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Generic design assessment of new nuclear power plant designs summary document

Statement of findings following preliminary assessment of the
submission by Atomic Energy of Canada Limited for their ACR-1000
design

As the leading organisation working to protect the environment, it is the Environment Agency's role to regulate discharges from nuclear power stations in England and Wales and to reduce their impact on air, water and land.

In response to growing interest in nuclear power and potential applications to build new nuclear power stations in the UK, we have been working on a new approach, Generic Design Assessment (GDA), for assessing the environmental impacts of four reactor designs. GDA means that we assess the acceptability of both the environmental aspects and the overall nuclear reactor design before individual site applications are made. This approach allows us to get involved at the earliest stage, where we can have most influence and where lessons can be learned that may apply to other designs. It also gives us time to address regulatory and technical issues with designers and potential operators.

The new GDA approach has given us the opportunity to work together with the Health and Safety Executive (HSE), providing a 'one-stop-shop' for nuclear regulation. The process will allow a rigorous and structured examination of detailed environmental, safety and security aspects of the reactor designs, and is likely to take approximately three years to complete. We believe that GDA will greatly improve efficiency both for the regulators and the nuclear industry, and ultimately provide greater protection for both people and the environment.

We are conducting our GDA work in an open and clear way and will communicate with industry, interested groups and the public throughout the process.

GDA is in two stages: the preliminary assessment and detailed assessment. In the preliminary assessment, we examine the claims in the submission provided by the requesting party (e.g. the reactor vendor). Our aim is to identify whether we will need to ask for further information, if there are any issues that are obviously unacceptable, or if there needs to be any significant design modifications.

This is the first of our public statements for the ACR-1000 nuclear power plant design. This summarises our findings to date on environmental aspects following the preliminary stage of generic design assessment.

Atomic Energy of Canada Limited (AECL) submitted their ACR-1000 nuclear power plant design for generic design assessment in August 2007. They published the submission on their website (<http://www.aecl-uk.co.uk>) and invited people to comment.

Based on our past experience, authorising the disposal of radioactive waste is the area of regulation that has the highest profile, the greatest perceived uncertainties and the longest lead time for our permitting of new nuclear power stations. For those reasons, our GDA focuses mainly on radioactive waste issues, although we have also looked at aspects of the design that relate to other areas such as abstraction and discharges to water, pollution control issues, as well as management of non-radioactive waste.

We have carried out a preliminary assessment of AECL's submission for the ACR-1000 nuclear power plant design and these are our conclusions.

- We are confident that AECL has an appropriate management system in place to control the content and accuracy of the information they provide for GDA. We have confirmed this by inspecting systems at their main offices;
- The annual radiation impact of the ACR-1000 design on people would be below the UK limit;
- We did not find any matters within the submission that are obviously unacceptable;
- We have not identified any significant design modifications that are likely to be needed before we could issue a permit; and
- The submission does not contain the level of information we need to carry out a detailed assessment.

AECL have committed to provide further detailed information and have given us a timetable for when they will do this.

It is possible that we may have to reconsider our views about the acceptability of the ACR-1000 design and the need for any design modifications once AECL has provided the additional information.

As identified in the Government's consultation document and White Paper on nuclear power, an 'energy gap' is likely to occur in the UK between 2016 and 2022. For nuclear power to play a role in addressing this gap, generic design assessments need to be completed by 2010 – 2011 (to allow time for subsequent site-specific permitting and construction). We will work together with HSE to achieve this. The Government has established a prioritisation process so that they can recommend to the regulators which of the designs that have been through the preliminary stage of GDA should continue to the detailed assessment stage. This process is expected to be completed by May 2008.

If the ACR-1000 design is successful in the prioritisation process, we will begin our detailed assessment to come to an initial view as to whether we might issue a statement of design acceptability. To do this, we will need further information. If we receive this information within the timetable proposed, we believe that we can complete our detailed assessment and consult the public about this in autumn 2009. We will then publish our final conclusions, taking account of all comments received, towards the end of 2010.

The full report is available at www.environment-agency.gov.uk