

Organisation for Economic Co-operation and Development - Nuclear Energy Agency
Symposium on Recycling of Metals arising from Operation and Decommissioning of Nuclear
Facilities
Studsvik, Tuesday 8th – Thursday 10th April 2014

ABSTRACT

Metals Characterisation by Facility Characterisation in support of Site Remediation and Decommissioning Projects

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Facility Characterisation (FC) is a technical organisation within Site Remediation and Decommissioning Projects (SR&DP). The department is focused on the delivery of characterisation projects across the entire Sellafield Site.

A programme of characterisation has been executed by the Sellafield Ltd Facility Characterisation team to support the demolition and optimised waste routing of metal from projects across the Sellafield Site.

Characterisation aims to maximise the quantity of metal for unrestricted release from the site in line with the fundamental principles of the waste hierarchy. Projects that this work has supported include:

- **Characterisation of Site Electrical Transformers** A total of 10 electrical transformers from various locations across the Sellafield site were assessed against the Environmental Permitting Regulations (EPR) 2011 criteria and have been classified as Exempt (Out of scope of EPR), based on sampling and analysis

Approximately 576te of metal was classified as exempt (out of scope of EPR). This material will be processed via the metals team to a suitable scrap metal dealer. Classification as exempt, avoided sentencing of the metal via 'Segregated Services'. The metals types classified as part of these projects included 411te of mild steel, 4te of stainless steel and 161te copper.

Key challenges with these projects include the characterisation of the transformer internals based on sampling of the associated oil rather than sampling the metalwork. Also the external paint layers were found to be contaminated to greater than exemption limits. However bulk assessment of the metal with firmly adhered paint demonstrated exemption against RP89 to support smelting.

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- **FHP Crane Wires** - 3000 metres of stainless steel crane wire that was used as part of crane operations within the Fuel Handling Plant was classified as Exempt (Out of Scope of EPR) based on sampling and analysis. Justification to support the sentencing of future steel crane wire cable arisings with a similar history was also produced.
- **SIXEP/FHP Heater Vents** - A total of 23 copper heater vent units from the SIXEP/FHP plant were assessed against the Environmental Permitting Regulations (EPR) 2011 criteria and have been classified as Exempt (Out of scope of EPR), based on sampling and analysis. Based on this assessment approximately 14 additional units can be sentenced assuming HP&S surveys support this.

Despite the challenges, comprehensive characterisation has enabled a large volume of metal to be sentenced as Exempt (Out of Scope of EPR) with no or limited treatment, enabling huge safety, environmental and cost savings to be realised.