

DCO Examination Process for: Glyn Rhonwy Pumped Storage EN010072

Interested Party Reference Number : 10031981

Date: 9/4/16

Written submission regarding impact of development on tourism and recreation

Our main contention is that the developer has failed to adequately assess the potential impact on tourism and recreation within Llanberis and Ceunant/Waunfawr during the construction phase and also during the operational phase. A report by Newidierm (2004; page 5, para 1.1) notes that tourism is **the major industry** within North West Wales, and scant regard is paid within the DCO to potential changes in the **amenity value of Llanberis and Ceunant/Waunfawr**, particularly during the construction phase. Furthermore, there is little evidence of assessment of the impact on adventure tourism within the local area, especially given the importance of Llyn Padarn to a wide number of user groups. These may include, but are not limited to:

- Local families and visitors to the area using the lagoons area for swimming, boating, kayaking, picnicking
- Triathlons and adventure races such as those run by Always Aim High Events (bringing around 2000 competitors and they estimate, double the number of spectators, to Llanberis annually); the RAT race events, and other large sporting events using the lake and surrounds
- Arfon Swimming Club
- Anglers
- Bangor University Water Polo Club (kayak)
- Kayak and SUP hire at Surfines
- Horse riders eg Caernarfonshire Riding Club and others, using Cefn Du for open moorland access
- Walkers who will lose access to footpaths on Cefn Du, and impact on access Moel Eilio, and walking around Llyn Padarn
- Climbers using Glyn Rhonwy
- Mountain bikers using Cefn Du
- Outdoor centres such as Surfines, Boulder Adventures, the Kent Mountain Centre, Bach Ventures, Great Adventures, Blue Peris Mountain Centre, Oaklands Outdoor Education Centre, Marle Hall OEC, Towers OEC, Sandwell OEC, Arete, Nant Bwlch y Hearn OEC, Lledr Hall OEC, Plas Menai National Watersports Centre, Plas y Brenin – a variety of commercial, national and outdoor education centres, who use the lagoons area for launching water activities
- Bangor University Rowing Club
- Impact on cyclists using the cycle path to Llanberis which is in the path of the discharge/ abstraction pipe
- Photographic visitors attracted by Snowdonia's dark skies status

- The loss of the historic attraction of the site as it currently stands
- The visual amenity of the site is altered from vantage points in Snowdonia National Park, impacting significantly on walkers
- Snowdonia Wildlife tours, who make use of Glyn Rhonwy and Cefn Du due to the presence of schedule 1 protected species of birds

We believe the developer should actively seek to identify and assess the impact on **all user groups** in order to determine any and all negative impacts from the development.

Furthermore, there is little evidence of an assessment of the direct impact of the construction phase on tourism within several nearby businesses and no adequate compensation package has been offered to:

- Gallt y Glyn hotel
- Glyn Peris guesthouse
- Llanberis Caravan Park
- Businesses at the Glyn Rhonwy end of Llanberis village such as the Alpine guesthouse and others

1. Impact during construction

There are a number of factors which will have an impact on recreation and adventure tourism during the construction phase:

- Noise from blasting (which has been significantly underestimated in comparison to how the penstock was constructed at nearby Dinorwig Power Station), tunnel boring, heavy machinery and traffic into and out of Llanberis and Cefn Du
- Increased traffic congestion
- Dust
- Potential pollution to the lake during dewatering
- Potential pollution at many areas of the site due to construction activities
- Light pollution impacting on Snowdonia's dark skies status
- Pollution from unexploded ordnance and historic chemical weapons storage and disposal within the site
- Water safety during the dewatering process and impact on swimmer / water user safety
- An overall change in the amenity value of the lagoons area
- Loss of public rights of way on high quality open moorland/ heath on Cefn Du

2. Impact during operation phase

There are a number of factors which may have a continued impact on tourism and recreation, including but not limited to:

- Low frequency noise/ vibration on accommodation businesses within approximately 200m - 500m radius of the turbines, such as is currently experienced within Dinorwig village from Dinorwig Power station. This is particularly evident at night due to the very quiet nature of the area
- Potential for pollution in Llyn Padarn from discharging of excess water during operation during periods of high rainfall
- Potential safety issues for water users during unexpected/ unannounced discharges of excess water into Llyn Padarn
- An overall change in the currently high amenity value of the lagoons
- The proposed landswap on Cefn Du is not of equal amenity value for walkers, bikers and riders, being composed of trackless heather or felled conifer tracks, whereas the current common land has a high amenity value with established paths and excellent views
- The developer has significantly underplayed the negative visual impact from Moel Eilio and other peaks within Snowdonia National Park

3. Economic value of adventure tourism and recreation

We are surprised that the developer has failed to adequately assess the potential impact on tourism and recreation given that reports on the same are freely available. For example, Newidiem (2004) notes that:

- *The adventure tourism industry adds over £140million to the North West Wales economy of which £60million is contributed to the economy of Snowdonia National Park;*
- *The adventure tourism industry employs on an annual basis 5,465 people in Snowdonia and 8,451 people in North West Wales as a whole;*
- *Adventure tourism provides 2,178 full time jobs within the Snowdonia national park area and 3,481 full time jobs within Northwest Wales;*

o The total non-seasonal jobs created by the sector within the Snowdonia National Park is 385 and the sector creates 516 non- seasonal jobs across Northwest Wales;

o This represents almost 6% of all employment in Northwest Wales.

In order to put these findings into some form of context the proportion of employment generated by the adventure tourism sector across Northwest Wales (6%) is larger than the proportion employed directly within agriculture and fishing (4.2%) as well as the proportion employed directly within the energy and water sectors (3.4%) and the manufacture of food drink and tobacco (3.5%) across the same area. Indeed the proportion of the Northwest Wales workforce employed as a consequence of the adventure tourism sector is comparable with the proportion employed within transport and communication across northwest Wales (5.4%). (source: Nomis – Annual Labour Survey). Page 7 para 1.3

An indication to the importance of this industry is its contribution of an estimated £140 million to North West Wales economy in 2004, and more year on year as adventure tourism becomes more popular. Llanberis is itself a peak tourist destination within North West Wales and gateway to much of Snowdonia National Park and adventurous activities, with many providers being based in Llanberis and operating activities out of Llanberis. Some 350000 people summit Snowdon annually, with a high proportion accessing Llanberis village at the start or end of their summit bid, and these visitors may be put off staying by construction activities, with a net loss to the local economy (a further 97p per £1 spent locally according to Newidiam, 2004).

We believe the developer should look to other developments in similar areas, as well as freely available data, to assess the potential loss of revenue and amenity caused by the development. This risk assessment should be incorporated into the overall assessment and mitigation/ compensation for loss should be incorporated into the DCO.

3. Suggested conditions

We suggest the following conditions if the development goes ahead, to mitigate some of the concerns above:

- The discharge pipe is moved away from the lagoons area of Llyn Padarn to a less popular area
- There is no blasting or tunnel boring during construction during high tourism season
- Water from Q6 is emptied into a holding tank and not directly into Llyn Padarn
- There is some landscaping improvement of the lagoons area to mitigate for the disturbance and change in amenity value
- Businesses affected by the development are adequately assessed for and compensated for disruption during construction and operation
- Compensation is available for those experiencing low frequency noise/ vibration within the vicinity of the development; and/ or pumping does not occur at the quietest periods of the night so that it is not so apparent and covered by background noise (ie before 11pm)
- Improvements are made to bridleways and cycle paths on Cefn Du in terms of easy open gates
- The amenity value of the lost common land on Cefn Du is recognized and appropriately replaced

- There is no unannounced water discharge into Llyn Padarn so swimming safety is not affected
- Security lighting is kept to an absolute minimum and consideration is given to less polluting lighting
- There is a proper evaluation and clean up of UXO in Q6 by specialist companies rather than the current unfounded “its low risk” approach
- Heavy machinery use and traffic into and out of the site occurs outside the tourist season

Dr Rebecca Williams

Chair

Representing Concerned About Glyn Rhonwy Community Group, 714 members

References:

Miller (2014) *The Economic Impact of Outdoor Activity Tourism in Wales*; Visit Wales

Newidiem (2004) *The Active Economy: the value of adventurous outdoor activities to North West Wales*; Snowdonia Active

UKPI Interested Party Written Submission reference number 10031981

Water quality and monitoring

Summary of concerns regarding SPH discharge licence application

- **High probability of UXO contamination within Q6 impacting on Llyn Padarn SSSI and Afon Seiont**
- **High phosphate levels within Q1 and impact on spawning beds and Afon Gwyrfai**
- **Water discharge and flood risk calculations appear underestimates**
- **Assessments based on average figures in water tested rather than the maximum chemical concentrations**
- **Limited confidence in NRW's ability to effectively monitor and prevent catastrophic pollution to both watersheds**

Discharge Application numbers: EPR/YB3690HU & EPR/YB3190HR

Regulated facility type:

EPR/YB3690HU: Operation of spillway (at Q1 & Q6) & Relief valve (at Q1 & Q6)

EPR/YB3190HR: Dewatering of existing quarry lagoons (at Q1 & Q6)

Regulated facility location: Glyn Rhonwy Slate Quarries, Cefn Du, Llanberis, Gwynedd, LL55 4TY

NGR discharge point & receiving environment:

NGR SH 55110 59660 to Nant y Betws,

and NGR SH 57290 61190 to Llyn Padarn

Effluent types: Rainfall, site run off and trade effluent

Request UKPI and NRW to refuse BOTH applications for all 6 discharges above, for the following reasons:

1. Nant y Betws

The Nant-Y-Betws currently contains high-quality salmonid spawning and invertebrate habitats. If flows are increased substantially during times coinciding with the stream's natural peak flows, this is likely to have a negative impact on the stream ecology. In winter and early spring this could potentially flush out redds (salmonid nests) and depopulate the stream of invertebrates, important food stuffs for fish and birds. This is likely to impact not only this mountain stream but the Arfon Gwyrfai and surrounding ecosystems.

There is no due consideration of the increased risk of contamination by increased sediment or concentrations of any pollutants which may arise due to the closed system pumping, and the impact of suddenly needing to dump large volumes of water containing sediment and other pollutants in this important spawning ground.

The design has not yet been fully specified but if the walls of the upper pond are to lined with a concrete mix this will increase the pH of the water. There is no consideration of the impact of this nor how it will be dealt with.

The developer does not specify what year the average rainfall figures are based on to determine the flood risk. Given the certainty of global warming and the local increase in flood events, we believe maximum rainfalls forecast using foreseeable future figures for the lifetime of the project should be used, not past figures. In the latter part of 2015 and 2016 alone there has a considerable increase in the number of flood events locally due to very high rainfall, causing considerable flooding at Nant Y Betws.

Q1 is noted to have *average* phosphate levels more than 6 times the recommended level for water quality (2.5.7). Given these are only average figures (and not the maximum) it is impossible to determine how SPH reached the conclusion in 2.5.9 that there will be no significant effect on Nant y Betws.

2. Cefn Du

No consideration has been given to the cumulative impact on watercourses on Cefn Du of heavy machinery passing back and forth, crushed slate waste which becomes a fine powder very hard to remove from the water, washing of heavy machinery and general pollutant run off during construction on the water courses at Cefn Du. This will impact on the quality of the water environment and for those who have private drinking water supplies.

3. Llyn Padarn

Q6 is a known storage and disposal ground for ordinance and potentially chemical weapons (the MoD will not guarantee this site safe and will not release information as to what was stored and burnt there, raising suspicions it is materials that fall outside the Geneva Convention ie chemical weapons). The most toxic material is likely buried in the lowest layers of debris and will not be apparent until water levels are low enough. Surface water testing is an inadequate way of ensuring water quality.

There is no plan for a holding tank for any water released from Q6 so it can be thoroughly checked and decontaminated prior to release into Llyn Padarn. Llyn Padarn has bathing water status and is home to rare fish and flora – it must be protected by preventing pollution in the first place rather than seeking to remediate after the fact, as occurred during the algal bloom.

The design is not yet fully specified but if the walls of Q6 are lined with concrete this will cause pH to rise and there is no mention of how this might be dealt with.

There is no assessment of the cumulative flood risk down river of Llyn Padarn when water is dumped during storm events, likely at the same time as Dinorwig. Forecasting of storm events is inadequate and likely based on current numbers rather than the projection for the lifetime of the project. The developer does not specify what year the average rainfall figures are based on to determine the flood risk. Given the certainty of global warming and the local increase in flood events, we believe maximum rainfalls forecast using foreseeable future figures for the lifetime of the project should be used, not past figures. In the latter part of 2015 and 2016 alone there has a considerable increase in the number of flood events locally due to very high rainfall, causing considerable flooding between Pen Llyn and near the Fricsan downriver of Llyn Padarn.

There is no assessment of the impact of dumping large amounts of sediment (and possibly pollutant) laden water (stirred up via the closed system), likely at a higher temperature, on the thermoclines and environment of the lagoons area, a shallow area of the lake, where the discharge pipe is to be located. NRW's own minutes of meetings not that composition of water in this system is "unknown". What evidence is there from other similar schemes to suggest, as SPH asserts, that the closed system water will be 'non-polluting'?

There is no mention of the potential for continuous water seepage from cracks in the ponds and the impact this may have, nor potential pollution into Q6 from construction activities above and around Q6.

SPH have not specified the full range of pollutants which will need to be monitored for. This might include but is not restricted to; radioactive waste, phosgene, phosphates, cadmium, mercury, arsenic and other chemicals inherent in weapons manufacture; organophosphates from illegal dumping of farm chemicals; synthetic oils and other chemicals from general waste dumping which may have occurred during the last 70 yrs. UXO are mentioned but not the range and possible contaminant from UXO clearance activities (2.5.24)

SPH notes 'unusually elevated ammonia nitrogen concentrations in 3 samples' (2.5.5) in Q6 but does not justify why these are not a concern.

SPH only gives *average* concentrations of the compounds tested for and does not generally note the maximum in the range (eg dissolved iron noted to range from 4-120ug/l) – clearly conclusions about water quality should be based on maximum amounts and their relationship to standards specified for European Bathing Water status before concluding whether the discharge poses any threat to Llyn Padarn.

There is no distinction made between sampling 'still' water and 'stirred' water and an assumption is made that the composition will be one and the same.

The discharge outlet will be into the Lagoons area of Llyn Padarn, a relatively sheltered area with a shallower depth than the rest of Llyn Padarn. The impact of discharging large volumes of water into this area has not been adequately assessed with respect to temperature, water quality and water flow, as well as potential build up of silt due to dewatering activities in this already shallow area, frequently used for bathing.

There is no mention of a sediment testing regime, which is critical in the case of the sediment layer in Q6, where there is likely contamination from UXO's and UXO clearance activities, nor how this will be safely disposed of.

There is no consideration of the possible impact of spillway construction on water quality (eg concrete and alkalinity and run off during construction activities).

Swimming will be affected as discharges will happen without warning, into a highly valued bathing area, affecting water safety. The developer has not considered this and has not responded to the community's request to move the outlet pipe out of the lagoons area. We understand that NRW do have the mandate to change the location of the outlet pipe and believe they should do so.

4. Flood risk across both watersheds

One major issue is the strange value of likely run-off predicted from this artificially constructed reservoir. With rainfall generally exceeding 3000mm in Snowdonia it is anticipated that net input may be substantially greater than that suggested by SPH.

Conservatively estimating a direct combined rainfall catchment of 60,000m² for Q1&Q6, the annual rainfall is equivalent to 160,000m³ of excess water that will need draining. When averaging over the year, this does not sound unreasonable but anyone familiar with Snowdonia rainfall knows that most of this rain falls in periods leading to extensive flooding. The water falling on Q1 and Q6 will need draining **immediately** to prevent overflow and they will thus contribute to enhancing peak discharge in a similar way to paved over housing developments associated with flooding elsewhere in the UK.

Building of dams along Q1 and Q6 will thus confound existing flooding problems around the Nant-Y –Betws and Afron Gwyfrai. Flooding has been a problem in Waunfawr with an adjacent stream to the Nant-Y –Betws changing it's flowpath during recent storms with boulder grade debris blocking residents' access paths to their homes.

Thus the figures given by SPH are not only erroneous but also do not adequately take into account the likely increase in flood risk over the coming years as climate events become more frequent.

5. Lack of confidence in NRW's ability to prevent breaches occurring

Two clear examples exist where NRW has failed to proactively prevent harm in relation to Llyn Padarn and Glyn Rhonwy site.

- The algal bloom was a devastating blow to the flora, fauna, and recreational use of Llyn Padarn and judicial review noted that NRW did not exercise their duties sufficiently with respect to preventing harm
- NRW did not stop exploratory drilling in Glyn Rhonwy during the known nesting season and within the exclusion zone of a nesting pair of peregrines. The result was the peregrine left her eggs and no brood was hatched in 2015. This is despite them being notified on more than one occasion of the issue and risk.

This track record does not inspire confidence in NRW's ability to protect Llyn Padarn and Nant Y Betws from harm in a proactive and preventative manner. Remediation after an event is simply not good enough.

6. Conditions

If the license is granted, we expect to see the following conditions:

- a. Specifying the exact nature of discharge, limits of all the elements of the discharge and the justifications for these limits, taking into account the high quality of the current framework in both Nant y Betws and Llyn Padarn, including during activities such as valve testing (eg 3.1.9)

- b. Location of discharge pipe - Due to the shallow depth of the Lagoons, and its use for bathing / recreational, that the developer considers other options, not merely the cheapest and most convenient location
- c. Monitoring (3.5.9) – that there is a clear and transparent rationale, and explanation for the methodology of sampling of potential discharge. That there is a comprehensive range of substances sampled for (given the site’s history) with the highest level of frequency of sampling possible, and with a comprehensive sampling for the various chemicals at different depths
- d. That a holding tank is built into the design to allow for preventative monitoring and proactive treatment of any contaminants
- e. Specify that water using the reservoir spillway is not considered a “non-polluting discharge” (3.2.10 & 3.2.19) for the entire lifetime of the project, given at this time we cannot be confident that it is not polluted nor can we foresee the potential impact and changes in quality over the lifetime of the project.
- f. Specify *how* Q1 & Q6 are to be lined, to take account of preserving the pH and quality of water once in the closed system.
- g. That the environmental management system (3.4.9) be specified and in place prior to any consent being given
- h. That flood risk is recalculated to more accurately reflect likely rainfall, impact of dam run off and cumulative impact across both watershed areas

Signed: R Williams

Date: 3/4/16

Name: Rebecca Williams on behalf of Concerned About Glyn Rhonwy, community group with 720 members

Address:

