

From: s.40
To:
Subject: Re: [OFFICIAL] Request for Information on Dounreay HEU - 20160361
Date: 09 May 2016 16:00:00
Attachments: [Support to medical radioisotope production FINAL.docx](#)

This email is protectively marked **OFFICIAL**

Dear s.40

Please find set out below and in the attached paper NDA's response to your queries:

Under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004, would NDA please provide answers to the following which relate to the Government's announcement on 31st March 2016 that 700kg of Dounreay's HEU was to be shipped to the US.

1] What documents were placed in the public domain by the NDA **Between February 2013** [*publication of NDA Exotic Fuels & Nuclear Materials- Dounreay – Preferred Option (Gate B)*] **and September 2015** [*publication of NDA Draft Strategy*] relating specifically to any consideration being given by the NDA to reviewing or changing its preferred option of transporting Dounreay's unirradiated HEU exotic material to Sellafield for management ? **None**

2] Would NDA please provide copies of any such documents that were placed in the public domain by the NDA between February 2013 and September 2015. **See response to Q1**

3] Would the NDA please provide further detail of the plan to exploit the commercial value of NDA's uranics '*by returning them to the fuel cycle through sale to a third party*' as stated in the NDA's Draft Strategy Document published in September 2015, by responding specifically to the following: **See attached paper.**

- a) which third parties were under consideration at that time ?
- b) what approaches had been made at that time to any such individual third party ?
- c) what plans did the NDA have at that time to invite public involvement in any potential decision to sell 700kg of Dounreay's exotic unirradiated HEU to a third party ?
- d) if no public involvement was planned by the NDA at that time, why not ?
- e) when did the NDA plan to involve the public in an issue that would see the NDA's preferred option of transporting the material to Sellafield for long-term management abandoned in favour of its sale to a third party ?

4] a) Would NDA please provide the source or sources that enabled the NDA to identify the production of medical isotopes as a suitable re-use option for a large part of the unirradiated HEU exotics held at Dounreay - as stated in the NDA's Strategy document 'effective from April 2016' ? **See attached paper.**

b) would NDA provide a full account of why the Government's deal to transport 700kg of unirradiated HEU from Dounreay to the US was made on 31st March 2016 – the day prior to the 1st April effective date of NDA's strategy. **See attached paper.**

5] In abandoning its preferred 'manage at Sellafield' option in favour of securing the deal announced by Government on 31st March 2016 to send 700kg of Dounreay's unirradiated HEU exotics to the US, would NDA provide full detail of: **See attached paper.**

- a) how many meetings were attended by NDA with other organisations between 1st January 2015 and 31st March 2016 to progress the deal ?
- b) the names of those organisations - ie HM Government and US Government, their respective Departments, their respective Regulators, wholly owned subsidiaries of the NDA (INS & DRS) or other involved body ?
- c) the dates of those meetings attended by the NDA ?
- d) the meeting venues ?

6] Further, would NDA provide:

a) copy of all written communications (letters, email) between the NDA and the organisations with whom meetings were held to progress the US deal as in 5b) above:
 We believe that the Environmental Information Regulation exceptions 12(5)(a) "... international relations ...national security", 12(4)(e) "...internal communications" and 12(5)(e) "... confidentiality of commercial information" are applicable. We are withholding both the internal correspondence and the external correspondence with parties involved in the ongoing negotiations. We have considered the public interest and although this information may inform the public and assist with their engagement in the debate regarding accountability for the spending of public money, we believe the public interest would not be served by release of exploitable information in relation to movements of nuclear materials and would prejudice our ability to conduct negotiations and gain best value for the UK. We have therefore concluded that the arguments in favour of withholding outweigh the arguments for disclosure.

b) provide the date at which NDA signed off on the deal that would see 700kg of Dounreay HEU transported to the US – **Negotiations are still ongoing.**

7] What plans does the NDA have to place in the public domain further information on the deal to transport the 700kg of Dounreay material to the US including: **We do not currently have any plans to do so.**

- a) the likely year of such a transport (2016,2017 ...) ?
- b) what conditioning of the material has or will be completed at Dounreay prior to the transport ?
- c) what type of transport containers will be used ?

If you are unhappy with the way your request for information has been handled, you can request the NDA carry out an internal review (contact: enquiries@nda.gov.uk).

If you remain dissatisfied with the handling of your request or complaint you have a right to appeal to the Information Commissioner at:

Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF

Yours sincerely

s.40



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NDA Support to Medical Radioisotope Production

Background

The NDA holds in safe and secure storage approximately 1 tonne of unirradiated Highly Enriched Uranium (HEU)¹, in a wide variety of forms, most of which is at the Dounreay site.

Our strategy for the Dounreay site is to reach the defined interim end state by 2030 to 2033². Reaching the interim end state requires, amongst other things, the removal of the spent fuels and nuclear materials including the HEU currently held at the site. The removal of nuclear materials from the Dounreay site is already underway.

In our Exotic Fuels strategy³ in 2012 we set out our preferred plans to remove nuclear materials from Dounreay including the stocks of unirradiated HEU and consolidate them at Sellafield for continued safe and secure storage. At the time, we identified the option of sending the unirradiated HEU material overseas for processing and return of the material into the fuel cycle but this option was considered low probability.

The use of enriched uranium in medical radioisotope production

Technetium-99m (^{99m}Tc) is the most widely used medical radioisotope. It is used in around 30 million diagnostic medical procedures globally every year, including in the United Kingdom (UK). As a pure gamma emitter of 140 keV and with a 6 hour half-life, ^{99m}Tc allows radiographs of a wide range of bodily organs to be obtained relatively easily to assist medical diagnoses. Its short half-life requires it to be produced from its mother radionuclide, molybdenum-99 (⁹⁹Mo), in a generator, delivered to hospitals and diagnostic centres weekly from radiopharmaceutical companies. A limited number of high-flux research reactors produce ⁹⁹Mo by irradiation of uranium targets. In Europe, HEU is used for the targets and for research reactor fuel.

In 2012 at the Seoul Nuclear Security Summit, the United States of America (USA) and the countries from Europe where the reactors for radioisotope production are based committed to a set of activities designed to concurrently minimise the use of HEU for civilian purposes, where technically and economically feasible, and ensure a reliable supply of medical isotopes for patients worldwide in need of vital medical diagnostic treatments. Key actions highlighted included:

- Commitments from the governments of the USA and the three European countries directly involved in the production of medical radioisotopes (France, Belgium and the Netherlands) to support conversion of European production industries to non-HEU-based processes by 2015, subject to regulatory approvals;
- Support for exports of HEU from the USA to the European radioisotope producers to enable continued ⁹⁹Mo production until the facilities can convert to Low Enriched Uranium (LEU)⁴; and
- The elimination of excess HEU scrap material that cannot be used for radioisotope production from Europe with the support of the USA.

Subsequently, the Department of Energy National Nuclear Security Administration (NNSA) of the USA and Euratom Supply Agency (ESA)⁵ agreed a basis for the further supply of HEU from the USA to the European Union (EU). This agreement is conditional on either the return from Europe to the USA, or

¹ Uranium enriched to 20% or more in the isotope ²³⁵U.

² Nuclear Decommissioning Authority: Strategy (effective from April 2016). April 2016.

³ Exotic fuels and nuclear materials: Dounreay preferred options (Gate B). February 2013

⁴ Uranium enriched above natural levels in the isotope ²³⁵U but less than 20% ²³⁵U.

⁵ ESA was established under the Euratom Treaty. Its role is to ensure a regular and equitable supply of nuclear fuels to EU users and to provide the Euratom Community with expertise, information and advice on any subject connected with the operation of the market in nuclear materials and services. ESA's role covers the aspects of the supply of medical radioisotopes in the EU including striving to obtain the necessary supplies of nuclear material for enriched uranium targets used for radioisotope production.

the downblending in Europe to LEU, of equal or higher quantities of HEU. Such a proposal could include HEU held by any EU Member State and not only the European countries involved in the ⁹⁹Mo supply chain. HEU received by NNSA will be downblended to LEU for use in civil nuclear reactors.

In October 2013, ESA approached NDA to ask whether the UK could contribute any HEU materials to the NNSA/ESA agreement. NDA discussed the approach with the Department of Energy & Climate Change (DECC) and agreed to work with ESA, NNSA and other organisations to determine whether it would be viable for the UK to contribute the NDA owned HEU to the programme.

The UK contribution to medical radioisotope production

Following the approach by ESA later in 2013, a series of meetings have been held from April 2014 to date involving NDA, NNSA and Dounreay Site Restoration Limited (DSRL)⁶. These meetings discussed the security, technical and logistics requirements for transferring the HEU to the USA. A key part of this was establishing whether the NDA held material was suitable for processing by the US and could be included in the exchange programme⁷.

As the option was being developed NDA also held discussions with representatives of DECC, Scottish Government, Environment Agency, Scottish Environment Protection Agency, Office for Nuclear Regulation (ONR) to provide updates on assessing the viability of the option.

Alongside assessments of whether the material is suitable, DSRL, working with NNSA, developed a programme for how the material could be transferred to the USA. DSRL presented a viable programme to NDA in late 2015 and in January 2016 NNSA confirmed that our HEU material would be suitable for processing based on the technical data provided by DSRL.

The transfer of HEU from Dounreay to the USA is a credible alternative to transferring it to Sellafield. It contributes to an international programme that supports the continued supply of medical radioisotopes to the UK and supports the clean-up of the Dounreay site as early as practicable.

Given our confidence in the proposed transfer and the link between the proposal and the 2012 Nuclear Security Summit, the Prime Minister decided to announce the UK's support to medical radioisotope production at the 2016 Nuclear Security Summit in Washington.

The ESA proposal was made on the basis that the UK would participate in the transfer to the USA on commercial terms relating to the cost of transporting, processing and storing the material. Accordingly, we will need to put in place agreements with NNSA on terms which ensure value for the UK taxpayer.

The export of HEU material will comply with UK regulations for safety and security and will be subject to the scrutiny of ONR as the independent regulator for nuclear safety and security until the responsibility for the material is transferred to the USA.

⁶ The operator of the Dounreay site.

⁷ The alternative of downblending in Europe would require new facilities and significant additional funding and so this option was not considered further.