



## Community Liaison Panel (CLP) Meeting organised by Halite Energy Group, 27/11/17

THESE ARE UNOFFICIAL NOTES TAKEN BY CLAIRE RIMMER QUAID DURING THE MEETING. ANY CORRECTIONS OR ADDITIONAL INFORMATION FROM OTHERS PRESENT GRATEFULLY RECEIVED.

[Cassidy and Ashton](#) are the nominated chairs for the CLP. They are paid by Halite but not involved in the project. This was an additional meeting held at the request of CLP.

Three representatives attended on behalf of Halite Energy Group. Keith Budinger sent his apologies as he was abroad.

Fleetwood civic society, representatives from Cat Smith MP and Paul Maynard MP.

In addition there were two from Hambleton Parish Council, Roy Peaker and John Davies; Debra Schofield from Pilling Parish Council, Stephen Clarke from Lancashire County Council, Nora Stuchfield from Fleetwood Town Council. Skip Frith and Claire Rimmer (No Gas storage).

### Aims of the meeting

To give an overview of project focusing on the construction process. The next CLP meeting after this will be in January.

### Halite Presentation

There was a short description of how the scheme will work including links to the national transmission system, a pipe from Nateby, the number of caverns. To make caverns they have to be washed with seawater, which will make brine. There is no connection between the brine pipeline and transmission system. The brine will come out and under Wyre then out to sea. 2.3km.

The Development Consent Order (DCO) was granted in July 2015. What has happened since then?

Commercial side – engaging contractors, investors (at least 250 million of additional investment is needed– depending on the market price of gas etc) and market sector.

Technical surveys. We will talk about environmental surveys in more details. Topographical, utility and geological surveys too. Halite now wants the final feasibility and costings sorted.

Engagement of regulators and stakeholders has started. Talking to a lot of people.

It's not new technology. In the UK alone storage is going on in 8 places. Rough is the biggest storage place but closing down. Depleted fields, reservoirs are other options to store gas. If you use depleted fields you cut through rock then usually there are gaps between eg water between sandstone. If there is pressure then water will flow between these spaces. If there are spaces and no water then air or gas can flow through. But this is slow to get gas in and out. Gas storage in caverns is much faster than a depleted reservoir. In the UK all caverns are made in bedded salt strata, not salt domes. When salt is formed there are crystals of halite with brine in between. When it dries all becomes halite. There is no porosity. No holes so gas can't get in whatever the pressure. All over the world people look for salt to store gas.



UK gas network. Intermittent generation needs expanding. 70% of gas storage comes from Rough which is closing. UK storage capacity will go down from 13 days down to 4 days.

### **Common questions**

Will gas be stored in legacy brine wells?

No – all wells will be newly created.

Can gas escape from the caverns?

Low porosity so there are no voids for gas to migrate. Salt is self-healing.

Can gas build up to dangerous pressure level?

Halite has to put its case to COMAH. Maximum pressure in the caverns is proposed at 83% of rocks and soil above it. Minimum pressure would be 30% of weight above it. If pressure went to 0% the caverns wouldn't collapse but because of the creep property of salt after years they would get smaller and smaller. Those pressures are more or less the same as in the national transmission system so we won't need to use the compressors often as gas will flow from the transmission system to the pipes. Sometimes we might want to make it go faster so might use them. Pressures are the same as those running up and down the country in the NTS.

Will fracking cause harm?

Seismic forces from fracking and national seismic events will not affect the cavern stability. The caverns are 300 m deep. We have calculated what affect the deepest earthquakes will have and it is millimetres of movement. Utilities at the surface are more susceptible as soils are not as strong as the rock.

A seismic risk assessment has been undertaken independently as tremors occurred due to fracking during the planning process. This was smaller than earthquakes and tremors that we usually get. There are dozens in this region every year.

Mercury waste

This is only known of in brine well 107 and is still owned by NPL estates. It is their duty to monitor and report to relevant authorities. They have never reported to us anything suspect.

### **Construction process**

Question: people are conscious of collapses – ICI's old caverns also had salt roofs.

Collapses have occurred in the past. Where we create caverns then we will keep at least 50m of salt at the top. ICI were at the forefront of this technology. They were pioneers. Sometimes they washed all the salt completely and left a mudstone roof. Mudstone is weaker than salt and more susceptible to gradual falling in. They also left caverns with flat tops over 100m in diameter because the bottom was mudstone flat. Mudstone is above salt fractured with halite. Because the mudstone was laid in brine it has salt within the fractures. If water washes out that salt then it can become like gravel and start to drop in. That continues to date and the process can take a lot of time or it can collapse quickly. The first collapse was in the 1800s where the salt is shallower on the east side. It dropped in fairly quickly. 1986 was a more recent case at Height of the Hills. That was a pretty large cavern.



Halite will leave a domed roof with at least 50 m of salt above it. We have detailed numerical modelling for each cavern – how tall each one is. This needs to be presented to the HSE as justification for being allowed to take it to the next stage.

Question: you say gas pressure has to be at least 30%. When you have stopped using them in years to come – you say they will be safe but even the ones there now need maintenance. What will future generations be left with? The caverns are huge. 1000 m deep. 100m across. If these start to collapse in 100 years' time under the river, there will be a lot of problems. 30% pressure now but you won't keep that up when you disappear? Who will keep pressure going? Shouldn't your firm keep money in?

Yes, there is a decommissioning fund but to reassure you at the end of the process the caverns will be filled with brine. 55%-60% of above weight. Where caverns by ICI decent shape and filled with brine there have been few problems.

Question: That land moves on a regular basis. Ask any farmer. It moves every year. That land is unstable. These caverns are way way bigger.

Chair: Take the points but we are not here tonight to reconsider the proposal.

We do monitor the ground levels and speak to farmers on a regular basis and monitor the legacy brine field. We have now undertaken 5 or 6 years monitoring. It has not shown any subsidence but some caverns had already advanced to such a point that they were due to collapse so are fenced off by ICI.

## Construction process

We have lawful consent to build the development and it is going ahead. Before it does there are certain checks and balances to provide certain things. No authorised development shall be commenced until a written scheme is in place with all authorities including highways.

The development includes: access roads; Higher Licklow farm, brine pipeline, marine brine outfall, sea wall crossing, seawater pump station, pipelines, booster pump station, gas compressor compound, gas manifold and distribution pipelines, power cables and River Wyre crossings, interconnector pipeline, metering station (gas pipeline), etc.

## Access road

Planned as a single point of access so trucks not coming in left right and centre.

3 junctions – main entrance and cross roads. Section 278 agreement is needed with the highways authority to make sure that the road meets the appropriate standards, visibility, materials. One of the first steps we need to do. Remainder of haulage road metal/stone. No plans for LCC to adopt that road. Less than a week ago met with LCC and the contractors about the plans including the A588 junction. As you drive through Stalmine there is a 60 mile an hour road then a small bridge. Under the current DCO there is a requirement to widen the bridge. We had a discussion although nothing has been agreed but we have asked LCC if there is an option to reduce the road speed from 60 down to 30 then there won't be a need to touch that bridge. Nothing has been agreed and we would need to put changes into an application. If you look at the [maps](#) the dotted line is the gas line. Red lines are 20-30metres apart and work is within those parameters.



## Electricity connection

This will be from Stannah. We have already had a discussion with [Electricity North West](#) and got agreements in place with them. They have capacity and space. It is laying electricity cables. We don't want open trenches for pipe laying. We will be drilling – microboring. This technique is commonly used by utilities and in cities. We will use it across the Wyre from a launch pit from the launch site. It will be handed over to Electricity North West at their boundary to connect it to their system.

Question – you mentioned the foreshore – why can't you dig a trench in the mud – is it because it will upset the wildlife? Is it linked to the worms?

It is a combination. Traffic area and wildlife.

**Dock water supply** – Another crossing across the Wyre. Drilling underneath boring across. Not excavating the river bed. 2 pipes – one from the docks. Dock water to site for washing, brine out, electricity. Fourth pipe?

Brine outfall – following the red line on the maps. It doesn't go under or through the local nature reserve. Open trenching. None of the roads to be disrupted.

Question: There is a rail bed along that corridor. At that bend pinch point where it comes up and you are nearly bang on the railtrack.

We are looking at ways it isn't going to impact on the rail bed.

We met last week with treatment works to go as close as possible without destabilising anything. You have the drawings with the DCO. More details will come later on. For national infrastructure projects it is accepted that you don't need the same level of detail at DCO stage.

The sea wall crossing has raised concerns as there are new sea defences. Nothing has been agreed, we are just at the discussion stage but we are looking to see if there is an option within the red lines of the DCO to avoid the new sea wall and go round. That is a discussion we are having with Wyre now. We can't absorb the time to redo the DCO as it will take 2 years. This type of issue is not uncommon. One for further discussion. This is us trying to think what we can improve from the original DCO.

## Well head compounds

The final size, shape location will be decided with the planning authority. Check and balance. Green around well head compounds on plans is earth mounding. There is a requirement for security fencing that has to go around. The circular space on the map isn't a collapsed cavern it is a legal requirement - water in case of fire.

## Timeline

The original programme was issued in 2011. Generally we are keeping in line with this. A lot of design, discussion, contracts are being decided now. From 2018 we are starting with the haulage road to start in February/March. Contractors and designers are still working on the designs on that. Washing the caverns will start from the back end of 2018 with the first operation of gas by 2020 (end of).



DCO gives us 19 caverns but we are not doing them all in one go. There is very much a market driver for this. Rough has now closed. 40 years old. 2 platforms under the North Sea. It is getting old and the cost to replace it was too high. The life span of Halite's storage will be 40 years but the difference is that it is above sea water. There is not the cost of working underwater.

There are lots of stage. To the development. Each stage needs to be signed off.

Pre-construction risk assessment by HSE then final plans. Highways LCC. Planning authority by Wyre. They themselves may need to meet and discuss with other statutory agencies.

Pilling council – locally we recently had a redesign of our roads. Those nearby were not notified. Are you going to inform residents personally? Doesn't that normally happen?

We are not here to say. We cannot speak for LCC.

There will be a newsletter but there is no date for the newsletter yet.

Iain: The highways authorities don't need consent. Any planning work will be. Local people can look on the Wyre public planning app. The beauty of this CLP is that we can get myths and rumours and scotch all of them otherwise you end up with so many rumours and inaccuracies.

## Environmental issues

There are various environmental commitments in the DCO in the environmental statement. It covers a range of environmental topics, including heritage, geology etc. There are also a number of statements of common ground with key stakeholders in agreement with environmental aspects.

DCO requirements – list of planning conditions. These are under the planning act in schedule 9 of the DCO. Deemed marine licence with MMO. Essentially allows us to undertake activities that would otherwise be illegal.

Discharge consent from EA. Abstraction licence – from fish dock. We have been busy this year looking at preconstruction surveys and investigations.

Habitats regulation assessment – required to assess the potential impact of the project on European sites or protected species. River Wyre is in the middle of a European protected area and there are several protected species in the area. Mainly looked at EU designations and Irish sea as a result of brine discharge. Predominantly Preesall on landscape and ecological management – particularly birds that are protected eg pink footed geese. Everything was agreed and taken to a certain stage before the DCO after significant consultation with LCC, WBC, RSPB. Currently we are working on that again to have a more detailed plan. Also a site waste management plan with DCO. An appointed contractor will work on that in more detail. Travel plan. Includes construction workers to and from the site. Section 79 report deals with process for statutory nuisance such as noise and dust.

Over 50 Statements of Common Ground were prepared. 25 were environmentally related and covered topics such as air quality, deemed marine licence, landscape, noise and vibration, transport and access, flood risk. All agreed and signed off by Wyre, Lancashire, Historic England, Highways agency.

DCO schedule 9. Planning conditions. We need to produce documentation in terms of discharge etc. 7-10, 18-19, 23-30 + 37 – environmental



Otters, bats and great crested newts. Surveys all done.

8 – ecological management scheme. Covers whole area – all terrestrial areas

9 – detailed landscape scheme.

10 – follow in the future. Implement and maintain landscape in accordance with landscape scheme – evidence it is happening.

18 – plan to prevent ground and surface pollution

19 – archaeology. Phased approach to those investigations agreed with LCC and WBC.

23 – code of construction practice for constructors.

24 – construction worker travel plan

26 & 27– controller noise management plan

28 – dust emissions

29 – protection of agricultural practice

30 – soil management plan

37 – Wyre crossing – result of consultations with Natural England who look after European wide regulations. Time constraints on when we can directional drill. As a result of the River Wyre's designation for wintering birds. Even though drilling won't affect the Wyre as we are drilling underneath, it can't happen during the winter so no impact on wintering birds.

Question– what about summer when breeding?

There will be mitigation for summer birds mitigation. There will be a certain level of impact but mitigated as soon as possible.

Question – Wyre and LCC refused this it was only passed by government.

Chair – detail and statements on common ground were agreed by those statutory authorities .

Question: water prevention. Brine dispersal. At what level do you decide? What are you going to do with it?

Monitoring in place. If salinity exceeds discharge consent then we have to stop and won't start again until EA say yes.

Schedule 7 DCO. Marine Management Organisation (MMO) method statements. 11 conditions to meet for MMO prior to commencement. Benthic survey. Vessel plan. 14 conditions once construction started eg best practice. 4 conditions following completion of licenced work. Backfilling of brine outfall pipe.

Discharge consent – brine 2.3km out to sea. Dispersion modelling – new models by the Environment Agency (EA) have updated this and show our original modelling remains valid.

Ecologic monitoring for the benthic level. At the moment doing a preconstruction survey.



Abstraction licence – water from fish dock. Solution mining. There are limits on the maximum quantity of water that can be extracted. Reporting. 9 additional conditions eg install a fish screen to prevent the entrapment of fish and eels.

Pre-construction surveys ecology surveys – we have done extra not just European protected species.

Some survey results are in. Badgers (no), bats (yes), barn owls (yes but not breeding), otters (yes – Halite did think we had a holt/otter house on one of the water courses. A camera was out there a couple of weeks. One sighting of an otter. No evidence of it entering or exiting under the tree where we thought there could be a hold. There are great crested newts (there are two in Preesall). We will apply for a licence to allow activities that would otherwise be illegal. We will need a letter to say yes, that is fine. Natural England don't issue a letter until the DCO is granted. To inform licence application. Give or take a few things we have found what we were finding 7 years ago. We will also need a licence to do work for bats, water vole (evidence they are there but we are not impacting watercourses where we saw them), Arable weeds (purple sprouting in the fields – protected in Lancashire). Ecological management scheme looks to mitigation for soil handling in fields where they are in. Soil is put back to thrive afterwards), hedgerows trees, marine benthic, ecology habitats.

Archaeological – the scope has been agreed with LCC. The first phase of work has been started but we were battling against the weather. This will inform a mitigation scheme against the archaeological survey. Archaeological work is ongoing as there is always the potential, especially in Pilling Moss for archaeological elements to be present.

Preconstruction noise monitoring is also needed (it is unclear from my notes if this is still needed or underway already).

## Questions

Question – salinity – where will it be checked – the beginning of the pipe or from the pumping station? It is taken from time to time at specific distances from the pipe.

So if brine is too high can it be pumped back? If too high then we have to stop. Have to cease pumping brine. As soon as it stops the whole system stops.

If it is in that pipe, can it be returned? It will be possible to return it but the amount in the pipe will be quite small compared to what is pumped out daily.

Question: Do you know the pipe will be out of water on big tides? You can nearly walk out at low times.

Question: the diffuser on Bispham pipe will stick out.

The pipe is designed to be in a place of permanent water.

2.3 km is not far enough.

That is your opinion. The DCO is valid. The Secretary of state satisfied.

The flow is from south to north. It will end up in Morecambe bay. How confident are you in the modelling? Kill zone?

Modelling has been requalified by Environmental agency. We didn't commission or pay for it.



FTC: You can get a copy using the freedom of information act.

Monitoring dead zone users divers. Dipping from surface water doesn't give enough info on dead zone. Currently agreeing with MMO, North west inshore fisheries.

We got told 2 days ago to take fishing equipment away.

For the surveys we are proposing to undertake there is no requirement for us to notify mariners.

Pipe is one of biggest breeding grounds for cod in North west.

Are there other salt caverns that have done this before as big as you are building here? What did they do with the brine?

Chemical industry. Fish area. Breeding in that. Massive industry.

Question: this is supposed to be a liaison committee and we have a lot of local knowledge. If you put a pipeline out in shallow water – what you have to consider here is that the salinity levels in less water 24 hours a day so you could start breaking the rules as salinity levels will be too high. It needs to be further out in deeper water so there is more chance for it to be spread about.

Can Halite review that situation? Can also quash rumours and myths. Have you got all of the permits for brine?

What about the dumping licence out of the dock? Water is contaminated so can't spread into lune deep as contaminated?

Chair – I have noted that brine is a major concern – should we have more detail on that? Can Halite provide more on that?

Question: Was there a discussion at the first CLP about storing brine in old caverns?

Brine can't be stored in the old caverns – no. There is permission to put brine in one of the caverns but this is not a goer due to the quantity of brine and the fact that there is brine already in caverns. This is good news in some ways as brine is not seeping out so shows they are watertight.

Is there an exclusion zone of 250m needed around individual well heads? There is no exclusion zone. There will be fence around well head compounds but not around wells. There will be directional drilling to get to the wellheads.

When and where will surveys be published?

Wyre are the approval authority for the reports we are submitting but ultimately the secretary of state is the authority so the final plans have to go to the secretary of state. Wyre will say requirement 23 happy with that. We need to enquire where and who and when ourselves.

When they are public can we have them by email?

Some info eg on protected species might not be made public. This is not within Halite's control.

Do the engineers understand the current south to north along the coastline? The pipeline at Anchorsholme suddenly snapped because of drift and strong currents. Strongly advise you to look at it very seriously as two major construction firms both lost the pipelines in construction.



Firms we are talking to have had experience of those pipelines you have mentioned.

Chair: I suggest a further session on the outfall perhaps with those involved in modelling?

Can Halite invite regulators to the panel?

Halite will be happy to invite regulators although there is always the risk that they will feel the target of concerns. They won't want to reopen the DCO.

What about drainage for flooding? The field for the access road in Preesall has been under water all week. How will Halite deal with flooding by connecting with brine outfall pipe or putting in an extra pump?

Drainage for flooding is still to be approved at the detailed design phase. Unlikely to be in existing sewers.

Stephen Clarke is on the regional floods committee and can look into EA reports whilst in Warrington.

There will be some temporary closures of walk ways.

When will it actually start?

First spade in ground end of February/March haulage road in Preesall.

19 caverns in total – 5 then 4. What happens when you have done your 9 and it is not viable? What happens to pipes etc if you come to the end and it doesn't work? What will happen to the pipe? Will it be used as a flood defence?

Within the DCO there is a decommissioning plan. Checks and balances all the way. The pipe will be made of stainless steel.

Chair: In terms of viability there are two issues – one that they work, two that it is financially viable. If financial issue after 5 caverns – no gas – Halite still have to agree decommissioning with authorities.

Questions: When will the pipeline from Nateby be fitted?

It will not be next year.

Question: in the DCO there is a need to agree terms with United Utilities to monitor and mitigate subsidence affecting their equipment and property. Are you planning this for others? Local people in Preesall and Knott End very worried about subsidence due to fracking/traffic/tremors/vibrations/instability of land (apart from the caverns themselves).

We have met United Utilities and talks are in progress. They are supplying us with their requirements. DCO only requires us to monitor UU subsidence, although for us we will be interested in well heads etc.

Question: Will you look at stainless steel? They level the road every ten years. Whole place is a quagmire. It will have to be weighted down.

Question: We were set up as a committee to disseminate information to our communities. Would hate for anyone to be worried to come to this committee. You are lucky you have a handful of us



and not the community. A lot of people very interested. Please don't be frightened to come to us. Communities coming to us.

We expect to and fro. Halite made this commitment – minimum of 4 per year. For years to come. If we do not have the answer you want then Halite will try and come back with an answer.

Questions can be submitted in advance to the CLP.

Is Halite considering doing a media publication on what is happening? What, when, how, apart from just this meeting. So everyone can access it. Newsletter at the moment – well underway. No exact date. Old in focus on website. Circulated to households in the post codes. Updating the website. A lot out of date but there is a lot of useful information still there.

Any questions or presentations will be uploaded to the CLP section of the website.

Community information meetings. Once website update – regularly updated.

Any information received from CLP email then it is public domain. That is the whole purpose of the CLP.

Original modelling – Arcadus used to be called Hyder but taken over a couple of years ago. Did the discharge modelling. Recent environment agency modelling which supports the findings of our modelling. The original modelling is an appendix to the environmental statement.

Question: 10 years ago there was no island off Fleetwood. It has been caused by the pipe off Rossall. Started appearing when started doing the stones and pipes on Rossall. It has moved 200 yards in the last two years. If you put the pipe the other side then the brine will flow to Blackpool.

NIRAS – doing the benthic survey. Were involved in DCO but changed their name.

Late Nov/Dec agreed for the benthic and other marine surveys. The original was completed at this time of year so the comparison will be okay. This stage of preconstruction monitoring is agreed. MMO have been over this like a fine toothcomb.

Next steps – in-depth meeting on brine. Next CLP meeting January – early February.