accident in a marine environment, France is now making efforts to build on this good practice. For example, local emergency exercises and a national-level exercise were recently held to simulate an accident of this nature. Feedback from these exercises was considered to be highly satisfactory.

Areas for improvement

Even if it is interesting to become aware of one's good practices, it is even more constructive to identify one's weaknesses. The TranSAS mission identified a number of them, enabling France to improve its regulation of radioactive materials.

Inciting the development of new designs

This improvement in fact began well before the mission itself. It started when ASN began to prepare for the appraisal and therefore decided to take account of the good practices identified in the other countries. For example, it was using the example of Japan, which manage to more systematically enforce the most recent regulations, that ASN informed all French applicants that as of 2010, it would no longer approve design of packages based on IAEA 73. This announcement had an extremely beneficial effect on the packages in circulation, acting as an incentive to the development of new and safer designs.

Strengthening the manufacturing controls

It was also after observing the Japanese regulator's practice of systematically inspecting certain types of packages that ASN significantly strengthened its own package manufacturing checks. The TranSAS mission thus leads to stimulating comparisons with other regulators and, even before it actually takes place, makes for more effective and efficient regulation.

Formalising the assessments and their feedback

The appraisal also highlighted the fact that ASN's work would be improved by a more formalised approach. The request for a more formalised approach seems to be a recurring theme of appraisals, without the added value ever being truly revealed. In this particular case, the request led us to ask our technical support organisation (IRSN: Institute for Radiation Protection and Nuclear Safety) to explain whether the package assessed met the requirements of all paragraphs of TS-R-1.

The experience feedback of safety assessments, that is regularly disclosed to French applicants, could therefore more systematically be completed. This is then more than simple formalisation and this systematic approach ensures the improvement of safety.

Explaining how to comply with the regulations

However, the TranSAS appraisal above all led ASN to boost its role of educating industry and numerous guides were drafted:

- a guide intended for applicants, explaining the documents they would need to submit when applying for approval, and the time needed to review them;
- a guide specifying the quality assurance requirements in the field of transport of radioactive materials;
- a guide explaining the regulatory requirements applicable to airport operations;
- a guide explaining the regulatory requirements for packages that do not require approval by the Competent Authority, in particular with regard to the design, maintenance and use of these packages.

These guides are a key aspect of ASN's action, as we believe that it is as important to check compliance with the regulations as to explain them: it is easier to comply with a regulation if you understand it.

Strengthening the controls of packages that do not require approval

However, the area requiring the greatest effort highlighted by the TranSAS mission is without doubt that concerning packages that do not require approval by the Competent Authority. The appraisal stipulated that ASN would need to increase its control of these non-competent authority approved packages. Since then, ASN actions have continued to confirm the relevance of this comment.

Hitherto, ASN had focused its efforts on approved package transport and gradually saw the situation improve. Without in any way wishing to relax its attention on these types of packages, its current concerns are more for the other types of packages.

In 2006, these non-competent authority approved packages were the cause of 75% of French incidents and 90% of the incidents of level 1. This is mainly due to the fact that these packages in particular concern those industries for which the nuclear risk is not the primary risk and which are consequently unfamiliar with the safety rules and the regulations applicable to the transport of radioactive materials. In this respect, it is worth highlighting the fact that given its responsibility for regulating radiation protection and by inspecting more users of radioactive sources, ASN was able to observe shortcomings among a large number of them in the field of radioactive material transport.

In 2005 and 2006, about 30% of the transport inspections were devoted to non-competent authority approved packages. The robust design of packages containing radioactive materials is one of the major factors in the safety of radioactive material transport. For packages for which the regulations require no approval, the consignor must be able to prove that its package complies with the regulations. None of the files examined by ASN during the inspections was felt to be satisfactory.

Other shortcomings observed during the inspection concerned the consignor:

- non-compliance with the safety requirements of the conformity certificates. We were thus able to observe that packagings were used to transport materials for which they were not appropriate;
- the lack of checks for non-contamination prior to departure of the package, and sometimes even confirmed cases of contamination;
- the lack of marking or labelling, or incorrect marking or labelling;
- the lack of satisfactory tie-down, which sometimes led to the moving of radioactive materials in the means of transport, such that radiation limits were exceeded;
- precipitation of radioactive liquids leading to a concentration of radioactive materials, with the radiation limits being exceeded;
- leakage of radioactive materials owing to inappropriate closure systems.

This situation of course came about because the control had been insufficient. Another cause however, also needs to be examined: the fact that there is no recognised organisation in France responsible for ensuring the compliance of these packages with the regulations led to the arrival on the market of poor-quality packages and even certificates of convenience issued by organisations that were unreliable or even dishonest. Market pressure gave a boost to the least expensive organisations, which often fell into this latter category.

But, you may say, the non-competent authority approved packages are designed to contain a quantity of radioactive material such that, even in the event of an accident, the consequences would be minimal. Nonetheless, in this case, it is vital to be sure that the accumulation of poor-quality non-competent authority approved packages would not induce a severe accident. French experience has shown that this is not always the case. Finally, regardless of the consequences, a situation such as this could discredit the entire radioactive material transport sector. Public concern is already rising...

Conclusions

The TranSAS mission was thus extremely beneficial: it enabled ASN to improve its control of transport of radioactive materials, both through the recommendations it made, but also through its highlighting of inadequately regulated areas. Thanks to the TranSAS mission, France is now fully aware of the importance that must be attached to the regulation of non-competent authority approved packages. Eventually, it enabled ASN to increase staff in order to improve its control. Finally, we hope that the TranSAS mission will enable safety to be improved well beyond the borders of France: it will no doubt enable those countries following in France's footsteps and welcoming their own TranSAS mission, to help improve the global safety of transport.