

# Rolls Royce fined for loss of radioactive source

**Date:**

29 September 2014

Rolls Royce Marine Power Operations Ltd has been fined £200,000 and ordered to pay costs of £176,500 following the loss of a radioactive source at its plant in Derby.

The company, a subsidiary of Rolls Royce plc, which manufactures components for nuclear submarines, uses radioactive sources (containing Ytterbium -169) in their industrial radiography work to test that welds are perfect.

Leicester Crown Court heard that significant failings led to a radioactive source (a capsule which was the size of a small screw) being lost for approximately five hours at the Sinfin Lane site on 3 March 2011.

This resulted in a number of workers at the site being exposed to high levels of gamma radiation, in some cases many times in excess of relevant legal dose limits.

It prompted a joint investigation by the Health and Safety Executive (HSE) and Environment Agency, who jointly prosecuted the company, after serious concerns were identified.

The court was told that at around 5am on the day of the incident the source was being used in a purpose-built radiography enclosure. During the work the source capsule became detached from its holder, was lost out of the end of the guide tube being used and ended up inside the component being tested. The loss of the source was not detected by the safety features of the radiography enclosure or by the radiographer in charge of the work.

The loss of the radioactive source was discovered when welders working on the component in the clean room spotted the capsule and removed it for examination, passing it amongst themselves. The radiographers returned for their next shift at this point and after some initial confusion, which involved some of them directly handling the capsule, they correctly identified the object as a radioactive source. The room was cleared, the radioactive source recovered and the area made safe.

The subsequent investigation by the Health and Safety Executive (HSE) and the Environment Agency

found the workers' hand exposure to radiation was considerably in excess of the annual permitted dose of 500 millisieverts. In some cases it was exceeded by up to 32 times the permitted amount.

The investigation also found that the company failed to ensure that a suitable and sufficient risk assessment was in place for the gamma radiography work carried out on site.

Inadequate procedures together with deficiencies in training led to Rolls Royce Marine Power Operations Ltd failing to ensure that robust and effective controls were in place to manage the risk of using high activity radioactive sources..

Additionally, the capability of the radiation monitoring equipment was not well understood and failed to detect where the radioactive source was at all times which is an essential requirement when carrying out radiography work.

Rolls Royce Marine Power Operations Ltd, of Moor Lane, Derby, pleaded guilty to breaching Sections 2(1) and 3(1) of the Health and Safety at Work etc Act 1974, Regulation 3(1)(a) of the Management of Health and Safety at Work Regulations 1999, Regulation 11 of the Ionising Radiation Regulations 1999 and three counts of breaching Regulation 38(2) of the Environmental Permitting Regulations 2010.

Speaking after the hearing, David Orr, HSE's specialist inspector of radiation, said:

"Industrial radiography carries a greater risk of radiation exposure compared to other industrial uses of radioactive sources by nature of the very high activity sources used. HSE expects companies carrying out such work to have robust safety systems and procedures in place to protect employees during normal work and following a radiation accident such as the detachment of the radioactive source.

"Gamma radiation emitted by this type of radioactive source is harmful to human health. Rolls Royce is fully aware of the danger it poses and has a clear duty to protect staff from harm. However the company failed its duty of care on this occasion, losing control of the source without realising it.

"There was no effective surveillance of it for five hours and the exposure of workers to radiation, including some who were not involved in the industrial radiography work, was considerably in excess of the annual permitted dose."

Mark Haslam, Area Environment Manager for the Environment Agency, said

"Our overriding aim in regulating the use of radioactive materials is to ensure their safe management and control to protect the public and the wider environment from the harmful effects of radiation.

“For us, the most important thing is that the company has learnt the lessons from this and put improvements in place to ensure this does not happen again.”

## Notes to Editors

1. The Health and Safety Executive is Britain’s national regulator for workplace health and safety. It aims to reduce work-related death, injury and ill health. It does so through research, information and advice; promoting training; new or revised regulations and codes of practice; and working with local authority partners by inspection, investigation and enforcement. [www.hse.gov.uk](http://www.hse.gov.uk)<sup>[1]</sup>
2. The Environment Agency is the leading organisation for protecting and improving the environment in England. It is responsible for regulation of major industry to ensure it operates without causing significant harm to the environment or human health. The keeping and use of the radioactive sources at RRMPOLE is regulated under the Environmental Permitting Regulations 2010 (EPR).
3. Regulation 3(1) of the Management of Health and Safety at Work Regulations 1999 states Every employer shall make a suitable and sufficient assessment of (a) the risks to the health and safety of his employees to which they are exposed whilst they are at work; and (b) the risks to the health and safety of persons not in his employment arising out of or in connection with the conduct by him of his undertaking, for the purpose of identifying the measures he needs to take to comply with the requirements and prohibitions imposed upon him by or under the relevant statutory provisions and by Part II of the Fire Precautions (Workplace) Regulations 1997.
4. Section 2(1) of the Health and Safety at Work etc Act 1974 states: It shall be the duty of every employer to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all his employees.
5. Section 3(1) of the Health and Safety at Work etc Act 1974 states: It shall be the duty of every employer to conduct his undertaking in such a way as to ensure, so far as is reasonably practicable, that persons not in his employment who may be affected thereby are not thereby exposed to risks to their health or safety.
6. Regulation 11 of the Ionising Radiation Regulations 1999 states: Every employer shall ensure that his employees and other persons within a class specified in Schedule 4 are not exposed to ionising radiation to an extent that any dose limit specified in Part I of that Schedule for such class of person is exceeded in any calendar year.

7. Regulation 38(2) of the Environmental Permitting Regulations 2010 states: It is an offence for a person to fail to comply with or to contravene an environmental permit condition.

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