Objections to the application for development consent by Halite Energy Group Ltd. for Preesall Saltfield Underground Gas Storage EN030001

SUMMARY

These objections relate to the topics shown in the index below with special attention to the overall suitability of the ground conditions and Burn Naze fault, the potential volume loss from a cavern below a leak was discovered, particular concerns around United Utilities Treatment Work and tunnel and the lack of trust, awareness and effectiveness of communications.

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1.1 There must be serious questions raised as to the accuracy and the limitations of the evidence presented to demonstrate the suitability of the Preesall salt field to safely contain these proposed caverns. It consists of bedded salt with layers of mudstone and marle rather than homogenous dome salt these interfaces may be a source for gas migration. Additionally it is known to have major faults to the east with the stepped Preesall fault and to the west with Burn Naze fault. There are other more minor faults, including two north-south faults under The Heads and under Barnaby Sands where evidence is only limited. One has to question what other faults and flaws exist that have not as yet been identified?

1.2 Much of the evidence from Canatxx and more recently Halite, and from the 3D model of the Preesall halite created by the British Geological Society (BGS) demonstrating the extent and the top and bottom measurements of the halite, fail to be confirmed by the limited number of boreholes they have produced and the drilling records of previous ICI boreholes. Nor does the 3D model show all the faulting known to date.

1.3 At the Public Enquiry their expert Professor Rokahr accepted he had not created caverns in such a faulted location or a location I described as “a folded river valley”. He stated that more boreholes and investigation was required. Also the Assessor recommended more investigation work needed to be done.

1.4 Canatxx did not drill the number of boreholes they said they intended to drill, nor have Halite drilled those extra boreholes and neither appear to have done more seismic lines as were recommended. The boreholes drilled and their cores only present limited information and often raise further questions rather than confirming other information that has been presented i.e. depths to top and bottom of the salt. They do not appear to have been used to establish the presence and extent of faults which would seem to be a safe and sensible purpose.
2.1 There is insufficient information regarding the positioning and make-up of the Burn Naze fault which to me, and I believe the whole of the residents of the Fleetwood Peninsula and beyond, is absolutely critical. It is not known if it is made up of a single long fault or multiple faults. Canatxx and now Halite appear to be using considerable guess work to define its location as it runs roughly North-South under the River Wyre. No bore holes have been drilled from either side of the river to fully establish its location or indeed how it is made up, and hence what risks it could generate. It was confirmed at the old ICI borehole at Stanah on the western riverbank and Halite “believe they have intersected it “at borehole E1 although there does not appear to be any conclusive evidence of this.

2.2 To the west of the Burn Naze fault is a large layer of Sherwood Sandstone which would butt up against the western edge of the halite layer. This fault and the porous Sherwood Sandstone is likely to allow any fugitive gas to migrate through that sandstone and via smaller faults, cracks and weakness in the interface between other rock strata and make its way up towards the surface where it could emerge anywhere on the land to the west of the River Wyre. This is where by far the greatest density of population reside.

3.1 Halite promote Professor Rokahr’s rule of the distance separation between caverns and between cavern wall and faults of 3 x cavern radius. The grouping of the proposed caverns generally conform to that rule, though that does not allow much room for any adjustments that may be required.

3.2 What concerns me, and many other residents, is that so much of the precise information on location and nature of “known” faults is not confirmed, and what of smaller unknown faults? How can you comply with a 3xr rule when you do not know with any certainty of the distance to faults especially the Burn Naze Fault?
4.1 I worked with large pressure vessels at ICI and know there is a quantity or percentage before measuring instruments indicate a change. At the Public Enquiry I questioned this repeatedly in relation to instruments registering movement of gas into or out of the proposed caverns and was finally given the answer of 0.025%. This was the 0.025% of gas in a cavern that could be lost before anyone could have their first thought that there was a leak and I would surmise that would only be the case if the cavern was static and no pumping of gas in operation.

4.2 At an early meeting of PWG with Halite I put that figure of 0.025% to them and the Halite representative stated that in reality it was more likely to be double that percentage i.e 0.05%. I passed him an example of a cavern volume, of that % cavern gas loss, and the multiple of expansion of that gas to ground level dependant on the cavern storage pressure, an extremely large volume of gas. Then adding that the explosive mix of gas and air was in a range of 5-15% so taking an average of 10% he could multiply the total volume at ground level by 10 to demonstrate the explosive volume in total. He was going to take it away and come back to me with his findings, even with a reminder I haven’t had a response. This didn’t surprise me as it demonstrated such an enormous volume of gas that was likely to make an impact on peoples perception of their proposal, and there were a number of other PWG questions unanswered.

5.1 At the Public Enquiry Canatxx were asked how long would it take to vent a leaking cavern either to other caverns or to atmosphere their response was up to 4 days, yet when this was asked of Halite at that early meeting the reply was about 24 hours i.e 1 day. We didn’t get a satisfactory explanation why there was such a difference. It raises the question of who is correct?

5.2 Taking Halite’s comment that there was a likelihood of loss of 2 x 0.025=0.05% volume of a caverns gas before a leak started to show and the time for action taken to stop any leakage, one has to question how much gas could be lost. Considering just some of the variables i.e speed of response, volume and pressure of the leaking cavern, rate of gas leak, options for transfer to other caverns or National Gas Transmission System, rate of transfer, rate of discharge to atmosphere if no other option, the amount of gas that could leak and start its migration to who knows where is massive.
5.3 If only a tiny % of that leaking gas migrated into residential or industrial areas the consequences could be devastating and long-lasting, because gas could continue migrating and emerging from weakness in the ground for days or weeks.

6.1 There is a history of seismic action along the Northwest of England with records at BGS registering up to at least 5.0 on the Richter scale. Including over the last 4 years earthquakes under Coniston and Ulverston just across Morecambe Bay from this proposal and the two nearby under the Fylde linked to fracking. Halite and Canatxx before them appear to dismiss any risks from seismic action yet we are considering a bedded halite layer bordered by major faults and including other minor faults, much of which not fully identified.

6.2 There must surely be a risk of faults opening and extending, the same with cracks and the interface between beds of different rock, and also of previously annealed cracks re-opening due to movement in any future earthquakes.

7.1 After the halting of Shale Gas fracking following those 2 local earthquakes there is now the likelihood of this being allowed to continue in the Fylde so the possible risks from even more earthquakes need to be considered.

8.1 The location of the proposed caverns will require directional or “lazy S” drilling. This would surely make the pipe-work to the caverns more vulnerable to damage than vertical pipes in the event of seismic action inducing ground movement as this would add to the risk of gas leakage.
9.1 The proposed cavern locations are now extremely close to the Fleetwood Peninsula with it’s Industrial and densely packed domestic properties including near 30,000 residents making them probably the most vulnerable if gas was to migrate into the Burn Naze Fault. We know from Hutchinson Texas, of gas migrating 7 miles through rock strata from a damaged UGS feed-pipe emerging to kill residents and destroy properties. But on Fleetwood Marsh about as close as any building to the proposal and the Burn Naze Fault is United Utilities Fleetwood Wastewater Treatment Works, (UU Wwtw) and it’s Interceptor Tunnel running to the far end of Blackpool with connections to the sewers and surface water drains. This adds a significant factor to the objections because of the potential effects migrating gas could cause.

9.2 I was involved in the Commons Select Committee and Public Enquiry against Northwest Waters planned discharge of raw sewage to sea via a long sea outfall and the approval of the Wwtw. Part of the works was unproven on the scale required and the Interceptor Tunnel characteristics unique resulting odour problems for many years. For the last 5 years I have been Chairman of a Fleetwood UU Wwtw Forum and closely involved in technical work to resolve the problems, so I am very familiar with the works and the whole Fylde Wastewater system.

9.3 The design criteria for the Tunnel was to prevent wastewater leaking out of the section seals, the external ground pressure would if anything force water into the tunnel. Where water can ingress the seals, then so could migrating gas. This means the tunnel could be at risk in the event of a gas leak migrating west from the Burn Naze Fault. In a worst case gas could travel along the length of the Tunnel and into other sewers throughout the area putting many more than the 80,000 residents within the 3 mile radius at risk.

9.4 The Wwtw was not designed to cope with ingress of explosive gases. The tunnel’s contents were not anticipated to create problem levels of methane and the risks anticipated were from liquid contaminants i.e dumping of petrol into drains. As a result not all of the process has intrinsically safe electrical fittings, only the Inlet and Settlement Tank areas. There is no detection system for natural gas, only for Hydrogen Sulphide gas.
9.5 If gas did enter the Works either via the tunnel or from the ground, then the biological treatment process and staff would be at risk. They would have to stop the process and abandon the area. Staff could leave the pumps switched on to discharge the wastewater and untreated sewage to sea on the storm discharge systems, but this action would have time limitations and contaminate the beaches.

9.6 If UU Wwtw staff were absent due to the presence of gas and there was nobody to clear the screens they would eventually block causing flooding which would likely damage the pumps and electrical systems, putting the whole system out of action. That situation could arise within 24 hours. If that happened it could take weeks to get everything fully operational again dependent on what equipment needed replacing.

9.7 The Fylde Coast Wastewater System combines the sewage and much of the surface water run-off for all of Blackpool and the majority of the urban areas of North Fylde, and pumps it into the sea. If those pumps were out of action the contents would back-up and flood into properties and the low lying areas. The consequences do not bear thinking about!

10.1 I believe the long term pumping of saturated brine into the sea will have a much greater effect on marine life than the Canatxx/Halite report states. I am not an expert but I scuba dive and have taken a keen interest in marine life. I have seen significant changes and hence believe some marine life to be more sensitive than generally believed. Views also held by others more qualified.

11.1 Will the continuous brine discharging have an adverse effect on marine organisms in the Lune Deep, only recently found to be of special interest, the full extent of which is still being surveyed. This was reported whilst work was being done to establish marine protection areas in the Irish Sea.
12.1 The A585 to Fleetwood and A586 Over Wyre both suffer with peak time traffic congestion which will inevitably be increased if Halite’s scheme goes ahead. It will also affect the local roads to their sites Over Wyre and around Fleetwood with the materials for the brine pumping at the Docks and the brine pipeline from the Docks to the sea wall at Rossall just to the south of Larkholme Estate.

13.1 The construction of the Brine Pipeline and Pumping Stations along with their vehicle traffic, (12.1) will likely cause considerable disruption to residents and any business on and near the route of the pipelines. Residents of Larkholme Estate which suffered flooding when the sea wall was breached are also concerned about the pipe going under the sea wall which is already a poor condition.

14.1 Being on the ICI Site Committee I knew of Canatxx early plans for a power station, and that they proposed to create a cavern to store gas for that power station, describing it as 1 or 2 weeks supply. Organisations in Fleetwood only became aware of the large scale gas storage plans approximately 2 years after it was raised with the residents of Over Wyre, by which time Canatxx was not prepared to hold any balanced public debate and were very difficult to obtain answers from. They were also very successful in the media at presenting this as an Over Wyre project having little or no effect on Fleetwood, something many residents of Fleetwood still believe today. This along with other questionable contacts and lack of answers created a complete lack of trust. When Halite took over they also promoted it as an Over Wyre issue, although they were more open and did finally treat both sides of the Wyre equally.

14.2 I personally asked Keith Budinger at a short Halite introduction at a Fleetwood Action Group meeting where he spoke of setting up a Community Liaison Group, CLG, to continue the meetings beyond the submission to the IPC as he was suggesting only 2 or possibly 3 meetings in that time-frame. I didn’t believe that was enough to resolve many questions and saw merit in continuing closer contact, especially when so few in Fleetwood were aware of issues raised.
14.3 When setting up the CLG Halite unfortunately proposed to restrict those attending to such an extent and to limit the frequency of meetings before submission that PWG found it unacceptable. It failed to be representative of the communities and appeared too limited to answer outstanding issues that PWG wanted.

14.4 As I had made the early request to Halite to continue communicating with representatives of the public after their original proposed submission date, since delayed, and following a request from Keith Budinger, I attended the CLG as an observer and not in any capacity representing PWG. There were only two other members of the public, one representing himself and the other from Fleetwood Town Council which had been encouraged to attend due to the serious lack of awareness amongst their members. I learnt of the IPC process and mentioned that the manner of Halite’s dealings with the incident at Brinewell 45 was likely to do further damage to the publics trust in them. I also pointed out that there did not appear to be a speedy conduit to exchange questions and answers with Halite.

14.5 I attended another CLG in late February after Halite had made its full submission of evidence, there were four members of the public, two from Fleetwood representing the Town Council and the Forum and two individuals. On both occasions there was no representative from anywhere Over Wyre. The new Communications Director who presented on Halite’s introduction of pledges to invest in the communities and environment, something he and others thought should have been addressed much earlier in the CLG process. I was hopeful his role would encourage more and better communication throughout the communities, since whatever the outcome of the application, Halite would have a presence and responsibilities in the future.

I have to say from my contact with the CLG that it was very poorly attended and generally failed to represent the communities Halite’s plans would affect or to be addressing the outstanding concerns I was aware of. It did not appear to be serving the function the IPC was trying to achieve.
15.1 Whenever Halite’s proposal has been commented on the main topic relates to people’s fear and distress of gas migration, explosions and a whole range of consequences. The words bomb, time bomb and references to a disaster far greater than “the Abbeystead Disaster” are frequently used and these widely held views should not be taken lightly.

16.1 Other underground gas storage projects have already been approved and others being considered so national need should not be a deciding factor. Halite had failed to provide conclusive evidence that this scheme could be safely created and remain safe in operation within the very difficult and faulted Preesall halite, regardless of any other problems this scheme could cause. The lives and future of the residents of this whole North Fylde area should not be put at grave risk for private profit and questionable employment and inward investment benefits. The scales are weighted far too heavily against any benefits.