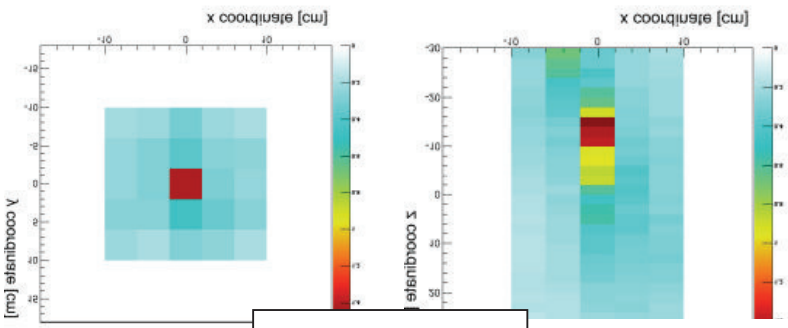
Technology Development Summary – Technical Directorate

Muon Radiography – TRL from 2 to 4

Characterisation and imaging of the internal contents of drums, flasks and silos present significant technical challenges. The need to characterise these items has led to the development of a 3D imaging technique using Muon detection and reconstruction, and this work is progressing well. The ultimate goal of this development programme is to establish a range of Muon based imaging technologies capable of the non-intrusive characterisation of anything from the contents of a cemented drum to the contents of a whole silo or storage bin. The first step of this journey is to develop a technique to image the contents of suspect 500l cemented drums to establish package integrity. This capability has been identified as a key technology gap within MEP/WEP stores. A small (lab) scale prototype unit was successfully demonstrated in the summer of 2011, completing Phase I of the development programme.

Phase II, the next stage of development, has now commenced and will progress theTRL from 4 to 6. The aim of Phase II is to design, construct and commission a large-scale prototype detector system similar in design to the expected system which will eventually be placed on plant (e.g. in MEP).

The detector will be larger than the small-scale prototype system developed in Phase I, but will use many of the same underpinning technologies and approach. This will allow the experience and knowledge developed from Phase I to be imported into Phase II and reduce the overall R&D costs in these areas.



Real Data

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