Sizewell C Plan Project EN010012

NNB Generation Co (SZC) Ltd

Concerns Relating to Peat and Alluvium Disposal as In-fill for Borrow Pits

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Background

1.1 million cubic metres of mixed peat and alluvium are to be extracted from the main construction site, according to the proposal (Document number APP-185. Volume 2 Appendix 3B Materials Management Strategy - P9).

The volume will be smaller (but we don't know how much) after "processing".

It appears from the Borrow Pit Risk Assessment Report (Volume 2, Chapter 18, Appendix 18E APP-296), that this processing involves compaction – presumably squeezing out some air and remaining water (although the peat/alluvium is supposed to be de-watered before extraction.

The applicant proposes to dispose of the peat in the local area by using it to back-fill borrow-pits, created when extracting material to back-fill the main site.

Quoting from section 1.6.11 of the Materials Management Strategy - "It is proposed that lime improvement of the interbedded peat and clay is used to improve its geotechnical properties and facilitate handling during borrow pit restoration. This process is not anticipated to have an unacceptable impact on groundwater or surface waters and a risk assessment to confirm this has been undertaken, as provided in Appendix 18E of this volume of the ES."

Concerns

The problem with the peat is that it is acidic on exposure to the atmosphere (i.e. during excavation and transport to the backfill sites) and therefore a different soil chemistry to the precious Fen Meadow in the Sizewell SSSI and the marshes, channels and open water in the Minsmere-Walberswick SSSI (with its long list of protections). So, if it were to be accidentally spilled in the SSSI during transport, it would be a disaster locally for the wildlife. A bad spill could wipe some species out in the SSSI, potentially to the extent that it would never be quite the same again. The peat is also likely to be rich in iron-based compounds and sulphates – these are also pollutants as far as the SSSIs are concerned should they find their way into the ground water and channels through a spill or leaching. A further point is that the peat is to be taken from a site closer to the beach and the sea than where it is proposed to be used for backfill, which (according to the Borrow Pit Risk Assessment Report) means that it is expected to be significantly more saline than the soil currently at the backfill sites.

Suffolk Coastal FoE is concerned about three aspects of this peat disposal strategy –

1. leaching of (naturally-occurring) pollutants from the back-filled borrow-pits into the ground-water or surface-water of the SSSIs – especially Minsmere-Walberswick (as Appendix 18E states that the hydrology leads water to flow in that direction).
2. accidental spillage while transporting the extracted peat to the backfill sites across the Sizewell Marshes SSSI.
3. One area that the Borrow Pit Risk Assessment Report does not appear to cover is that removing the peat/alluvium will release stored/trapped methane and carbon dioxide (both greenhouse gases, with methane far worse than carbon dioxide). This will happen before the peat and alluvium is transported to the borrow-pits, and during all the stages prior to being covered with more material - I.e.-
    - Transport

- storage of large bodies of peat while they await mixing with clay and alluvium material
- mixing
- tipping
- rotavation with the lime.

Review of risk assessment

The Borrow Pit Risk Assessment Report provides a lot of information on the modelling and prediction that has been done, and the reasoning that has gone into the statement quoted above.

Transportation to borrow-pits

No mention is made of the risk of accidental spillage. It appears to be an assumption that sufficient care will be taken to ensure that no such accidental spillage into the Sizewell SSSI can occur.

Leaching into surface and ground waters

The document does clearly show that these predictions are based on expectations of the soil chemistry of the peat, its response to lime treatment, and the hydrology of the in-fill. There is therefore a level of uncertainty about the outcome of the proposed actions.

For example, Section 6.2 and 6.5 of the Borrow Pit Risk Assessment Report explains that the outcome of lime modification is not, at this stage certain. "At this time, it is not fully known how the materials are likely to behave on excavation and placement in the borrow pits, in previous investigations compressibility testing has been carried out on samples described as either peat or clay, recovered from boreholes. To date, no samples have been taken of mixtures of the different types of alluvium, which would be more representative of the soil being excavated and brought to the borrow pits en masse. Furthermore, we have no knowledge of how much the lime improvement of the material will change (i.e. improve) the soil's behaviour in terms of bearing capacity and settlement under surcharge loading of stockpiles / granular surface cover. Recommendations for further testing are provided in Section 9.2".

Appendix J (contained within the Borrow Pit Risk Assessment Report) therefore quite rightly proposes testing, monitoring, and triggers for action should the outcomes not be as expected.

Greenhouse gas emission

The analysis shows that it seems unlikely the gases will explode or asphyxiate anyone. However, there is no indication of whether any estimate has **been done of the greenhouse gas release and factor it into the carbon impact of the project.** (Table 8.3 gives % of methane in the ground gas, and flow rates coming out of boreholes, but it's not possible to estimate the total quantity of gas from those figures).

Action proposed from the applicant and the examination process

1. Assurance is sought that cost considerations will not be allowed to weaken the protection of the ground and surface water in the area from decrease in quality, due material extracted from the platform site being used to infill the borrow-pits.

2. Suffolk Coastal FoE is looking for absolute commitment from the applicant that should the development go ahead (which we absolutely oppose, for reasons covered in other submissions), the proposals contained in the Borrow Pit Risk Assessment Report and assented by the Environment Agency will be **implemented in full.** No cost-cutting measures can be allowed to adversely impact the water quality - either in the water used by people for domestic supply and agricultural purposes, or in the water entering the SSSIs.
3. The responsibility for carrying out the monitoring must also be agreed and the applicant must positively confirm that it will cover the costs (which should not fall on the public purse).
4. It must be an absolute planning condition, enforceable in law, that the applicant shall take full responsibility for proactively ensuring that the peat infill does not adversely impact water quality at any time, and must make good any damage that is judged to come from this work - without limitation on costs.
5. Information is sought about the analysis of greenhouse gas release from the peat extraction and infilling process. It must be shown that these emissions have been factored into the calculation of the project's impact on the Government's greenhouse gas emission targets for carbon neutrality.
6. Assurance is also sought that the transportation to the infill sites will be done with maximum care to avoid spillage. This must include storage of quantities of peat that are awaiting mixing with other material.
7. It must be an absolute planning condition, enforceable in law, that the applicant shall take full responsibility to proactively ensure that the infill material extracted from the platform site shall not be spilled anywhere other than the agreed infill sites, and that any such spillage must be fully restituted without limitation of costs.
8. Will the applicant please explain how much smaller the volume of extracted material will be after processing.

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