

### PRESSALL GAS STORAGE PROPOSAL

#### Purpose of Report

To inform members of the current situation regarding the proposal by Halite Energy Ltd to store gas in salt caverns at Pressall and to discharge concentrated brine into the Irish Sea off the coast at Rossall.

#### Recommendations

1. That the report be received.
2. That members endorse the actions of Officers.

#### Background

1. Members will probably recall that there have been proposals to use salt caverns to store gas at Pressall on the Wyre since around 2002. The previous company that will be familiar to members was Canatxx. The NW&NWSFC were particularly concerned about the issue of discharging concentrated brine into the Irish Sea 2.3km off the coast at Rossall, and were involved in consultation responses throughout the history of this proposal.
2. The last proposal was referred to Public Inquiry in 2005/6 where the inspector refused the application on the basis of a number of issues including the 'lack of robust geological modelling, inadequate understanding of risk, visual harm, the proposed means of access to the proposal, and uncertainty regarding noise impact'.
3. An Appeal against this decision was made by Canatxx in 2007 at which point the Secretary of State upheld the inspectors ruling.
4. Canatxx has now been taken over by Halite Energy Ltd who have prepared an application for a Development Consent Order (DCO) to be submitted to the Infrastructure Planning Commission (IPC). Officers responded to a revised proposal as part of the process of application for a Deemed Marine Licence from the MMO.
5. Although Halite claim that the size and scale of the gas storage operation has been reduced in the current application, there has been no change to the proposal for the brine discharge. Saturated brine at a maximum of 260 parts per thousand (ppt) and predicted 'normal range' discharge of 150 – 250 ppt will be discharged into the marine environment continuously for a period of between 5 and 10 years. Officers responded to this aspect of the application and the potential effects on the fish populations (cod nursery area) and marine ecosystem.
6. The Environment Agency issued a Discharge Consent to Canatxx for the brine discharge in 2007. Due to the delay caused by the lack of planning permission, this Consent has been varied to now belong to Halite Energy Group Ltd. and to have a start date of January 2014. A number of conditions were attached to the Consent, including the following:

## **Impact**

Should the Discharge cause:

- i) the salinity of the receiving waters to exceed 40 practical salinity units at any point further than 50 metres measured from the centre point of the diffuser, and/or;
- ii) the salinity of the receiving waters to exceed ambient plus 10% of ambient at any point further than 250 metres measured from the centre point of the diffuser, and/or
- iii) the concentration of tributyl tin in the receiving waters to exceed 0.002 microgrammes per litre at any point further than 150 metres measured from the centre point of the diffuser, or such other point as agreed in writing with the Agency, and/or;
- iv) the concentration of total copper in the receiving waters to exceed 5 microgrammes per litre at any point further than 150 metres measured from the centre point of the diffuser;

then the Discharge shall cease. The Discharge shall not re-commence without the prior written agreement of the Agency.

7. Prior to the last TSB meeting officers contacted the Environment Agency to voice our concerns over the Consent. It was felt that the dispersion modelling data on which the Consent was based is outdated. The modelling was conducted in 2001/2, with much of the data used collated prior to this. The Dispersion Modelling Report was produced in July 2003. Between June and August 2003, an existing 5.2km sewage outfall at Rossall, which lies to the north of the proposed brine discharge point, was rock armoured due to problems with it remaining buried. This work created a 10 foot high wall which changed the tidal flow and consequently now forces a 'pooling' effect on the flood tide.
8. Saturated brine is denser than sea water and will sink to the sea floor. Officers have very serious concerns about the residual time of this highly saline water being contained within an area with the potential for high fish mortalities. It is a known cod nursery area, with plaice, sole and ray nursery areas thought to be in the vicinity. The effects may also be felt by migratory fish such as salmon and sea trout en route to and from the River Wyre. The area is also popular with recreational anglers, reporting catches of cod, codling, bass, plaice and ray. In addition concentrated levels of brine are predicted to have negative effects on zooplankton and benthic organisms, with potential profound and irrevocable impacts on the marine food web.
9. Senior Fishery Officer Steve Brown, inspected the report detailing the construction of the brine discharge outfall pipeline. This is the same company and methods involved in the construction of the Rossall sewage outfall and the subsequent problems they had with securing the burial of the pipeline with the necessity for rock armouring. SFO Brown is concerned at the very real possibility that rock armouring will be required to bury the brine discharge pipeline, thus creating a linear obstruction along the sea bed, lying across the flow of the tide leading to the shore from the diffuser. This will no doubt impact on the flood and ebb regimes. No account was made for this provision in the dispersion modelling and provides more reasoning for our request to the EA to review the Consent.

## **Current Situation**

10. A written response was sent to Halite Energy Group Ltd, along with correspondence to the Environment Agency asking for a review of their Discharge Consent and to Natural England expressing our concerns about the potential impact on the marine environment.
11. The Scientific and Morecambe Bay Fishery Order Officer took part in a telecon meeting with EA, NE and MMO representatives to discuss our common concerns, conditions that could be

placed on the Deemed Marine Licence by the MMO, and the approach to be taken in future discussion and correspondence with Halite and their consultancy, Hyder.

12. The outcome of this discussion was that it was not considered necessary to review the modelling on which the Discharge Consent conditions were based, due to the distance of the Rossall sewage outfall pipe from the diffuser dispersion: 'modelling shows very low concentrations, less than 1% above the ambient summer salinity, at the intersect between the predicted brine plume path and the sewage outfall. This is within the natural variability of the local salinity, which is generally lower than offshore values due to river inputs. It is therefore unlikely that ponds of elevated salinity would be found in the sewage pipeline vicinity'.
13. The EA agreed to discuss the monitoring programme for the receiving waters with the NWIFCA and NE to ensure that the modelling predictions were being met.
14. A telecom meeting was held with representatives from Halite Energy, Hyder Consulting, the MMO, Environment Agency, Natural England, CMACS and the NWIFCA Scientific and Morecambe Bay Fishery Order Officer. A number of issues were discussed and undertakings given by Halite. Apparently 'Halite is aware of the issues that the sewage outfall has had, in particular that the pipeline has come afloat (the UU Pipeline originally had intermittent weighting collars and no rock armour). Lessons have been learnt and the Brine outfall will be installed in a 2.5m deep trench which is 7m wide. The pipe will be fitted with continuous weighted concrete collars throughout its length to provide negative buoyancy and covered by rock armour, all within a covered trench. During the excavation the sea bed material will be put to the side (up to 25m from the trench). After the pipe trench is backfilled with rock armour and the sediment is replaced over this there would be a mound of approximately 400mm, but experience shows that after a month this will level out due to the action of the tidal conditions'. Natural England requested that the back-filled trench be flush to the sea bed and that there is post-construction monitoring to prove that this is the case, and this was agreed.
15. The Scientific and Morecambe Bay Fishery Order Officer met with the Environment Agency and Natural England to discuss the outstanding issue of monitoring of the receiving waters. It was agreed that a 'marine monitoring group' should be formed consisting of all Defra partners, to ensure a robust and stringent monitoring procedure for the receiving waters around the discharge and to confirm the conditions and environmental impacts set in the EA Discharge Consent are being met and verified from the first moment of discharge. The group will be fully consulted on the monitoring methodologies, analysis and enforcement action should any become necessary. A request has been formally made that the monitoring of saline dispersion takes place rigorously and at a high frequency during the initial brine discharge phase, with the aim of ensuring that the modelled scenario is accurate. The monitoring requirement could then be reduced with time as assumptions are verified. Correspondence relating to the monitoring group has been formally lodged with the EA Discharge Consent to ensure that should there be a delay in the operations beginning, these developments and undertakings are not mislaid.

### **Actions**

16. It is not considered that any other actions are necessary at the present time but that the progress of the application to the IPC shall be monitored.
17. It should be noted that there was a great amount of collaborative working between Defra partners and the NWIFCA to reach the best possible outcomes. It is hoped that the relationships established will prove valuable in the future.

**Mandy Knott**  
**Scientific and Morecambe Bay Fishery Order Officer**  
**18<sup>th</sup> November 2011.**