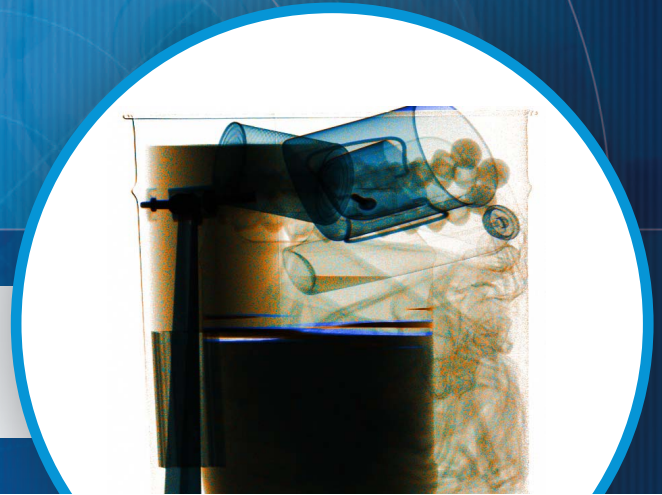




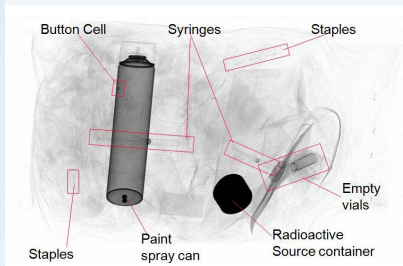
## CASE STUDY

# Nuclear waste screening

an x-ray screening solution for Amersham Plc



Waste for screening



X-ray of paint spray can, batteries, radioactive source container, syringes and staples in waste



3D x-ray solution for screening bags of waste

## Amersham : a case study in x-ray screening of nuclear waste

### The Client

Amersham Plc is one of the world's leading suppliers of nuclear medicines and contrast agents for use in medical treatment and diagnostic procedures. In disposing of their own and customer's waste Amersham wishes to meet the strict regulatory requirements for disposal of the potentially hazardous materials through their waste and decommissioning department. For their low level radioactive contaminated materials the normal methods of disposal require that a range of non-compliant items (such as sharps, heavy metals, fluids, etc) are identified and separated from their waste material or separate treatment.

### The Challenge

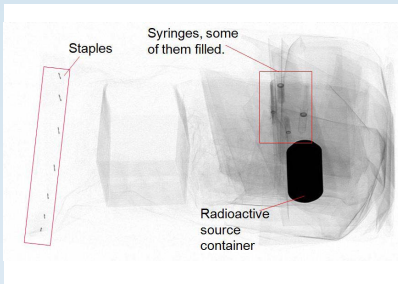
The comprehensive screening required to identify the possible presence of non-compliant items within waste is a critical activity within the highly regulated process of radioactive waste disposal. The current method of manual screening each and every sack is an obvious and effective solution, but it is also costly and inefficient since the screener has to be able to identify even the smallest watch battery in a large sack. This is coupled with additional health risks to the operator as any sack may contain hidden sharps. Amersham required a simple method for remotely screening sealed waste bags to identify the presence and position of non-compliant items prior to their clearance for the next stage in the disposal process.

### The Solution

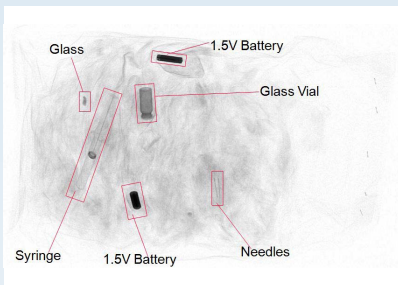
The requirement for the solution was relatively simple – without opening every sack, produce an image of the contents so a screener can readily identify and locate any non-compliant items. Where items are found, a visual representation of the surrounding area is required to ensure safe and rapid retrieval (avoiding sharps etc) through a hand search.

# CASE STUDY

# X-ray screening of nuclear waste



X-ray of radioactive source container, syringes and staples in waste

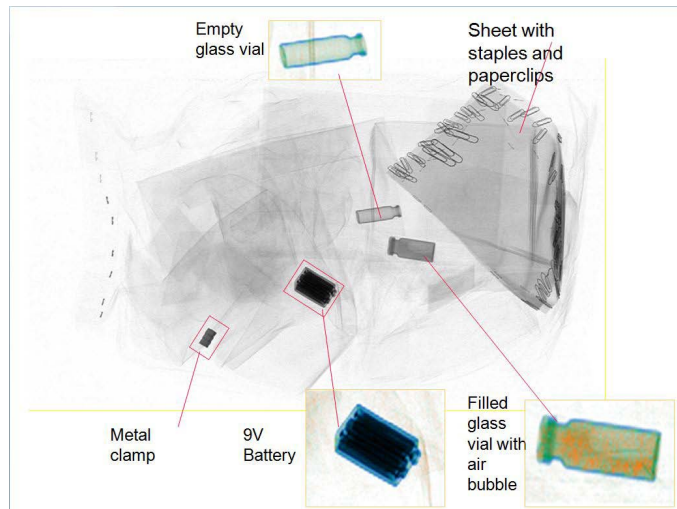


X-ray of batteries, vial, needles, syringe, glass and paperclips in waste

## Features

- 100% inspection of all sacks without the need to hand search
- Capable of inspecting over 500 sacks in an 8 hour shift
- Rapid physical localisation of non-compliant items in case of hand search
- Reduced risk of physical injury from sharps in case of hand search

The AXIS-3D® offers the perfect solution - providing both a real time 3D stereoscopic x-ray image of the contents of the sack, and with our enhanced systems software, highlighting organic fluids – such as filled syringes or glass vials.



The image above is a prepared waste sack containing examples of non-compliant items. It clearly shows how the presence of batteries, syringes and even needles can be readily identified. A modified version of our dual energy x-ray analysis technique for materials discrimination also enables the system to highlight organic fluids within, in this case, a glass vial.

This project provides an excellent example of the diverse range of inspection problems that can be solved with 3DX-RAY Ltd's inspection systems.

## Further Information

3DX-RAY Ltd is a market leader in advanced x-ray inspection systems for the nuclear, industrial and security markets.

We offer a range of high resolution x-ray inspection systems for inspection of plant, products or containers.

3DX-RAY Ltd will discuss your specific requirements with you and, where appropriate, conduct an evaluation to ensure that you receive the best information and advice on the appropriate equipment to meet your needs.

## Contact us:

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