French experience

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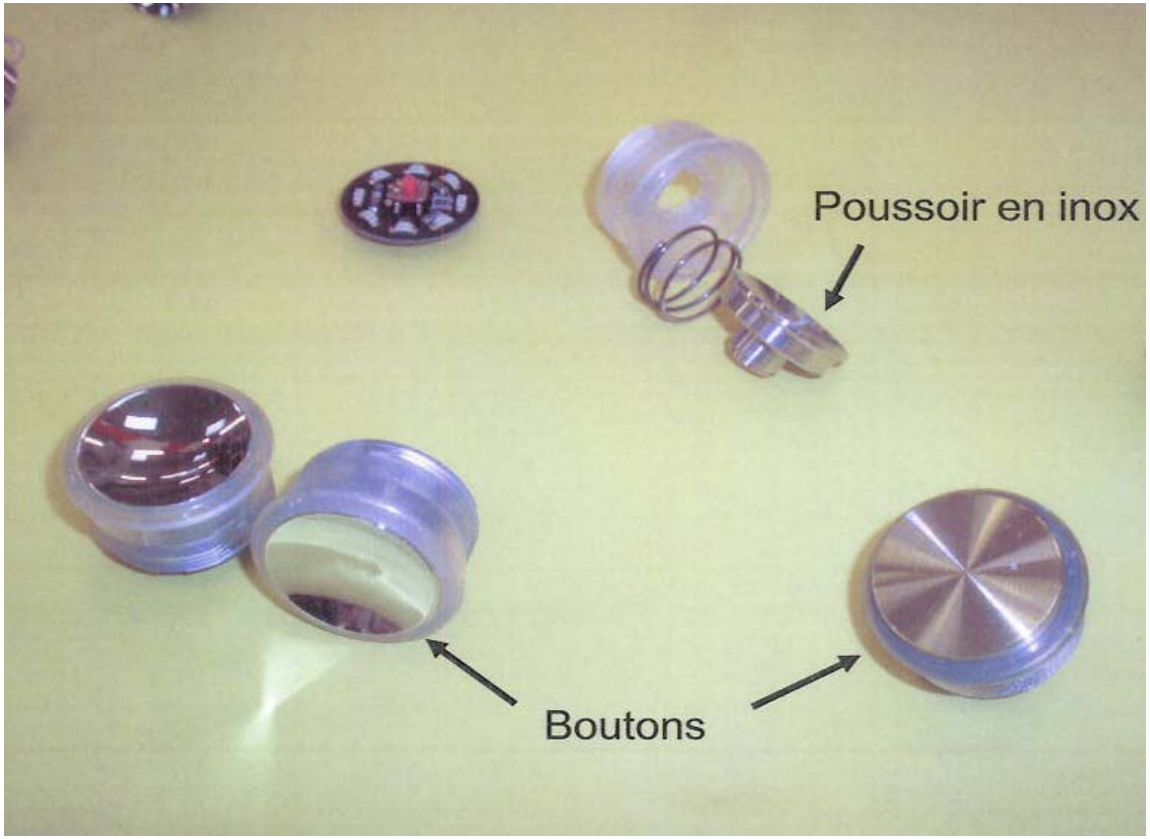
Contamination of elevator push buttons manufactured by MAFELEC co.



Event description

- On September 17th, first alert from the carrier about radioactivity in a MAFELEC shipment
- On October 3rd and 7th, alerts from US customers : radioactive MAFELEC shipments have been stuck by US customs
- On October 7th, MAFELEC alerted the French Authorities
  - High dose rate is measured in the work stations but no contamination was found

  ⇒ MAFELEC facility is closed the same day

First investigations

- On October 8th, ASN inspection and IRSN expertise on MAFELEC site
  - dose rate up to 50 µSv/h
  - Cobalt-60 inside the steel
  - No contamination on site (no cutting or machining)
  - MAFELEC suppliers are two Indian companies : LAXMI and BUNTS TOOLS COMPANY
  - A single customer : OTIS

Radiological Consequences

- **MAFELEC Workers :**
- First IRSN "rough" assessment : maximal effective dose of 2,7 mSv for 3 workers and the exposure of 22 workers over 1 mSv (annual dose limit).

- The final IRSN dose estimation, based on MAFELEC information (work periods, percentage of contaminated pieces) is a maximal exposure of 0,9 mSv for 8 people.

Radiological consequences

- **OTIS Workers : dose < 1 mSv**
- **Public :** maximal dose rate would be 150 µSv a year (5minutes / day, 300 days / year, at 50 cm from the control panel).

ASN action towards international counterparts : 1. Information

- ASN informed all regulatory bodies located in countries where were implanted MAFELEC customers.

- Secondly, ASN contacted its counterparts located in countries where are implanted customers of the same MAFELEC Indian suppliers.
  - Sweden, Belgium, Netherlands
  - Identification of a third Indian supplier (without any connection with MAFELEC)

- Information to WENRA and INRA members.

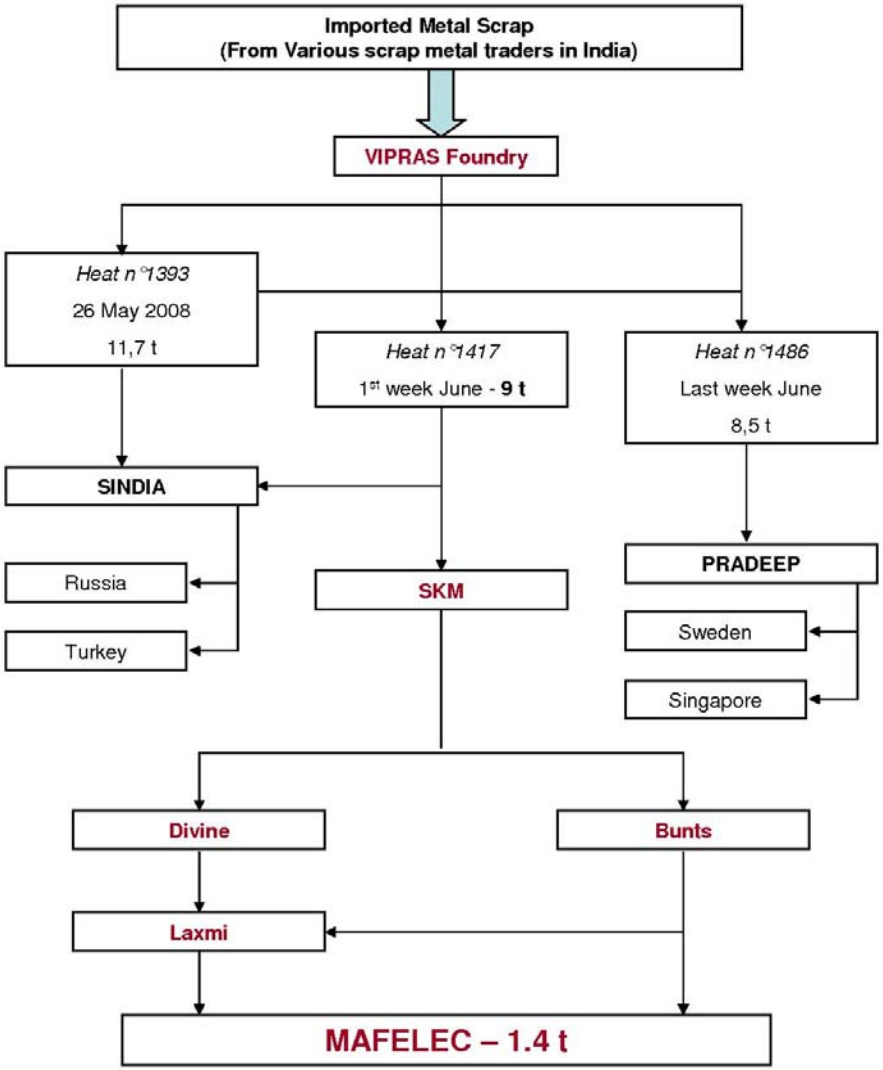
- Co-operation with the Swedish regulatory body (SSM) :
  - SSM sent an information message to the European ECURIE network
  - ASN became the unique contact point with Indian Authorities.

ASN action towards international counterparts : 2. Investigations

- Investigations performed by AERB (Indian RP authority) :
  - All contaminated parts sent to France and Sweden came from the same Indian foundry
  - Identification of steel heats.

- Once heat numbers confirmed, most of contaminated parts lots has been identified by ASN and MAFELEC and this information has been relayed to all MAFELEC customers, including those located abroad.

Origin of the contamination



ASN action towards international counterparts : 3. Waste management

- Several contaminated buttons from MAFELEC were found in different countries (stuck by local customs)

- ASN considered these buttons as waste ⇒ the buttons should be sent back to the waste producer

  (Question : who is the producer ?)

⇒ ASN decided to have the buttons sent to the French waste disposal

ASN action towards MAFELEC

- Check the condition of the elevators buttons clearance :
  - the buttons don't belong to the Heats concerned by the 60-Co contamination.

- ASN authozired restart of the manufacturing and progressively granted the release of the buttons out of MAFELEC. This process took two months, depending on the investigations progress in India.
- All the other buttons were sent to a radioactive waste disposal.

ASN action towards OTIS and freight company

- The ASN asked OTIS :
  - to stop the use of parts identified as contaminated.
  - to identify contaminated buttons that could have been installed. Otis is committed to the ASN, to achieve the identification, removal and elimination.
- As a result, less than 2 000 contaminated buttons had been installed.

- ASN inspected freight company

First lessons - MAFELEC

- Change of culture : one of the points raised by this event is that MAFELEC - as most of the French metal products manufacturers - had no radiation protection culture before the event.

- MAFELEC bought radioactivity detectors to check every shipments coming in, and developed procedures in case of radioactivity detection.

Feedback - International aspects

- Co-operation with ASN counterparts abroad has been one of the key-element of the management of this event. Information exchanges with international counterparts have been easy, efficient and fruitful.
- But : different management of the contaminated parts found abroad in the different countries, depending on :
  - local regulatory requirements
  - the customer knowledge of radiation protection issues.

- Question: who is responsible for the contaminated parts?
  - The company that raised the issue ?
  - The company where the contamination occurred ?
  - Each country where the contaminated parts are ?

First lessons - ASN

- MAFELEC had no knowledge of radioactivity issues / nuclear field
- ⇒ ASN had to assist MAFELEC for the management of this situation (unusual position)
  - Storage of the contaminated buttons
  - Procedure in case of new detection of radioactivity
  - Transport of contaminated buttons found abroad
  - Contact with foreign authorities / customs
  - ...
- This situation involved many ASN people (regional divisions, department of international relations, dpt of waste, dpt of transport and industrial activities) and needeed coordinated and quick actions

Conclusion

- Complex incident : many different stakeholders (at national and international levels)
- Next step : a comprehensive feedback has to be done
- Question : how to prevent such an event ?

Thank you for your attention !