

ENVIRONMENTAL PERMITTING REGULATIONS 2016

Application to vary the EDF Energy Nuclear Generation Limited Environmental Permit for radioactive substances at Sizewell B Power Station, near Leiston, Suffolk, IP16 4UR.

Further Information

Why has EDF applied for a variation to the Permit?

The emissions of carbon-14 to air could exceed the current permitted limit over a 12 month period. This is due to increased running time of the plant to generate electricity and some operational improvements to the plant that extracts gaseous radioactive waste.

Why would we increase the limit?

We would only increase the limit if EDF can demonstrate that there are no available techniques that could be used to reduce those emissions further and that the impact of increased carbon-14 emissions would still be acceptable when compared with relevant legislation and guidance.

What is carbon-14?

Carbon-14 is a naturally-occurring radionuclide (mostly produced by cosmic rays acting on nitrogen in the upper atmosphere) that is present throughout the environment. It is present in food in small amounts.

How is carbon-14 produced at Sizewell B?

Like other water-cooled nuclear reactors, the Sizewell B reactor produces carbon-14 when some of the neutrons produced by the fission of uranium react with oxygen in the water. So whenever the reactor is producing heat (used to generate electricity) carbon-14 is also produced.

What sort of radiation does carbon-14 produce and for how long is it radioactive?

Carbon-14 atoms decay by emitting an electron (low-energy beta radiation). Its half-life is 5730 years.

Why are we concerned about carbon-14 emissions?

Carbon-14, along with other radionuclides in the environment, can be taken up by living systems and is present in the food that we eat. So we need to know how much radiation dose that people are exposed to. We use mathematical models of the transfer of radionuclides through the biosphere to estimate the impact of the discharges. We carry out

monitoring to check levels of radioactivity in particular foods and other environmental samples.

Can't they prevent its emission somehow?

Radionuclides cannot be destroyed, only contained for storage or released to the environment in a controlled way. For carbon-14, the impact is less if it is discharged to air rather than water. Carbon-14, like all radionuclides, decays at a rate that is inversely proportional to its half-life (a fixed property).

What about Sizewell A and Sizewell C? Will this just add to all of the other radioactive emissions at Sizewell?

Our assessment will take into account both the emissions from Sizewell B (which is operating) and the emissions from Sizewell A (which is being decommissioned) because they are already permitted. The application (and our determination of the application) does not take into account emissions from Sizewell C because that does not yet have a permit. However, the separate application for a new permit for Sizewell C does take into account emissions from Sizewell A and Sizewell B because they are already permitted, and it includes the small increase in carbon-14 emissions that has been applied for at Sizewell B.

The Environment Agency is consulting from Monday 6 July 2020 to Friday 2 October 2020 on permit applications from EDF's Sizewell C Company (EDF SZC Co) to operate a new nuclear power station. You can [see the consultation on our consultation hub](#).

Will all three power stations operate at the same time?

Sizewell A has already shut down. Sizewell B is currently expected to operate until at least 2035 (subject to the agreement of the Office for Nuclear Regulation). Subject to the issue of a permit for Sizewell C (and the issue of a nuclear site licence by the Office for Nuclear Regulation) those two power stations will operate at the same time.

How we will use your information

All comments which are made publicly available will exclude e-mail addresses and telephone numbers. Any comments where confidentiality has been claimed will not appear on the public register.

In accordance with the Freedom of Information Act 2000, we may be required to publish your response to this consultation, but will not include any personal information. If you have requested to keep your response confidential, we may still be required to provide a summary of it.

Consultation principles

We are running this consultation in accordance with the criteria set out in the Government's consultation principles:

<https://www.gov.uk/government/publications/consultation-principles-guidance>

Our public participation statement is available:

<https://www.gov.uk/government/publications/environmental-permits-when-and-how-we-consult/environmental-permits-when-and-how-we-consult>

If you have any queries or complaints about the way this consultation has been carried out, please contact Environment Agency Permitting and Support Centre via e-mail:

PSCpublicresponses@environment-agency.gov.uk

Radioactivity in food and the environment

Read about monitoring of radioactivity <https://www.gov.uk/guidance/monitoring-radioactivity>

Read about the Environment Agency's regulation of Sizewell A, B and C and how you can find out more about environmental permits and other activities at these nuclear sites.

<https://www.gov.uk/guidance/sizewell-nuclear-regulation>

Read our annual assessment reports of radioactivity in food and the environment and the public's exposure to radiation around the Sizewell nuclear site

<https://www.gov.uk/government/publications/radioactivity-in-food-and-the-environment-rife-reports>

You can find and request information about the current environmental permits for Sizewell A and B on the [public register](#). You need to search under "EDF."