

DENIALS AND DELAYS OF SHIPMENTS IN THE TRANSPORT OF RADIOACTIVE MATERIALS IN BRAZIL

Ana Célia F. Sobreira¹, Denise Bemelmans¹

¹ REM Indústria e Comércio Ltda - SP
Rua Columbus 282
05304-010 São Paulo, SP
anacelia@rem.ind.br
transporte.suporte@rem.ind.br

ABSTRACT

REM Indústria e Comércio is a Brazilian private company which has been performing transport of radioactive material in Brazil for more than 15 years and is also experiencing this situation. In Brazil, over 50,000 shipments of radioactive materials are carried out every year, mostly for medical purposes. There are 4 airlines companies operating the domestic routes and only is currently accepting material of Class 7 (radioactive) for transport. When transporting by road, REM uses its own vehicles or hires associated cargo companies. For the sea transport, there isn't a certified vessel for this kind of material in Brazil which increases the prices and makes the transport by this mode very expensive and more difficult. Reasons for denials have been identified as misinterpretation of the regulations, lack of harmonization between regulations, fear of indemnity costs for accidents, restrictive rules at ports not allowing storage of radioactive material in transit, frequent changes in modal regulations, lack of education and training of cargo handlers and the misconception of public perception concerning radiation risks.

Seeking for local solutions, REM has organized meetings involving medical societies, competent authorities and carriers and has taken part on commissions for revising standards and regulations and trained cargo handling personnel as well. This paper addresses causes for delays and denials and reports identified domestic solutions.

1. INTRODUCTION

For decades the world has recorded success in transporting radioactive materials safely and securely. This is due to the effectiveness of the regulatory regime and the competence of the entities performing packaging and transport activities.

At the International Conference on Safety and Security for the Transport of Radioactive Material in 2003, International Atomic Energy Agency (IAEA) has identified an increase in denials and delays for shipments of radioactive materials in air, sea and road companies. The Conference has also named that most denials is generated by non-specialized workers involved in the activity. Members at the conference has agreed that there is a need of better communication among carriers, consignors, competent authorities and local and world organizations like IMO, ICAO, IATA, IFALPA.

The IAEA has organized a steering committee and meetings for studying this issue. REM was invited in the first meeting for a presentation of the situation in Brazil. In this presentation, it was pointed out the main reasons for the denials and delays in Brazil: multiple regulations, great number of resolutions, decrees and laws, insurance cost impact, conflicts in legislation for different modals of transport, increase on the safety requirements, public

perception about risk of transport radioactive materials and the lack of formal training for all the workers involved in the transport, specially for handlers at ports and airports.

In May this year, the Brazilian Nuclear Commission (CNEN) and the Brazilian Environmental Institute (IBAMA) took an important step by signing an memorandum of understanding by which duplication of actions and lack responsibilities in the transport of radioactive materials is to be avoided.

Despite the excellent safety and security record, some shipping companies, air carriers, ports authorities have issued policies not accepting radioactive materials for transport or even in transit storage. In a broader view, some shipping companies decided for commercial reasons not to carry radioactive materials or to avoid the risk of losing more profitable business. In Brazil, this is not different and currently only one air company is accepting radioactive materials for transport. Limited by this policy, the isotope production institute is facing an increasing difficulty to ship these kind of materials from their production site in São Paulo city to nuclear medicine centers around the country (Figure 1).

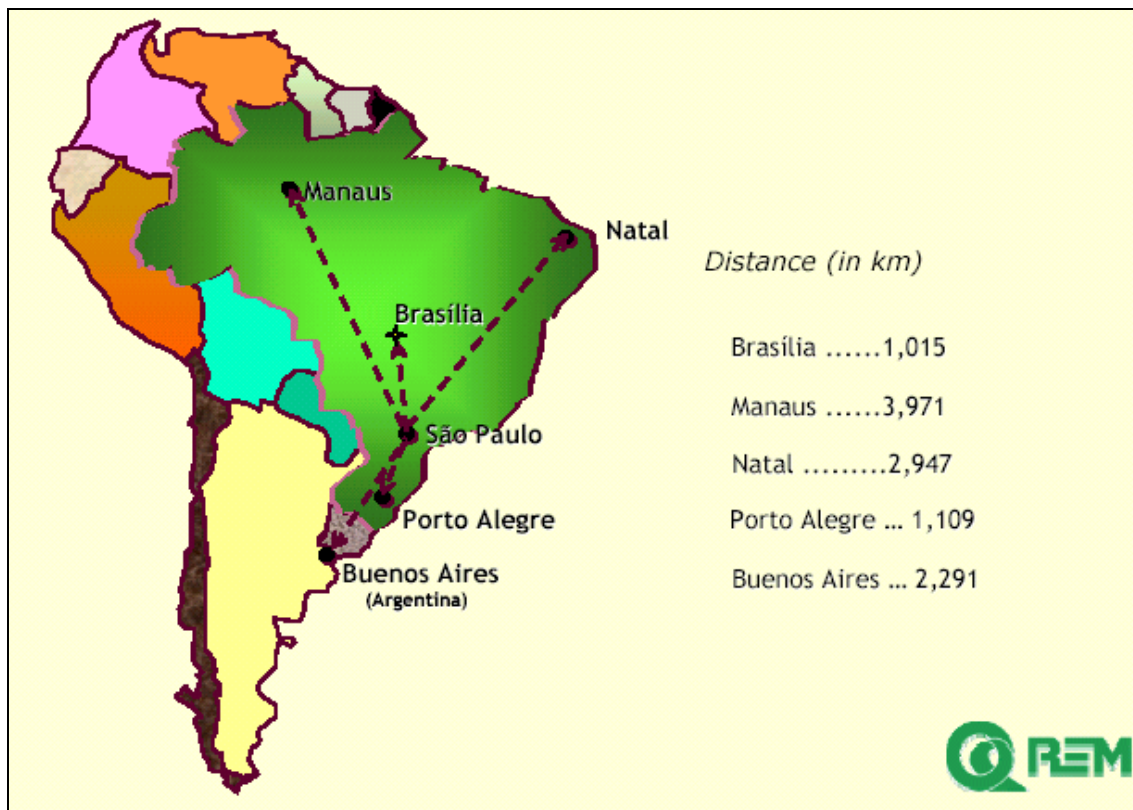


Figure 1: Brazil map and distances

Brazil is a country of 8,000,000 square kilometer with 2 power plants, 2,500 radioactive facilities and around 50,000 shipments of radioactive materials each year.

REM Indústria and Comércio Ltd. is a Brazilian company which has been performing transport of radioactive materials since the 90's . In the last five years, REM is experiencing problems in transporting radioactive materials by air because 2 Brazilian air companies declared in bankruptcy and it lasts only one company to do this kind of transport domestically.

2. MATERIALS AND METHODS FOR SHIPPING RADIOACTIVE MATERIAL

Each delay or denial for the transport of material by REM is declared in a form developed in cooperation with the International Atomic Energy Agency . The obtained data were collated and shows the number of delays and denials compared to the total number of shipments in the studied period (Table 1). The overall objective is to investigate the main causes for delaying and denying the transport of the material locally.

Table 1. Number of delays and denials for each isotope from February to May 2007

Radioisotope	Number of denials and delays in the period	Number of air shipments in the period	Reasons	Qty
^{18}F	8	92	Pilot denial	1
			Air company failure	2
			Airport Infrastructure	5
^{131}I	1	852	Airport Infrastructure	1
^{60}Co	1	3	Air company Scope	1
^{201}Tl	1	256	Airport Infrastructure	1

3. RESULTS

Although the data is few and for a short period, it can be noticed that the shipments containing ^{18}F are the main concern because this material has a short half life and need to arrive in nuclear medicine centers on time to be used. The percentage of delays and denials for this case is 8,7%.

Sources of ^{60}Co for radiotherapy treatment are very important in developing countries. Despite the small quantity of transport for this kind of source the percentage of denials of 33% is high.

The data shows that the main reason for this period is airport infrastructure, which is not a reason tabulated for the IAEA steering committee and must be taken in consideration.

4. DISCUSSION

Besides the few cases tabulated of denials and delays, it can be noticed that airport infrastructure is a cause that is important. Many airports in Brazil need improvement in infrastructure for safety and security of people.

Because of their short half-lives, denial and delay of transport of radionuclides as 18-fluorine has a strong and negative impact on health care. The number of delays in the period February – May, 2007 is not high but is significant considering this radioisotope is important in diagnosis.

At this moment, São Paulo domestic airport is being rebuilt since March 2007 and this is strongly reflecting on delays and denials. This situation is temporary but can turn the situation more difficult

5. CONCLUSIONS

From the data collated by REM it is clear that infrastructure of airports has an important role in the denials and delays. This is because Brazilian authorities are giving priorities to rebuilt and modernize most of the domestic and international airports.

REFERENCES

1. Report on the International Atomic Energy Agency's Fact-Finding Discussion Forum on Denial and Delays of Shipments – Information Paper No 2, July, 2004, London.