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Environment Manager
NNB Generation Company (SZC) Limited

Our ref: EA\SZC\RSR\O\011
Date: 14th January 2021

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Dear ██████████

Environmental Permitting (England and Wales) Regulations 2016

Application reference: EPR/HB3091DJ/A001

Operator: NNB Generation Company (SZC) Limited

Facility: Sizewell C Power Station

Changes to information given in your environmental permitting application

Further to our phone conversation on 27th November 2020 and email exchanges dated 26th November 2020, 9th December 2020 and 11th December 2020, I am writing to confirm the information we discussed. You provided the following points of clarification:

- No measurable amount of alpha activity is expected to be discharged from Sizewell C to atmosphere. Alpha emitting radionuclides are not presented as a significant group of radionuclides in the GDA of the UK EPR, or the SZC Radioactive Substances Regulations Permit Application.
- As all gaseous effluent streams are treated using abatement equipment such as High Efficiently Particulate in Air (HEPA) filters and activated charcoal adsorption, a particle size distribution in gaseous effluent streams around the micron scale (order of a couple of μm 's) is to be expected.
- The size of the particulates discharged from Sizewell C to atmosphere will not be monitored. This is in line with other operating Nuclear Power Stations in the UK and wider world, and RSR permit requirements.
- Paragraphs 145 – 147 of Support Document D1 of the SZC Radioactive Substances Regulations Permit Application provide the sensitivity analysis for Skyshine.
- The sensitivity analysis for the radiological impact assessment presented in the application does not explicitly consider marine dispersion, however the impacts of marine volumetric exchange rate were considered in the assessment. This consideration is detailed within paragraph 34 of Support Document D1 of the SZC Radioactive Substances Regulations Permit Application.
- Operating experience from Europe and United States, published by IAEA, shows that the bulk of the C-14 in PWR reactor coolant is discharged in gaseous effluent.

International data indicates that the airborne C-14 released from PWRs is predominantly hydrocarbons (75 – 95 %), mainly methane, with a smaller fraction (5-25%) as carbon dioxide. The UK EPR assumes 80% of C-14 is expected to be discharged in the form of methane. This is within the range of expected for a PWR based on published operating experience. Given the dose coefficients currently published by ICRP are higher for carbon dioxide than methane, the approach adopted in the radiological impact assessment, assuming atmospheric discharges of C-14 in vapour form, is considered conservative.

- No consideration has been made to the spatial scales of the wildlife populations considered in the non-human biota assessment.
- As described in the Development Consent Order application, during decommissioning radiological discharges are expected to be within the limits proposed for the operation of Sizewell C and as such impacts are bounded by the operational radiological impacts presented in the SZC Radioactive Substances Regulations Permit Application. Five years before the planned closure date for Sizewell C, a programme of preparatory work would be initiated to ensure that there is no delay to commencement of decommissioning following End of Generation, and to ensure that the site is decommissioned as efficiently and economically as possible. This will include a revision (if required) to any Radioactive Substances Regulation permit held by Sizewell C for waste discharge and disposal. At this time NNB GenCo(SZC) will be able to draw on direct operational experience from other EPR's undergoing decommissioning not only in the UK, but the wider world
- There are some minor changes proposed to the site plot plan. As the design change process for the revised site plot plan is still in process the revised site plot plan and associated direct dose assessment will be shared via the routine Level 4 engagements with the Office for Nuclear Regulation and Environment Agency, when approved.

Please phone me on [REDACTED] if you have any questions or email

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]
Nuclear Regulator

CC

NNB GenCo Regulatory Interface Office

[REDACTED] - EA Sizewell C RSR permitting lead