

## Decision Statement

### ABSTRACTION TRANSFER LICENCE APPLICATION

#### Bradwell Power Generation Company Limited

**Application number:** NPS/WR/033410

**Licence number:** AN/037/0039/014

**EA Area:** East Anglia East (Norfolk Suffolk and Essex)

**Date of Application:** 05/03/2020 (Date accepted)

**Applicant details:** Bradwell Power Generation Company Limited  
5th Floor Rex House, 4-12 Lower Regent Street, London SW1Y 4PE

#### Summary of the proposal:

- (a) **Location of abstraction:** Proposed Bradwell B Power Station, Bradwell-on-Sea, Essex.
- (b) **Source of supply:** London Clay and overlying superficial alluvial deposits
- (c) **Area of abstraction:** An area between National Grid References TM 01071 08331, TM 01180 08369, TM 01243 08180 and TM 01136 08146.
- (d) **Quantities and rates of abstraction:** This is a transfer licence application quantities and rates will not be specified on the licence.  
The following quantities were provided for assessment purposes:  
Construction phase (first 30 days only)- 24 cubic metres an hour, 583 cubic metres a day, 6.74 litres per second.  
Normal operation - 12 cubic metres an hour, 288 cubic metres a day, 3.26 litres per second.  
In flood events (maximum in a 1 in 100 year return period)- 360 cubic metres an hour, 1,300 cubic metres a day, 100 litres per second.  
Annual quantity - 116,000 cubic metres a year
- (e) **Means of abstraction:** A gravity fed excavation (defined by the four National Grid References) 200 metres long, 114 metres wide and up to 14 metres deep, with pump(s).
- (f) **Purpose of abstraction:** Transfer for the purpose of dewatering from the excavation to an attenuation pond before discharge by gravity to an unnamed tributary of the Weymarks Ditch
- (g) **Abstraction period:** All year.
- (h) **Conditions to be attached to the licence:**
- The Licence Holder shall return water abstracted in pursuance of this licence via an attenuation pond to an un-named ditch at National Grid Reference TM 01249 08474 marked 'Discharge Point' on the map at a rate not to exceed 15 litres, or any other alternative rate as agreed in writing by the Agency.
  - This licence shall cease to be of any effect if the construction of the excavation has not been commenced by 31 March 2023.
- (i) **Licence expiry date:** 31 March 2025

**Case history:** In January 2020, a pre-application started to ascertain licence requirements for this proposal. On the 5 February 2020 application was submitted for a full abstraction licence, the Applicant subsequently amended the application to a transfer licence (as required by the Agency to reflect the water movement from one source of supply to another without intervening use) and the quantities

assessed as being required were revised. Application was made for a three year licence to 1 June 2023, however the Applicant amended licence duration to 31 March 2025 on the 1 April 2020. The statutory determination date for this application was 4 July 2020 and this date was extended in agreement with the Applicant to 12 September 2020.

**Justification of quantities:** Water within the excavation will be allowed to drain via gravity to ditches within the excavation which will flow to a pumping sump, the water will be pumped to a crest drainage system before going to an attenuation pond in advance of being released to the un-named ditch at greenfield run off rates. Where possible the excavation (using concrete cavass or shotcrete) and interceptor drains will be lined to prevent groundwater ingress. This application is for dewatering purposes to keep the ground investigation area dry, without the removal of this water the ground investigations would not be possible. The quantities assessed as being required, were increased by an additional 20% contingency, but the water required to be removed will reflect the level of rainfall received in the area under normal operations.

**Resource assessment:** The source of supply for this transfer is London clay and overlying superficial alluvial deposits, this is not considered an aquifer as the deposits are unable to sustain a water supply.

**Impact assessment of proposal:** The removal of groundwater from the construction site is not being done by traditional pumping and drawing down of the water table, where there would be a radius of influence. Instead the water that leaks (or falls as rainfall) into the abstraction area would move by gravity. The quantities abstracted will primarily reflect rainfall quantities, the quantities being dewatered are likely to be small on a day to day basis, with high quantities only being abstracted in the event of heavy rainfall events.

The water contained in the London Clay and superficial deposits would naturally slowly leak into the local shallow surface water drains and flow down gradient following the topography. In this case the local shallow surface water drains towards the un-named ditch which runs east of the abstraction area. There is therefore the potential for flows to be reduced in this un-named ditch, but in this case the un-named ditch is the watercourse which will receive the discharge. The abstraction and discharge will cancel each other out and therefore any impact on surface water flows within the unnamed ditch will be negligible. A further condition on the licence will be added to ensure all dewatering water is discharged to the unnamed ditch at a rate not to exceed 15 litres per second (or as agreed in writing with the Agency) to ensure no risk of flooding or scouring of the ditch.

This receiving watercourse joins the Weymarks Ditch 650 metres downstream. The Weymarks Ditch flows for a further 2.5 kilometres before splitting into two. One channel flows 700 metres west before discharging to the coast via a tidal flap, the other channel flows 890 metres east before discharging by another tidal flap (this tidal flap is prone to blockage and therefore commonly only one tidal flap is currently operational).

**Statutory consultation:**

Natural England were consulted in relation to local designated sites [Special Areas of Conservation (SACs), Ramsar sites, Special Protection Areas (SPAs), Sites of Special Scientific Interest (SSSIs) and a Marine Conservation Zones].

**External representations:**

A total of 7 responses/objections were received from (from individual members of

the public and individuals representing organisations).

Summaries of the representation responses/objections we received and how we addressed them are as follows:

1. Impact of discharge on Weymarks Ditch (high quantities / rates / temperature / erosion / siltation)

Concerns were raised that the proposed quantities for abstraction and discharge were high and would impact upon the receiving watercourse, furthermore this discharge could have other mechanisms of impact such as a change in temperature, erosion, and siltation which could impact upon the associated wildlife. The quantities transferred for excavation are worst case scenario, in real terms the quantities transferred will only reflect natural rainfall/run off quantities. The discharge of water into the un named tributary of the Weymarks Ditch will be considered as part of the water discharge activity permit application. We are satisfied that the abstraction/discharge are neutral and the water resource application will not impact upon the receiving watercourse.

2. Inadequate ecology surveys/ecological appraisal completed

Concerns were raised that the Applicant's submission was inadequate, with insufficient ecological surveys being undertaken and limited ecological appraisal being completed in general. It was also stated that no ecological appraisal was completed for the Habitats Regulation Sites and no marine assessment or consultation with marine management organisation undertaken. The ecological surveys undertaken and submitted as part of the application are sufficient to satisfy ourselves in relation to the water resource application, as the abstraction/discharge are considered neutral. We are required to and have completed and consulted with Natural England via a Habitats Regulation Assessment and a Marine Conservation Zone assessment.

3. Impacts on wildlife inc. fauna/flora (some species named)

Concerns were raised that the ground investigations would impact on wildlife fauna flora and specific names habitats and species (suggested mechanisms of impact being sound, light and vibration). We are satisfied that the abstraction and discharge are neutral and wildlife will not be impacted by the transfer of water from the groundwater into the watercourse.

4. Risk of pollution from previous uses of the site (radioactive contamination from Bradwell Power Station A and use of site in World War II airfield).

Concerns were raised that there was a risk of pollution caused by the movement of already polluted contaminated material on site from previous site uses, which would also have water quality implications. This application relates to the transfer of groundwater which would have naturally discharged to watercourse, therefore there is no increase pollution risk from the water resource application. The discharge of water into the un named tributary of the Weymarks Ditch will be considered as part of the water discharge activity permit application.

5. Period of licence too long

Concerns were raised that the period of the licence was too long at 5 years. We are satisfied that the duration reflects the length of the proposed works (3 years) plus any additional time needed to obtain planning permission and start the works (including coronavirus lockdown considerations). A self

destruct clause will be added to licence so that the licence will cease to have effect if the excavation has not been constructed.

Other matters outside the scope of this permit application that the public have commented on which may be more relevant to applications for other permissions:

6. Ground Investigations should only go ahead once planning permission obtained for the Nuclear Power Station

Concerns were raised that planning permission should be obtained for the proposed Nuclear Power plant before any ground investigations were completed on site. The ground investigations are required to ascertain if the site is suitable for a Nuclear Power Station to be built, this justification is sufficient for the water resource application. The development of the site is a planning matter. Water resource applications can be considered before planning permission has been obtained and in these cases a self destruct clause is added to licence so that the licence will cease to have any effect if the excavation has not been constructed.

7. General objection to development

Concerns were raised about the potential future use of the site. We can only consider comments relevant to the water resource application, the development of the site for Nuclear Power is a planning matter.

The following concerns specifically relate to planning matters and not relevant to the water resources application.

8. Impacts caused by the large scale investigations using heavy plant

Concerns were raised that heavy plant machinery would be used during the phase of ground investigations.

9. Damage to local chapel by vibrations

Concerns were raised that the ground investigations would cause vibrations sufficient to damage the local chapel.

10. Increase in traffic dangerous

Concerns were raised that the proposed development would result in increase in traffic movement which could be dangerous.

11. General detrimental impact on village life

Concerns were raised that the proposed development would result in increase in traffic movement which could be dangerous.

12. Loss of habitat by building of lagoon/attenuation pond

Concerns were raised that there would be a loss of habitat caused by the construction of the lagoon.

**Protected rights:**

Water abstraction licence 8/37/39/\*S/0047 authorises the abstraction of water from the Weymarks Ditch, 1.1 kilometres downstream of the discharge point. The application is to transfer water without intervening use, as the discharge will be made upstream of the authorised point of abstraction it is considered that there is no risk of derogation to this protected right.

**Conservation issues:**

With regards to the application, consideration can only be given to the impacts

relating to the proposed transfer, being the abstraction from the excavation and the impacts of the discharge of this water from the excavation into the un-named tributary of the Weymarks Ditch. The abstraction of water (which has been collected via gravity) from the excavation will reflect the rainfall received, and not result from the dewatering the aquifer itself (where additional water is drawn in from the surrounding aquifer). This water will first pass through an attenuation pond, which will allow any abstracted water to be discharged at greenfield run off rates into the un-named ditch, by discharging the water to the attenuation pond there would be limited risk of scouring occurring (an appropriate rate of discharge will be specified within the Water Discharge Activity permit, if it is granted). The abstraction quantities being discharged into the unnamed tributary of the Weymarks ditch are not considered to be significantly greater than the natural flow regime and therefore the abstraction and discharge are considered neutral and it is not anticipated that geomorphology/ecology/fauna and flora will be impacted by this proposal.

For the reasons given above the discharge of water from the excavation is considered to be neutralistic in nature and therefore would not impact upon the protected sites, habitats or species in the vicinity of the site or those downstream of ditch tributary of the Weymarks Ditch.

The Bradwell B Groundwater Investigation – Ecological Appraisal Report under the section Recommended working practices general (P33) has set out ecological monitoring and an ecological constraints plan to ensure the development in general does not impact on features/species and habitats.

Consideration under the Habitats Regulations and Wildlife and Countryside Act 1981 has been given to the following sites:

Blackwater Estuary (Mid Essex Coast Phase 4) SPA and Ramsar and Blackwater Estuary SSSI No mechanism for impact, the site is located north west of the abstraction area outside of the radius of influence of the groundwater abstraction. The natural drainage route is not towards this site and the receiving watercourse does not discharge to this designated site.

Essex Estuaries SAC, Dengie (Mid Essex Coast Phase 1) SPA and Ramsar and Dengie SSSI The watercourse which could be affected by the abstraction and discharge feeds into the Weymarks Ditch which discharges into the designated sites. We completed a Habitats Regulation Assessment (HRA) 1 for the Essex Estuaries SAC and Dengie SPA and Ramsar which concluded that whilst the proposal does have the potential to impact on freshwater discharges to the sites (SAC, SPA and Ramsar) via the Weymarks Ditch, any impacts of the abstraction on flows in the watercourse will be offset by the transfer of water into the watercourse. This transfer is essentially neutralistic. Furthermore, discharge to the designated sites (SAC, SPA and Ramsar) is via tidal influenced flap(s) which controls the rate and timing of the discharge of freshwater flow to the estuary. We have therefore concluded that there is no likely significant effect. We completed an Appendix 4 for Dengie SSSI which reached the same conclusion (any impacts of the abstraction on flows in the watercourse will be offset by the transfer of water into the watercourse. Furthermore, discharge to the designated SSSI is via tidal influenced flap(s) which controls the rate and timing of the discharge of freshwater flow to the estuary) that this application will not result in damage to the features of the site.

Blackwater, Crouch, Roach and Colne Estuaries MCZ (Marine Conservation Zone). The site is located downstream of the proposed transfer into the un-named tributary of the Weymarks Ditch, as this watercourse subsequently discharges into

the estuary at this site (which covers the same area as Dengie SPA). The Blackwater, Crouch, Roach and Colne Estuaries MCZ is designated for Clacton Cliffs and Foreshore and Intertidal mixed sediments both of which are not located near the Weymarks Ditch estuary. There is potential for native oyster and native oyster beds to be located in the estuary, however the abstraction and subsequent discharge of water to the Weymarks ditch is neutralistic and as a result the proposals will not hinder the conservation objectives of the site.

**Impact on water quality:**

The groundwater would have naturally discharged to the unnamed ditch and therefore it is considered that the discharge water from the ground is likely to be of the same quality as the water within the unnamed ditch. The quantities being dewatered and transferred from the excavation will reflect rainfall for the site and therefore the dewatering activity is unlikely to significantly increase or decrease discharge quantities and therefore is unlikely to impact upon dilution abilities, which could otherwise impact on water quality. This abstraction will not result in pumping to lower the water table (only pumping to remove water which has discharged under gravity into the abstraction area) as a result there is no potential for dewatering to draw in saline water into the aquifer. The Bradwell B Groundwater Investigation – Ecological Appraisal Report under the section Recommended working practices general (P33) has set out how pollution prevention measures will be in place to ensure there is limited risk of a pollution incident or of sediment mobilisation entering the system causing pollution of the water being transferred. A separate application (EPR/RB3096WZ/A001) has been submitted by the Applicant for a bespoke water discharge activity (WDA) permit (this permit is required for the proposed discharge of the abstracted groundwater from the ground investigation excavation, along with surface water drainage to the site into a unnamed tributary of the Weymarks ditch). In assessing this water discharge activity application we will consider and assess the proposed discharge to determine its environmental significance; this will include an assessment of the proposed discharge effluent (to determine whether or not any elements or chemicals are liable to cause pollution within the receiving watercourse). However as the quantities being dewatered and transferred from the excavation will reflect rainfall for the site it is unlikely that the attenuation lagoon will store water for long durations, therefore whilst a lagoon is proposed the storage of dewatering water on site is unlikely to result in a change in quality or temperature.

**Biodiversity and sustainable development:**

Biodiversity and sustainable development has been taken into account whilst determining this application

**Social and economic welfare of rural communities:**

No adverse effects on the social and economic wellbeing of local communities in the rural area are perceived as a result of this proposal for the transfer of water in relation only to the ground investigations.

**Costs/ Benefits:**

Water Resources/The environment -The licence accords with local Water Resources policy and is neutral.

The Applicant - Will benefit from a licence to carry out dewatering in order for ground investigations to be completed.

The Agency - In determining the licence in accordance with the local and national policy, we are fulfilling our duties as a regulator.

**Conclusion and recommendation:**

The Applicant has applied for a transfer licence to allow ground investigation to take place at the development site for the proposed Bradwell B Power Station. The ground deposit will be dewatered and the water will be discharged to the nearby ditch. This proposal does not change significantly the route the water would have naturally taken and therefore this transfer of the water taken from the excavation is essentially neutralistic.

In reaching our decision full and due consideration has been given to all relevant comments and representations made, and due regard has been taken of protected rights and other lawful uses. We have made our decision in light of all the available evidence and the conditions of the licence are considered to be necessary and lawful.

The licence AN/037/0039/014 has been issued, in line with the points marked (a) to (i) above.

**Contact the Environment Agency:**

Water Resources Team by email: [PSC-WaterResources@environment-agency.gov.uk](mailto:PSC-WaterResources@environment-agency.gov.uk) or call 03708 506 506.