Torfichen Wind Farm

Further Private Water Supply Risk Assessment

Renewable Energy Systems Ltd

Prepared by:

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Appendices

1.0 Introduction and Scope of Assessment

This further Private Water Supply (PWS) risk assessment has been prepared to address a consultation response from the Scottish Environment Protection Agency (SEPA) during determination of the proposed Torfichen Wind Farm planning application (ECU00004661)[1].

In summary, SEPA has requested further information[2] regarding the following private water supplies (PWS):

- PWS03 (Mauldslie Farm and Mauldslie Hill Cottages)
- PWS04 (Howburn Cottage)
- PWS05 (Outerston Hill)
- PWS07 (Esperston Farm)

These private water supply sources are considered in this report.

1.1 Scope of Assessment

To inform this response further site investigation has been undertaken to confirm the use of each PWS source, their location and relationship to the Proposed Development.

The field work was undertaken on 16th August 2024 by an experienced SLR hydrologist who is experienced in completing water interest surveys.

Specifically, the field work involved confirming the presence of the PWS with the occupies of the properties and recording the water sources used with a handheld GPS unit. Photographs of each source and surrounding ground and land use were also taken. Relevant information provided by the property occupiers regarding the use, quality and reliability of the private water supplies was also noted.

A PWS risk assessment was presented as Appendix 10.4: Private Water Supply Risk Assessment of the planning application. This report should be read in conjunction with that Appendix. As part of the planning application a detailed review of the site geology, hydrology and hydrogeology was also undertaken, and which has been used to prepare this assessment (refer to Chapter 10 of the planning application).

1.2 Assessment Approach

SEPA's Land Use Planning System Guidance Note 31 (LUPS-31)[3] provides guidance for assessing the impacts of developments on groundwater abstractions and groundwater dependent terrestrial ecosystems. This assessment has been undertaken with reference to this guidance.

SEPA requested additional details for PWS locations 03, 04, 05 and 07. Whilst on site it was possible to collect further information regarding PWS06 (Outerston Farm) which is also presented in this report.

The additional information collected is presented in the Table 1. The location of the private water supplies is shown on Figure 1 (Appendix A).

[1] https://www.energyconsents.scot/ApplicationDetails.aspx?cr=ECU00004661

[2] Letter dated 16th February from Scottish Environmental Protection Agency to the Energy Consents Unit (SEPA Ref: 11257)

[3] https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf

The same approach / methodology adopted in Appendix 10.4 of the planning application has been adopted to complete this updated and revised risk assessment.

1.3 Existing Committed Mitigation

Chapter 10 of the Environmental Impact Assessment Report (EIAR) submitted in support of the planning application detailed the mitigation measures that would be deployed and used to safeguard the water environment and abstractions dependent on this. Of relevance to this report is the following:

- The production and agreement with statutory consultees of a Construction and Environmental Management Plan (CEMP) prior to the commencement of any works;
- The deployment of an Environmental Clerk of Works (ECoW) to oversee all works and with the authority to cease works should a risk to the water environment become apparent; and
- A commitment to undertake preconstruction (baseline), construction and post construction water quality monitoring and reporting.

It is expected details of the water monitoring locations, parameter suite, monitoring suite and reporting procedures will be secured by a planning condition should the Proposed Development be granted planning permission.

2.0 Updated Private Water Supply Risk Assessment

Table 1: Updated Private Water Supply Risk Assessment

PWS ID (Figure 1 in Appendix A)	Property Name	Data Source and PWS Source Type	Location of PWS Source and Distance from Proposed Development	Details	Potential Complete Source – Pathway – Receptor Linkage	Mitigation and Monitoring
PWS03	Mauldslie Farm Mauldslie Hill Cottages	Site Visit Spring	E 331549 / N 652081 Approximately 975 m south-west of proposed hardstanding for turbine T1.	Residents confirmed that the properties are served by a spring which is collected in a concrete sump approximately 1.1 km south-east of the properties. Water is then diverted into a holding tank (located at E 331460 / N 652165) before it is gravity fed to the properties. No development is proposed within 250 m of the spring and the Proposed Development will not cross any distribution pipework from the PWS source to the property. Therefore, the PWS source is not considered to be at risk from the Proposed Development.	× PWS source and pipework not considered to be at risk.	None
PWS04	Howburn Cottage	Returned Questionnaire Borehole	Within the property boundary. Property is located approximately 1.7 km north-west of the nearest element of the Proposed Development (turbine T3).	Residents have confirmed by a returned questionnaire that the property is supplied by a borehole which is located within the property boundary. The property is remote from the Proposed Development (>250 m from any element of the Proposed Development). Therefore, the PWS source is not considered to be at risk from the Proposed Development	× PWS source and pipework not considered to be at risk.	None
PWS05	Outerston Hill	Site Visit Well	E 333521 / N 655707	Residents confirmed the property is supplied by a well which is located within the back garden of the property. Water is	× PWS source and pipework not	None

PWS ID (Figure 1 in Appendix A)	Property Name	Data Source and PWS Source Type	Location of PWS Source and Distance from Proposed Development	Details	Potential Complete Source – Pathway – Receptor Linkage	Mitigation and Monitoring
			Approximately 970 m north-east of turbine T14.	pumped from the well to a tank within the roof of the property. No development is proposed within 250 m of the well and the Proposed Development will not cross any distribution pipework from the PWS source to the property. Therefore, the PWS source is not considered to be at risk from the Proposed Development.	considered to be at risk.	
PWS06	Outerston Farm	Site Visit Springs	E 333271 / N 656716 (spring 1) E 334122 / N 653881 (spring 2)	The residents of Outerston Farm are party to and financially involved in the Proposed Development (the proposed wind farm is located with land under their ownership). Residents confirmed that the farmhouse and steading cottage is supplied by mains water. The farm (livestock only) benefits from two spring fed sources. One spring (for the lower farm referred to as spring 1) is located approximately 460 m south-east of the property whilst the other spring (for the upper farm where the Proposed Development is located referred to as spring 2) is located near turbine T10. No development is proposed within 250m of the spring 1 (the lower farm) and therefore, the PWS source is not considered to be at risk from the Proposed Development. T10 is located very close to the spring 2 and the current pipework between the	✓ Spring 2 at risk.	The spring and distribution pipework will need to be clearly marked and protected. Within micro-sting allownacesT10 should be located as far from Spring 2 as possible. Confirmatory water quality and flow monitoring should be undertaken. If required and agreed with the landowner and alternative PWS

PWS ID (Figure 1 in Appendix A)	Property Name	Data Source and PWS Source Type	Location of PWS Source and Distance from Proposed Development	Details	Potential Complete Source – Pathway – Receptor Linkage	Mitigation and Monitoring
				collection tank and the water troughs will be at risk from the Proposed Development. The Applicant has an agreement with the landowner that should spring 2 be adversely effected or the water distribution pipework be impacted by the proposed development an alternative water supply would be provided to their satisfaction.		source will be established.
PWS07	Esperston Farm	Site Visit Spring / Hill Runoff	E 333859 / N 656466 (spring 1) E 336015 / N 655424 (hill runoff 1) E 335763 / N 655234 (hill runoff 2) E 335160 / N 654676 (hill runoff 3)	The residents of Esperston Farm are party to and financially involved in the Proposed Development (the proposed wind farm is located with land under their ownership). Residents confirmed that the lower farm area and cottages are served by a spring source which is located approximately 550 m south of the property (spring 1). This is located more than 250 m from any element of the Proposed Development, and not considered at risk. The upper farm area, where the Proposed Development is located, is served by three hill runoff collection areas which are sourced from the northern slopes of Wull Muir and Hunt Law. Water is piped beneath the B7007 at three locations into three collection areas before it is diverted to three different holding tanks. These are located approximately 270 m south-east and 70 m south of turbine T18 and 85 m south of the proposed borrow pit search area (which is considered the main holding tank for the	✓ Distribution pipework only	Where water distribution pipework is crossed by the Proposed Development this will be marked and structural analysis competed. Additional protection to pipework to be placed for duration of works / traffic movement as required. If damaged distribution pipework to be repaired to

PWS ID (Figure 1 in Appendix A)	Property Name	Data Source and PWS Source Type	Location of PWS Source and Distance from Proposed Development	Details	Potential Complete Source – Pathway – Receptor Linkage	Mitigation and Monitoring
				upper farm). Water is then distributed via gravity to several water troughs across the upper farm site. No development is located upstream of the holding tanks and therefore the PWS sources are not considered to be at risk. The development will cross, however, the distribution pipework. The Applicant has an agreement with the landowner that should the distribution pipework be adversely effected by the proposed development it would be repaired to their satisfaction.		satisfaction of landowner.

3.0 Requisite Monitoring and Commitments

3.1 Requisite Monitoring

Review of Table 1 and Appendix 10.4 confirms that:

- Two PWS sources are potentially at risk from the Proposed Development (PWS06 and PWS08).
    - The property at PWS06 (Outerston Farm) is financially involved in the Proposed Development and there is an agreement in place that should the PWS at risk (Spring 2 in the upper farm) be impaired an alternative water source would be provided in consultation with the landowner.
    - PWS08 (Middleton Springs) is located near the proposed site access and was identified in the PWS risk assessment which accompanied the planning application as potentially at risk.
- The distribution pipework associated holdings tanks in the upper farm at PWS07 (Esperston Farm) is potentially at risk from the Proposed Development. This farm is also financially involved in the Proposed Development and there is an agreement in place that should the distribution pipework be impaired it will be repaired / replaced to the satisfaction of the landowner.
- Six PWS sources are not at risk from the Proposed Development (PWS01, PWS02, PWS03, PWS04, PWS05 and PWS09); and
- Two properties have confirmed to be on mains water supplies.

Whilst measures have been proposed to mitigate potential effects associated with construction and operation of the wind farm and associated infrastructure, monitoring of the private water supply sources has been recommended to confirm that the mitigation measures are effective and that there is no impairment of the water sources.

A separate water monitoring and reporting plan will be prepared in accordance with the planning condition requested by SEPA and will contain the following details:

- Location of proposed monitoring locations (NGR and plan);
- Proposals for baseline, construction and post construction monitoring and reporting;
- Commitment to prepare and adhere to a pollution incident response plan;
- A commitment to maintain wholesome water supplies at all private water supply sources.

The mitigation measures and monitoring protocols, as stated in the EIAR, would be agreed with SEPA and Midlothian Council prior to any work commencing as part of the final site CEMP.

3.2 Commitments

With respect to the recommendations made in SEPA's determination response it is confirmed that the water monitoring and reporting plan will:

1. Specify the monitoring points for the PWS sources that will be monitored at PWS06, PWS07 and PWS08;
2. Confirm it will be the source that is monitored at PWS06 and which of the spring sources at PWS08 which will be monitored – monitoring will be undertaken of flow as well as quality;

3. Confirm it will be the flow and quality of water in the distribution pipework from PWS07 that will be monitored;
4. Specify that when construction works are being undertaken within 100m of PWS06, PWS07 and PWS08 the frequency of monitoring will be increased to fortnightly (from monthly); and
5. State a minimum of 12 months baseline monitoring will be undertaken, and post construction will be undertaken for a period of not less than one year.

Appendix A PWS Source Figure

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23 November 2024

TORFICHEN WIND FARM FURTHER PRIVATE WATER SUPPLY

Appendix A

PRIVATE WATER SUPPLY SOURCE LOCATIONS

KEY

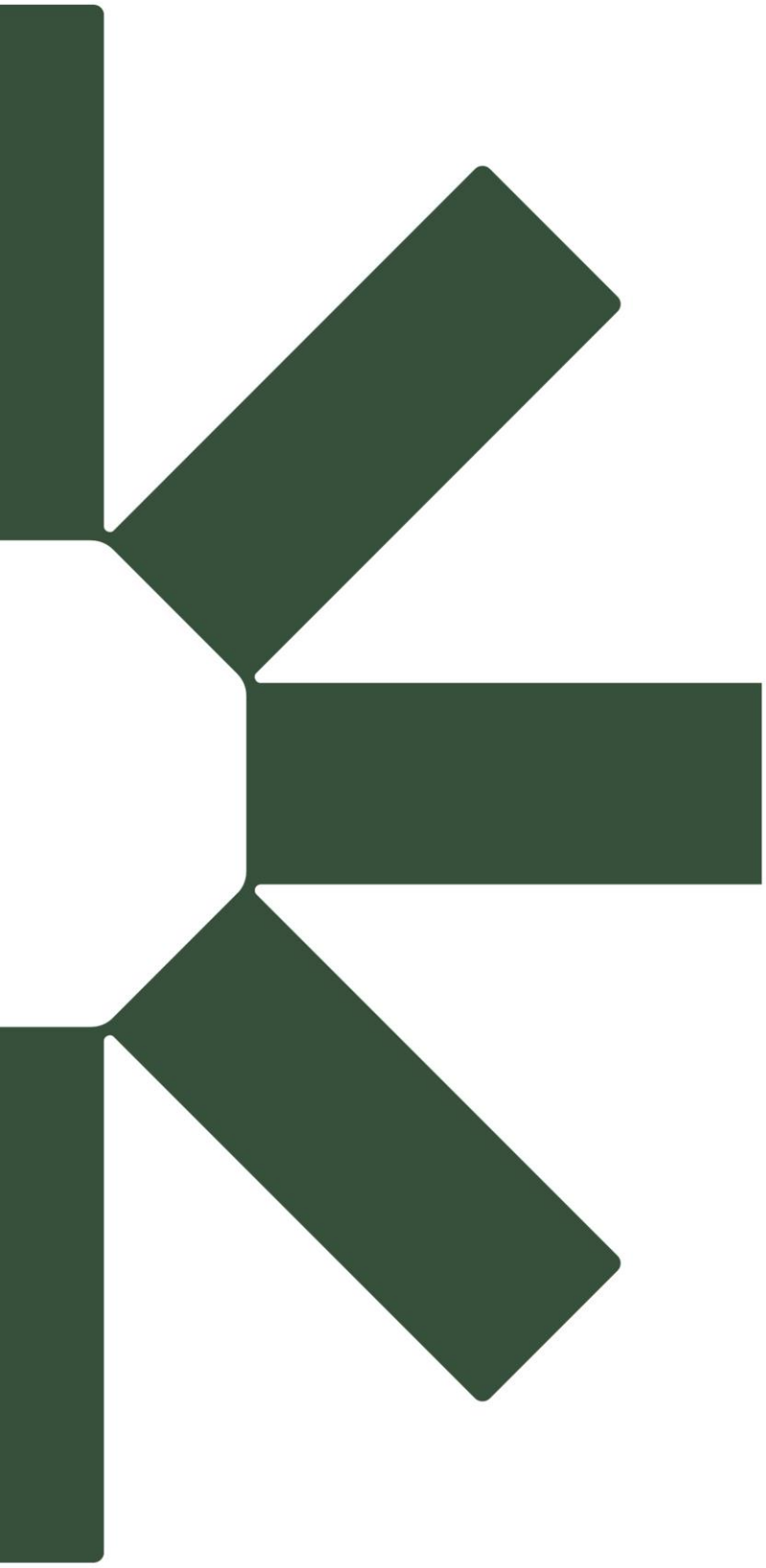
- SITE BOUNDARY
- PROPOSED TURBINE LOCATION
- PROPOSED HARDSTANDING
- PROPOSED TEMPORARY ENABLING WORKS COMPOUND
- SITE ENTRANCE
- PROPOSED WATERCOURSE CROSSING
- PROPOSED TEMPORARY CONSTRUCTION COMPOUND
- PROPOSED BORROW PIT SEARCH AREA
- PROPOSED BATTERY STORAGE COMPOUND
- PROPOSED TRACK
- PROPOSED CONTROL BUILDING AND SUBSTATION COMPOUND
- PROPOSED TEMPORARY TRACK
- TURNING HEAD

PRIVATE WATER SOURCE

- BOREHOLE
- RESERVOIR
- SPRING
- STREAM
- WELL
- MAINS
- HILL RUNOFF
- PROPERTY AND BUSINESS WITH PWS
- WATERCOURSE (OS OPENMAP LOCAL)
- WATERCOURSE 50 M BUFFER
- WATERBODY (OS OPENMAP LOCAL)
- SEPA NESTED WATERBODY CATCHMENT

SCALE - 1:30,000 @ A3

Further Private Water Supply Risk Assessment 2024



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