

Notice of request for more information

Environmental Permitting (England and Wales)
Regulations 2016

Notice requiring further information

To:

Mr Paul Bold

Bold Environmental Limited
Suite 132
3 Edgar Buildings
George Street
Bath
BA1 2FJ

Application number: PAN-007519

Natural Resources Wales, in exercise of its powers under paragraph 4 of Part 1 of Schedule 5 of the above Regulations, requires you to provide the information detailed in the attached schedule. The information is required in order to determine your application for a permit, dated 16th October 2019. The information requested should be sent to the following address by 11th March 2020.

Information should be sent to:

Permitting Centre
Natural Resources Wales
Cambria House
29 Newport Road
Cardiff
CF24 0TP

| Name | Date |
|----------------------------|--------------------------------------|
| Katrin Raynor-Evans | 12th February 2020 |

Authorised on behalf of Natural Resources Wales

Ffôn/Tel 03000 654 427
Ebost/Email Katrin.raynor-evans@cyfoethnaturiolcymru.gov.uk
[Katrin.raynor-evans @naturalresourceswales.gov.uk](mailto:Katrin.raynor-evans@naturalresourceswales.gov.uk)

Canolfan Trwyddedu Cymru (Caerdydd), Cyfoeth Naturiol Cymru, Tŷ Cambria, 29 Heol Casnewydd, Caerdydd. CF24 0TP
Wales Permitting Centre (Cardiff), Natural Resources Wales, Cambria House, 29 Newport Road, Cardiff. CF24 0TP

Gwefan/Website www.cyfoethnaturiolcymru.gov.uk
www.naturalresourceswales.gov.uk

Croesewir gohebiaeth yn y Gymraeg a'r Saesneg
Correspondence welcomed in Welsh and English

Schedule

- **Risk Assessment**

The risk assessment has failed to demonstrate that total ammonia concentrations in groundwater (50m) and at the point of entry into the Afon Cynrig (150m) will be less than the chosen compliance value of 0.5 mg/l. This value is a drinking water standard. A compliance value based on an environmental quality standard (EQS) needs to be used for assessing groundwater discharges into the river.

- **Conceptual Site Model**

We do not agree with the conceptual site model (CSM) used. We recommend the CSM is revised and the model re-run with amended input values.

We recommend the following changes:

- The CSM is amended such that the only receptor to be considered is the Afon Cynrig surface water. This is because, there would seem to be little plausible use of groundwater for drinking water purposes between the discharge point and the river. Ammonia concentrations in groundwater at the point of entry into the Afon Cynrig should be calculated. The compliance value should be the EQS for total ammonia (as N). EQS values for surface waters can be found in The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015 available at:

http://www.legislation.gov.uk/ukxi/2015/1623/pdfs/ukxi0d_20151623_en_003.pdf

- **Suggested changes to input parameters**

Worksheet Page – Dilution

- Hydraulic Conductivity K - The value of 1.75 is too high for the Old Red Sandstone. P204 of *The Physical Properties of Minor Aquifers in England and Wales, British Geological Survey Technical Report WD/00/4 (BGS2000)* reports K values up to 0.11 m/d. We suggest a conservative input value of 1 m/d.

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- Hydraulic Gradient – The value of 0.005 is too low. BGS2000 reports hydraulic gradients of between 0.01-0.1 for the Old Red Sandstone.

Worksheet page – Attenuation in the saturated zone

- The bulk density of the Old Red Sandstone bedrock will not be the same as that of the glacial till. A value of 2.4 is more appropriate.
- Effective porosity of the aquifer. Most groundwater flow in the St Maughan's formation is through fissure flow rather than intergranular flow. The effective porosity will be the fissure porosity. Keep the value at 0.1 or reduce slightly.
- Define dispersivity as 10% as we have a fissured aquifer.
- The partition coefficient should be set at 0 as we have a fissured aquifer.
- Distance to compliance point – 50m should be deleted but retain 150m.
- H1 calculation sheets should be submitted with any future submissions of the model.

Additional information required

- The depth of the unsaturated zone is an important parameter for the risk assessment. The estimate of 1.45m may be too conservative. We recommend that the depth of the unsaturated zone should be investigated further. Dipping the existing borehole that is on site may provide data.
- The maximum treatment capacity of the existing septic tank is 15 m³/day. The potential maximum sewage effluent discharge has been calculated as 16.11m³/d. Please explain how you can guarantee that the treatment capacity of the septic tank will not be exceeded.
- Please clarify how ammonia - as stated in the laboratory analysis (Precision Analysis C 45994, dated May 2019) - is defined e.g. ammonium, ammoniacal nitrogen, as N, etc. It is unclear what is being measured and what is being reported. Please note that EQS values for total ammonia in the document cited above are expressed as N.