

30th May 2018

Comments on the Environment Agency's draft decision on AWE's application to increase its gaseous volatile beta discharge limit to 100 MBq

The Environment Agency consultation on its draft decision on AWE's application to raise its volatile beta limit can be found [here](#). The draft decision documents can be downloaded at the bottom of the page. The following points will be made in the response that NIS makes to the consultation. You are welcome to use them in your own consultation response.

1. Nuclear Information Service (NIS) notes the comments in the Environment Agency draft decision document about the scope in the relevant policy guidance for balancing the requirement to reduce radioactive discharges into the environment with other considerations, such as the cost. However, on the basis of the information currently available to us we are not convinced that all options for limiting discharges have been considered or would be grossly disproportionate.
2. The UK's 2009 Strategy for Radioactive Discharges does allow for some flexibility in that the aim of progressively reducing discharges may need to be balanced with the need to maintain defence operational capacity. As noted in our comments on the original consultation, NIS supports the UK having a nuclear forensics capacity for use in counter-proliferation. However, it has not been demonstrated that the increased discharge limit is necessary for that capacity to be maintained:
 - The programme of work that results in the discharges are exercises where the UK and states test the same samples in order to compare the results and calibrate their testing processes. AWE wishes to increase their gaseous discharges of volatile beta emitters in order to follow the same programme of testing as the other states and to accommodate an increase in the radioactivity of the samples, which results in a greater discharge of volatile beta emitters.
 - AWE's application does not offer any evidence to show that running these exercises at the proposed frequency or using the more radioactive samples is necessary for maintaining their nuclear forensics capacity. The application specifically says that the specifics of the testing programme have been treated by AWE as non-optional, that AWE does not have control over the radioactivity of the samples used, and that "key allies define the programme". The obvious conclusion is that the frequency of testing and the nature of the samples used is determined by criteria other than what is needed to maintain a nuclear forensics capacity in the UK.
 - AWE do not appear to have given any consideration to whether the nuclear forensics capacity could be maintained with a reduced programme of calibration

work so as to stay within the current discharge limits set by their permit.

These points were made in our response to the original consultation, but were not addressed in the draft decision or any of the documents released alongside it. As such, it seems that alternative options for staying within the current discharge limit and maintaining a nuclear forensics capacity have not been considered and therefore it is incorrect to assume that a change in the discharge limit is necessary to maintain that capacity. Therefore NIS believes that refusing the application is the appropriate response and more in line with the aims of the 2009 Strategy than the draft decision.

3. AWE stated in their application that it would be “grossly disproportionate” to retrofit abatement technologies to their existing building. No evidence is given for this unsubstantiated assertion and the suggestion seems to have been rejected out of hand.
 - The environment agency guidance on Best Available Techniques (BAT) states that “[i]f your technique won’t provide equivalent environmental protection, but you want to make a case that it’s justified on cost benefit grounds, you’ll need to provide a justification in the operating techniques section of the form and through your risk assessment and cost benefit analysis.”¹
 - AWE are proposing not to use available abatement technologies but no cost benefit analysis has been made public.

Although the draft decision letter states that the Environment Agency has assessed some aspects of the application to be compatible with BAT and that the decision is compatible with the duty to support the economic growth of operators, the question of whether or not the cost of abatement technology would be grossly disproportionate is not directly addressed. It is far from clear that the necessary analysis has been undertaken and as such NIS believes the application should be refused.

4. If a cost benefit analysis of the possibility of fitting abatement technology did form part of the BAT study submitted by AWE as part of its application, the analysis should have been published. It is highly unsatisfactory that this information has not been made public, as the application to increase the limit has been approved without any meaningful public scrutiny.
5. NIS welcomes the decision to publish AWE’s radiological assessment of the impact of the proposed increase to the volatile beta emitter discharge limit. Furthermore, AWE is to be commended for undertaking an assessment of the possible dose from short term discharges, despite the calculated annual dose being lower than 20 µSv a year. However, the decision to omit an ingestion pathway from these calculations does reduce their utility. Although there is no known food production adjacent to the perimeter fence at AWE, the regular presence of protestor camps and demonstrations in which food is prepared and consumed outdoors could give rise to an ingestion hazard. Potentially several doses could be received through the year under certain circumstances and weather conditions. Given that ingestion is responsible for the vast majority of the calculated annual dose, no change to the permit should be allowed until the short term assessment has been undertaken that includes a calculation of the ingestion risk using appropriately pessimistic assumptions.

1 <https://www.gov.uk/guidance/best-available-techniques-environmental-permits>

6. In addition, this calculation should be undertaken using a tool which can accurately model airborne radionuclide quantities at the correct distance from the stack to the perimeter fence. Given the relative weight of radionuclides and air molecules it is not immediately evident that the difference in height between a ground-level discharge in the model and the actual height of the stack is an adequate counterbalance to the fact that the calculations were undertaken using a greater distance than the actual distance from stack to fence, due to the limitations of the model.
7. In AWE's application, the release of 64 MBq of volatile beta emitters a year was considered a worst case scenario, but an increase of the limit to 100 MBq a year was requested for 'flexibility'. The decision to allow an increase to 100 MBq is contrary to the statutory guidance which states that the level should be set according to BAT, "to ensure that operators control discharges within the envelope associated with 'normal operation' of the facility. 'Normal operation' covers the "operational fluctuations, trends and events that are expected to occur over the lifetime of the facility", such as start-up and shut down, maintenance, plant wash out and other expected operational variability."² From AWE's own calculations in their BAT study, 64 MBq a year is the calculated upper discharge level within the expected variability of normal operations, and there is no support in the statutory guidance for arbitrarily setting the level 56% above what is expected in normal operations. The statutory guidance is clear that limits should "cover the operational phase, as described in the application...the operator will need to seek revised limits wherever it is proposed to change the nature of operation, eg...where it is proposed to change current operations in a way which significantly affects discharges". As such, if the discharge level is increased it should be set at 64 MBq. NIS's original consultation response made this point, but it was not addressed in the draft decision document or any of the documents released at the same time, and there is no indication that it has been considered.
8. The draft decision document states that the Environment Agency is satisfied that estimating discharges by calculation rather than monitoring represents BAT for this facility. As with the question of abatement technology, the failure to release the BAT study means that there is no information in the public domain that justifies this assessment. Although there are no known measuring techniques for some of the isotopes involved and it is not possible to infer their quantities from the isotopes which can be measured, it would be possible to monitor emissions for those isotopes where it is possible to take measurements, and use those measurements to verify their calculations. This suggestion was made in our original consultation response but again it was not addressed in the draft decision document or any of the documents released at the same time, and there is no indication that it has been considered.
9. In conclusion, no consideration has been made of ways in which the desired programme of work could be varied so as to deliver a nuclear forensics capability without breaching the volatile beta discharge limits in its permit. It is not apparent that a full cost & benefit analysis has been undertaken into the possibility of retrofitting abatement technology to the facility, contrary to the Environment Agency's own BAT

² "Criteria for Setting Limits on the Discharge of Radioactive Waste from Nuclear Sites." Environment Agency, 2010.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/296486/geho0612buqp-e-e.pdf.

guidance. Further work needs to be undertaken on the short-term dose assessment and the proposal to increase the discharge level to 100 MBq is contrary to statutory guidance. As such, the draft decision should be rescinded and reconsidered.

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