

**DSG ACTION M01/A002: Sam Usher, Strategic Director Dounreay to provide a response as to whether metal being transported for recycling had gone to non-nuclear uses.**

**Background:** An action was raised at a sub group meeting asking for clarity with regards metal recycling.

**DSG(2019)M002/A020:** Martin Moore to consider if transport logistics for metal recycling (or other such activity) could support other businesses with transport solutions. **Action complete:** DSRL are in the process of placing a Framework Agreement for haulage services for the site which will go out to OJEU on 16<sup>th</sup> September (covering 4 years commencing 1 Nov 2019). Existing framework contractor predominately used by site already 'optimises' transport moves whereby they generally tie in deliveries/collections with other customers as it makes good business sense. Under the new framework contract the following has been included "Ensure as far as is reasonably practical that transport moves are optimised, minimising unoccupied loading capability."

This response was provided at the March public meeting and David Broughton asked for further clarity. Hence a new action was raised (M01/A002: Sam Usher, Strategic Director Dounreay to provide a response as to whether metal being transported for recycling had gone to non-nuclear uses.)

Further clarification was sought on the information required to close this action out and David Broughton provided the following: "The subject I was interested in was the subsequent use of "cleaned" metals that would have been disposed of as LLW or VLLW had they not been sent to ? (Studsvik, Whitehaven). When I was on CoRWM I was informed that cleaned metal was being shunned by the non nuclear industries for re-use either because of real radioactive concerns or purely public relations issues. Recycled metals were being used for nuclear purposes like new flasks and fittings. I am interested to know if any of the cleaned metals from Dounreay are being recycled into either the nuclear engineering industry or the general engineering industry or being sent to scrap melting facilities. If they are there might be an economic case for the recycling process but if the cleaned metal is not finding any future use what is the economic reasoning for doing it? The cost comparison might be between the following scenarios:

- cleaning and disposing in municipal landfill
- cleaning and disposing in licensed VLLW disposal facility ( Aberdeenshire?)
- cleaning and selling to scrap melters
- cleaning and re-use without remelt
- no cleaning and disposal in Dounreay LLW disposal facility"

**Response from DSRL**

Thank you for your queries relating to the off-site diversion of metal wastes for treatment. To set the context the work currently being undertaken is summarised below:

As you are aware, DSRL has an ongoing requirement to demonstrate BPM (Best Practical Means) and this includes an obligation to review our waste routes and any associated opportunities. We are also acutely aware that the Dounreay LLW Disposal Facilities have a finite capacity and we wish to make sure we optimise the use of these facilities. [Planning

permission exists for six vaults to be built in phases – two already built with the next two being planned for construction.]

To inform future waste routing decisions and to support the demonstration of BPM, we have recently developed the cost models for LLW management. This modelling confirmed previous strategic assessments and demonstrated that the Dounreay LLW Disposal Facilities offer relatively cheap disposal in comparison to other options, including treatment of metals.

However, as you are aware the Dounreay facilities are currently only able to accept Demolition LLW in 1 tonne bags and LLW waste in HHISOs. We currently have limited options for managing large, 'Non Containerised Waste' (NCW) items, ie. size reduction. An opportunity therefore exists to consign NCW elsewhere for treatment and disposal, with potential programme and cost savings.

Recognising this opportunity, last year we trialled the consignment of four NCW items offsite for metal treatment. This trial had a number of objectives including:

1. to physically test the route,
2. to assess stakeholder appetite, and
3. to more fully understand the steps and costs (in order to inform cost model development)

In parallel we are also assessing the viability of an on-site Waste Treatment Plant for LLW. All of this work will support a review and update of our existing BPM assessment for solid LLW management.

Your comment on the re-use of recycled metal and associated environmental benefit (or otherwise) is a very valid point and it will be taken into account within the assessment. I have also contacted the metal treatment facility we used for the trial and LLWR Ltd for a formal position on the use of recycled metal ingots - I will ensure you are sent a copy of the response in due course.

However, the initial view, based on the work to date, is that the main driver for us to use a metal treatment route would be in order to rapidly remove NCW from the 'work-face' and to minimise any on-site treatment, rather than any perceived environmental benefit associated with recycling.

Dounreay Site Restoration Ltd  
27<sup>th</sup> April 2020

**Additional information provided following update outlined above:**

**Response received from Cyclife and LLWR Ltd**

Both in Cyclife UK and Sweden the metal is sent on to conventional scrap merchants where the recycled metal is re-introduced to the conventional scrap market following the release process. In some cases metals sent for treatment may be monitored and cleared for release without any treatment being necessary at all. An example of this might be the steel outer shell of a shielded flask where any contamination is likely to be confined to the internal surfaces only; another example might be the gantry/superstructure steelwork associated with Chapelcross Top Ducts.

A lot of the metal processed by Cyclife can go to selected scrap merchant for onward processing through conventional metals recycling route. This material is categorised as Out of Scope in the UK. In Sweden they follow the European Union radiation protection protocols so it is categorised under RP122 (RP122 Practical use of the concepts of clearance and exemption).

Sweden also work to RP89 (Recommended radiological protection criteria for the recycling of metals from the dismantling of nuclear installations) that allows recycling of metal containing higher levels. This enables ingots above RP 122 levels to be processed through a recycling route. Typically the ingots are processed with clean steel at a ratio of 1:10 so it requires increased management and duty of care controls for the recyclers.

On the question of the economics of treating radioactive metals, the judgement made is about more than simply any value recovered from the scrap market. There could be other, wider factors to be considered, such as the lifetime cost of disposal via an alternative route. In Dounreay's case, this includes the cost of using capacity in the waste vaults and ensuring that the principles of the waste hierarchy are considered in accordance with national low level waste policy.

2 May 2020