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**Environmental Authorisations (Scotland) Regulations 2018**

**PERMIT MODULAR APPLICATION FORM**

**SECTION 2 - FURTHER INFORMATION**

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| **2a. Provide a brief overview of the radioactive substances activity that you are applying to carry out, including any arrangements for management of any waste generated** *(see guidance on p9)* |
| Solid Intermediate Level Waste (ILW) arisings were stored in five purpose-built bunkers within the Solid Active Waste Building (SAWB). This waste consists of graphite, primarily within bunkers 2 – 5, and Magnox Fuel Element Debris (FED), primarily within bunker 1. The waste has a radioactive inventory of 9E6 GBq. A number of other wastes were also deposited within the bunkers and became intimately mixed with the graphite and Magnox FED. This mixed waste is currently being retrieved, in line with the site’s Baseline Decommissioning Strategy, and stored in stainless steel 3m3 boxes within the Intermediate Level Waste Store (ILWS) whilst awaiting encapsulation.A Solid Intermediate Level Waste Encapsulation (SILWE) facility has been constructed to encapsulate the solid ILW waste within the 3m3 boxes for storage within the ILWS. Encapsulation of the solid ILW shall generate radioactive gaseous waste which shall be discharged from both SILWE and the ILWS. A variation is required to the existing permit, EAS/P/1173609, to list the SILWE ventilation discharge stack and the ILWS discharge grill as authorised gaseous outlets within table 2 of the permit and also to amend and increase the annual discharge limits within tables 1 and 3 of the permit. Gaseous radioactive waste discharges from both SILWE and the ILWS, as a result of the encapsulation of the solid ILW, is estimated to occur over a six-year period with the maximum estimated annual discharge being: SILWE FacilityTritium - 7.62 GBq, Carbon-14 - 2.0 GBq, All other radionuclides - 2.36E-6 GBqILWSTritium - 2.19 GBq, Carbon-14 - 0.32 GBqThe maximum estimated annual discharges from SILWE and the ILWS will represent an annual dose to the public of 0.148 micro-Sieverts/year and 0.025 micro-Sieverts/year respectively, which when combined is below the 20 micro-Sieverts/year threshold for optimisation.Magnox also have a Pollution Prevention Control permit (PPC/B/1169293) under the Pollution Prevention Control (Scotland) Regulations 2012, in order to operate the grout plant for encapsulating the solid ILW waste.More detail concerning the overview of the radioactive substances activity relevant to this variation application can be found within sections 1, 3.1, 3.3, 3.4, 3.6 and 4.0 of the following supporting document, HNA/1002/TC/SR/1267 ‘Hunterston A Site Environmental Authorisations (Scotland) Regulations 2018 Permit EAS/P/1173609 Variation Supporting Report for Solid Intermediate Level Waste Encapsulation (SILWE)’. |

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| **2b. Please indicate what activities you intend to carry out, or if you are varying an existing permit, which activities are affected by your proposed changes.***(see guidance note on p9)* |
| Holding of unsealed radioactive material (unsealed sources) | [ ]  - complete section 3  |
| Introduction of radioactive material into the environment | [ ]  - complete section 3  |
| Introduction of radioactive material into organisms | [ ]  - complete section 3  |
| Discharge of radioactive liquid waste to the environment from onshore premises | [ ]  - complete section 4  |
| Discharge of radioactive gaseous waste to the environment | [x]  - complete section 5  |
| Dispose of radioactive waste on your site | [ ]  - complete section 6 |
| Receive radioactive waste, contaminated items, or samples from another person | [ ]  - complete section 7  |
| Radioactive waste disposals to the offshore environment | [ ]  - complete section 8 |
| Other, please give details | Click here to enter text. |

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| **2c. For any radioactive waste generated, please describe the means considered for:**1. **minimising the volume and activity of waste requiring transfer disposal; and**
2. **minimising the impact to the environment of waste disposals.**

*(see guidance note on p10)* |
| An optioneering process has been followed to demonstrate the use of Best Practicable Means (BPM) in order to optimise public exposure as detailed within report WD/REP/0032/21 ‘Review of Options for Managing Waste from the Hunterston A Solid Active Waste Bunkers given its status as May 2021’. The options considered are detailed within section 2 of this report whilst determination of the lead option for bunkers 2-5 is contained within section 4 and determination of the lead option for bunker 1 is contained within section 5. In both instances the lead option was determined to be ‘encapsulate then store for at-depth disposal’. Section 7 of the report provides a BPM summary statement which states:“The proposed option is considered to represent BPM and supports the requirement to optimise public exposures as:• it results in minimal generation of further radioactive wastes (secondary wastes are limited to operational and decommissioning wastes associated with existing retrieval and encapsulation processes/equipment, which has arisen/will arise in any case); and• it minimises the potential for radioactivity to be discharged to the environment (discharges would arise primarily from encapsulation off-gassing, which would be similar in all disposal options assessed; treatment options would result in comparatively significant discharges).”The above report is supplemented by an additional report, HNA/2940/TC/SR/1261 ‘Optimisation (BPM) Summary for Implementation of the SAWB Waste Management Strategy’. Section 1.3.2 Table 3 (Secondary Gaseous Radioactive Waste) details optimisation of the chosen option, ie:• Encapsulation plant designed to fill from bottom-up minimising splatter and gaseous particulate generation.• Process for encapsulation of fines designed to minimise airborne activity generation through sequencing of operations adding water prior to grout and optimised paddle rotation speed to minimise splatter• SILWE designed to prevent fugitive emissions and minimise contamination with ventilation system providing a negative pressure with gradient of air flows from low to high activity areas• The 21m stack height provides optimised dispersion with taller stacks incurring additional cost with no discernible additional public dose reduction Section 1.3 of this report details the measures applied to minimise the volume and activity of waste requiring disposal in relation to the SILWE facility in terms of abatement following optimisation of the chosen option. Section 1.3.1 under the subheading ‘Ventilation Systems’ and section 1.3.2 refer to the use of a coalescer and HEPA filtration to minimise the volume and activity of gaseous radioactive waste requiring disposal.It also refers to the assessment of different abatement technologies for tritium and carbon-14 and concluded that installation of these abatment technologies incurred additional cost with no discernable additional public dose reductionSection 1.4 also makes the same conclusion regarding abatement of tritium and carbon -14 discharges from the ILWS. Section 1.4 also details that radioactive gaseous particulate releases from the ILWS are not likely (as within ILWS, packages are sealed so airborne radioactive particulate is not anticipated) therefore optimisation and abatement of radioactive gaseous particulate releases from the ILWs is not required. In terms of discharges from the ILWS, section 1.4 details that the discharge point (at 5.3m height) from the ILWS (which is not a stack) again provides the optimised dispersion with a taller discharge point or installation of a discharge stack incurring additional cost with no discernable additional public dose reduction. Additional details can also be found in section 8.5 of report HNA/2981/PG/REP/1223 ‘Assessment of Hunterston A SILWE Radioactive Discharges in Relation to BPM Requirement,’ and Appendix A of HNA/2865/PJ/PR/1072 ‘Options Assessment for Management of Radioactive Gaseous Discharges from Encapsulated Waste Packages Processed through SILWE and Stored within the ILWS.’ |

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| **2d.** **Have you submitted a transboundary consideration assessment considering whether plans to dispose of radioactive waste are liable to result in the radioactive contamination, significant from the point of view of health, of water, soil, or airspace of notifiable countries?***(see guidance note on p10)* |
| Yes [ ]  No [x]  If NO, please state the reason for not submitting a transboundary consideration assessment.An assessment has been performed to determine whether a transboundary consideration assessment is required to support this permit variation application. The assessment concluded that the proposed increased radioactive gaseous waste discharge limits, when considered together with the existing aqueous radioactive waste discharge limits within the permit, meet the criteria for trivial operations.The assessment calculated that the total estimated dose to the most exposed person in the vicinity of the Hunterston A Site, if the radioactive aqueous and gaseous waste discharges were made at the proposed limits, is 6.3 micro-Sieverts/year (this is below the threshold of 10uSv/y for trivial operations set out in the SEPA guidance). The assessment also determined there will be no exceptional pathways of exposure to notifiable countries from the proposed increase in gaseous limits. It is therefore concluded that a transboundary consideration assessment for this application is not required.More detail concerning the assessment can be found within all sections of the following supporting document, HNA/8100/PG/PR/1071 ‘Screening to Determine whether a Transboundary Consideration Assessment is required for Hunterston A’s Proposed Variation to Authorisation Limits’. |

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| **2e. Do you intend to transfer radioactive waste or contaminated items to a person outwith the United Kingdom?** *(see guidance note on 12)* |
| Yes [ ]  No [x] If YES, please provide details: |

**NEW PERMIT APPLICATIONS ONLY**

**The following questions only need to be completed for applications for a new permit.**

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| **2f. Please provide information on who is responsible and the organisational arrangements for protection and safety with regard to public exposure from the management of the radioactive substances.** *(see guidance note on p13)* |
| Click here to enter text. |
| **2g. Please provide information on the competencies and training of staff involved in managing the radioactive substances.** *(see guidance note on p13)* |
| Click here to enter text. |
| **2h. Please provide details of the design features of your premises and equipment that will ensure adequate protection against public exposure**. *(see guidance note on p13)* |
| Click here to enter text. |
| **2i. Please provide the anticipated public exposures in normal operation of your radioactive substances activity**. *(see guidance note on p13)* |
| Click here to enter text. |
| **2j. Have you carried out an assessment of the activity and the premises in order to-**1. **estimate, to the extent practicable, the probability and magnitude of a potential public exposure;**
2. **assess the quality and extent of protection and safety provisions, including engineering features as well as administrative procedures; and**
3. **define the operational limits and conditions of operation?**

*(see guidance note on p14)* | Choose an item. |
| **2k. Do you have emergency procedures relating to the radioactive substances activities?** *(see guidance note on p14)* | Choose an item. |
| **2l. Do you have arrangements to maintain, test, inspect and service the relevant equipment and facilities to continue to meet the design requirements, operational limits and conditions of operation throughout their lifetime?** *(see guidance note on p14)* | Choose an item. |
| Click here to enter text. |
| **2m. Please provide details of how you intend to provide quality assurance for the radioactive substances activity.** *(see guidance note on p14)* |
| Click here to enter text. |
| **2n. Have you included documentation confirming that the person you intend to transfer your radioactive waste to is willing, in principle, to accept the waste?** *(see guidance note on p15)* |
| Yes [ ]  No [ ] If NO, please provide reason:Click here to enter text. |