

21<sup>st</sup> January 2020Sofia Bouhrizi  
Lead Environmental Project  
Correspondent

Direct tel: 019467 70329

General Nuclear System Ltd  
Rex House  
4-12 Regent St  
St James's  
London  
SW1Y 4PEYour ref: GHX00100036DNFF03GN  
Our ref: 03BE-3BRA-0-COO-L-4807

Dear Sofia,

**Re: Disposability in Principle Assessment for UK HPR1000**

Thank you for your recent submission of a Waste Enquiry Form (WEN) [1] (LLWR ref: 3BE-3BRA-3013-WEN-L-0001) and supporting information [2] relating to potential Low Level Waste arising from the proposed development of a pressurised water reactor (PWR) at Bradwell B in Essex. We understand that the purpose of your enquiry is to seek confirmation of acceptance in principle for disposal to LLWR of the types of operational LLW that are expected to arise from this type of reactor system.

You will appreciate that this enquiry relates to waste that is assumed will arise at some point in the future and is not currently included in LLWR's Future Inventory for Disposal. As such, we cannot today guarantee that capacity will be available at an undetermined point in the future. Before formal acceptance can be provided the LLWR Waste Acceptance Process would need to be followed to ensure all pre-requisites were in place including the following:

- A Waste Services Contract between LLW Repository Ltd and EDG/CGN.
- A Waste Forecasting Form (WFO).
- An approved Waste Characterisation Form (WCH).

In order to support EDF/CGN's Generic Design Assessment process we have however assessed the information provided against our current arrangements. Our response overleaf sets out our current position around the likely acceptability of the wastes for disposal at the LLWR or via our current treatment/disposal providers based on the information provided (those sources of information are listed at the end of this letter), and explains the issues and constraints surrounding the waste for disposal.



1. The waste would need to be compliant with all criteria specified in the facility WAC at the time of consignment to the LLWR or one of our service providers, or have an approved Waste Consignment Variation (WCV) in place (where waste is consigned to the LLWR).
2. Waste must meet LLW specific activity limits (4GBq/te for Alpha and 12GBq/te for others).
3. As the information provided on the wastes' characteristics is based upon estimates only, it will be necessary to review and re-submit WENs for each waste type nearer the time of disposal.
4. We would require a report demonstrating that treatment or disposal at the LLWR or one of our service providers represents the Best Available Technique (BAT) for managing this waste. We recognise that there are opportunities to segregate this waste and utilise alternative treatment solutions to support application of the waste hierarchy. We look forward to exploring these options with you in the future.
5. Spent Resins - based on the physical description and activity information provided, it is likely that these materials would be suitable for incineration. If for any reason LLWR disposal was determined as the most appropriate route for these materials the following should be considered:
  - Conditioning to fix the resins in a suitable solid matrix would normally be required prior to consignment.
  - The waste loading to grout ratio must be managed to ensure that the waste is minimised in accordance with BAT and that the product will be suitable for LLW disposal, ensuring that the encapsulation methodology would not be considered dilution. This can be addressed during the development of the Waste Characterisation Form.
  - If the resins are encapsulated in drums these would be considered as *Discrete Items* (DIs) and therefore the DI limits would have to be met.
  - Approval of a Waste Consignment Variation Form is required prior to acceptance of an encapsulated waste form at LLWR.
6. Dry Active Wastes (combustible and non-combustible) – based on the physical description and activity information provided, it is likely that these materials would be suitable for incineration (for combustible wastes) or controlled burial to LA-LLW landfill (for non-combustible wastes).
7. Metal maintenance waste - based on the information provided, it appears likely that these materials would be suitable for metal waste treatment. If for any reason this is not the case however and they require LLWR disposal they may represent discrete items due to their size/geometry. If this is the case they would have to meet the DI limits.

8. Concentrates – based on the information provided, it is likely that these materials would be suitable for disposal via LLWR’s current arrangements provided all conditions noted in this letter are met. As noted above with regard to the spent resins; for wastes that require conditioning to fix the material in a suitable solid matrix prior to consignment the waste loading to grout ratio must be managed to ensure that the waste is minimised in accordance with BAT and that the product will be suitable for LLW disposal; ensuring that the encapsulation methodology would not be considered dilution. This can be addressed during the development of the Waste Characterisation Form. Approval of a Waste Consignment Variation Form is required prior to acceptance of an encapsulated waste form.
9. Filter cartridges – based on the information provided, it is likely that these materials would be suitable for disposal via LLWR’s current arrangements provided all conditions noted in this letter are met. These would be regarded as DIs, in which case the DI limits must be met. The filters themselves must have generated from a LLW waste stream prior to compaction / packaging for disposal in order to demonstrate heterogeneity in line with WAC condition L3.2.3.
10. Sludge – based on the information provided, it is likely that these materials would be suitable for disposal via LLWR’s current arrangements provided all conditions noted in this letter are met. As above, wet sludge would need to be suitably conditioned in such a way as to meet the requirements of the WAC. Wastes shall not contain any free liquid. Encapsulated drums would be regarded as DIs and DI limits would have to be met.
11. Oils and Solvents – based on the physical description and activity information provided, it is likely that these materials would be suitable for incineration.
12. We note that there may be some hazardous waste associated with these disposals; acceptance would be conditional on additional information on the hazardous properties involved.
13. The waste would need to be packaged appropriately in accordance with relevant transport regulations.
14. This Agreement in Principle is subject to LLWR’s standard terms and conditions.

Please also note the following for your information.

As well as offering a disposal service via the LLW Repository, LLWR also offer a range of services to facilitate diversion of LLW via our supply chain partners. This includes:

- Very Low-Level Waste Disposal Service;
- Metallic Waste Treatment Service;
- Super-compaction Service;

- Combustible Treatment Service;
- Sorting and Segregation Service;
- Expert Support and Alternative Treatment Service.

Waste consigned to the LLW Repository for disposal must be packaged in an approved disposal container, generally the half-height ISO (HHISO) container, as specified in the WAC. In instances where a HHISO container is too large, or not an appropriate disposal container for the consigning site, LLWR can offer services to consolidate waste at a treatment facility.

Our diversion service suppliers routinely accept a wide range of package types including full height and half-height ISO containers, stillages, pallet boxes, drums (in various sizes) and bags. Alternative package types may be acceptable by our service suppliers subject to upfront assessment by LLWR.

LLWR also offer a service covering the supply and hire of fit-for-purpose packages. The fleet consists of multiple types of packages including drums, soft sided packages, Industrial Package – Type 2 (IP2) ISO containers, rated versions suitable for road, rail and sea transport, Type B containers and associated equipment and spares. All packages are appropriately licensed and maintained by LLWR for transport of radioactive waste transport.

For further information regarding the services LLWR can provide and how to access these please contact the undersigned. You will also find useful information on our website via the below link - <https://www.gov.uk/guidance/information-for-new-llwr-customers>.

We would like to take this opportunity to thank you for your enquiry and look forward to continuing to work with you to provide a solution for this waste should it arise.

If I can be of further assistance on this, or any other LLW matter, please do not hesitate to contact me.

Yours sincerely

Service Delivery Manager  
LLW Repository Ltd  
Pelham House  
Pelham Drive  
Calderbridge  
Seascale  
Cumbria  
CA20 1DB

Data used:

[1] WEN: GHX00100036DNFF03GN\_UK HPR1000 Waste Enquiry Form Rev.C (LLWR ref: 3BE-3BRA-3013-WEN-L-0001).

[2] Supporting Documents:

- GHX00100069DNFF03GN\_Waste Inventory for Operational Solid Radioactive Waste\_C,
- GHX00100070DNFF03GN\_Integrated Waste Strategy (IWS)\_E,
- GHX00530008DNFP03GN\_Solid Radioactive Waste Management Technical User Source Term Report\_C.