Aultmore Wind Farm Redesign

Technical Appendix 10.3
Private Water Supply Risk Assessment

Vattenfall Wind Power Ltd

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1.0 Introduction

This Appendix should be read in conjunction with **Chapter 10: Geology, Hydrology and Hydrogeology** of the EIA Report which contains a detailed description of the local hydrology and hydrogeology, flow mechanisms and hydraulic properties of the soils and geology, the embedded mitigation incorporated in the development design, and an assessment of impacts on groundwater and surface water flows and quality.

It considers the potential effects of the proposed development on the quality and quantity of water at the Private Water Supply (PWS) sources within the study area which comprises a buffer of 1km from the site infrastructure as proposed during Scoping. To complete the assessment a conceptual site model is presented which uses a source-pathway-receptor linkage which is used to assess the risk to each PWS. Where necessary mitigation is proposed.

Following consultation with Moray Council (MC) data was received for PWS sources within the study area. This data was then augmented with Ordnance Survey mapping and aerial photography. Additional properties, and potential water users, were also identified following a programme of site-specific field investigation that involved visiting the properties, enquiring about their water use and source, and mapping water abstraction locations. This included properties which were outside of the study area where there was no information provided by MC or where information (often anecdotal provided by nearby residents or from public consultations days) suggested that the source could potentially be within the study area.

The location of water sources (boreholes, springs, surface abstractions, etc.) and holding tanks etc. were recorded using a handheld GPS. When residents were unavailable on the day that the survey was conducted, questionnaires were left at properties requesting details of their water source or PWS.

Residents of properties which raised concerns during the public consultation events have also been addressed within this report. Many of these properties are located beyond the study area.

The field investigation was completed in August 2023 by the author of this report. The results of the PWS survey and assessment are presented in Section 2 of this report.

The location of PWS sources is shown on Figure 10.3.1 in this report.

Section 3 of this report gives detail of a potential water monitoring schedule and parameter list that could be used to monitor water quality at PWS sources that have a hydraulic linkage (e.g. pathway) to the proposed development. The monitoring frequency, parameter list and reporting programme would be subject to agreement with MC and the Scottish Environment Protection Agency (SEPA) should consent be granted, and it is expected would be secured by an appropriately worded pre-commencement planning condition.

2.0 Private Water Supply Risk Assessment

Table 2-1 presents information collected from the PWS survey, returned questionnaires, public consultation events, MC, and desk study. If a source is assessed to have a hydraulic connection (e.g. there is a pathway) to the proposed development, mitigation measures have been proposed.

The risk assessment has been completed with reference to SEPA's LUPS-31 guidance[1].

The findings from **Table 2-1** can be summarised as follows:

- three PWS sources are potentially at risk from the proposed development (highlighted in red);
- the distribution pipework associated with two PWS sources is potentially at risk from the proposed development (highlighted in orange);
- 23 PWS sources are not at risk from the proposed development (highlighted in green);
- three PWS sources are unconfirmed; and
- three properties are confirmed to be on mains water.

Following public consultation and a site visit, details of the water source for two local distilleries were provided, the details of which are as follows:

- Aultmore Distillery uses two springs located at E 341078 / N 855720 and E 341405 / N 855357 at the source of the Burn of Auchinderran, approximately 850m south from the nearest development (turbine T5), at its closest extent. The springs are located downstream of the turbine however no development is proposed within 250m of the springs. Therefore, with reference to SEPA's LUPS-31 guidance , and subject to safeguards to protect water quality, the water supply for the distillery is not considered to be at risk, and it is not considered further.
- Inchgower Distillery utilises water from a reservoir on the bank of the Ault Kittoch. The reservoir is located at E 343848 / N 859967, approximately 1.2km north of the proposed development, at its closest extent. No development is proposed upstream of the reservoir and therefore the water supply for the distillery is not considered to be at risk, and it is not considered further.

[1] SEPA (2017) Land Use Planning System, SEPA Guidance Note 31, Guidance on Assessing the Impacts on Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems, Version 3, September 2017

Table 2-1: Private Water Supply Risk Assessment

PWS ID (Figure 10.3.1)	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
PWS01	Lower Ryeriggs Farm	Returned Questionnaire Spring / Stream / Borehole	E 340912 / N 856345 (Spring) E 340117 / N 855761 (Stream) E 340123 / N 856098 (Borehole) 400m from the proposed development, at its closest extent.	Residents confirmed that the property and farm is served by three PWS sources; a spring source located approximately 800m north-east of the property within the forestry (same supply as PWS02), a stream abstraction from the Burn of Ryeriggs approximately 300m south-east of the property, and a borehole which is located adjacent to the property. The spring source is gravity fed to a holding tank which is located at E 340715 / N 856256. No development is proposed within 250m of any of the PWS sources. No part of the proposed development crosses the distribution pipework between the sources and the property. Therefore, the PWS is not considered to be at risk.	× PWS source and pipework not considered to be at risk.	N/A
PWS02	Ryeriggs Croft	Site visit Spring	E 340912 / N 856345 400m from the proposed development, at its closest extent.	Residents confirmed that the property is served by a spring which is located approximately 670m east of the property. The spring source is gravity fed to a holding tank which is located at E 340715 / N 856256. No development is proposed within 250m of the spring and the proposed development does not cross the distribution pipework between the	× PWS source and pipework not considered to be at risk.	N/A

PWS ID (Figure 10.3.1)	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
				source and the property. Therefore, the PWS is not considered to be at risk.		
PWS03	Beechtree Farm	Returned Questionnaire Borehole	E 339814 / N 856544 480m west of the proposed site access off the B9016.	Residents confirmed that the property is served by a borehole located adjacent to the property. The borehole is located in a different water catchment to the development and therefore is not hydraulically connected to the proposed development. There is no pathway to the PWS. The distribution pipework is also not at risk from the proposed development.	× PWS source and pipework not considered to be at risk.	N/A
PWS04	Rowan Brae Farm	Returned Questionnaire Well	E 339691/ N 856397 630m south-west of the proposed site access off the B9016.	Residents confirmed that the property is served by a well, located adjacent to the property. The well is remote from the proposed development. The distribution pipework is not at risk from the proposed development.	× PWS source and pipework not considered to be at risk.	N/A
PWS05	Upper Ryeriggs	Site visit Borehole	E 339359 / N 856245 1km south-west of the proposed site access off the B9016.	Residents confirmed that the property is served by a 100m deep borehole located approximately 100m north-west of the property. The borehole is remote from the development and in a different catchment. There is no hydraulic connection to the proposed development and thus there is no pathway to the PWS. The distribution	× PWS source and pipework not considered to be at risk.	N/A

PWS ID (Figure 10.3.1)	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
				pipework is not at risk from the proposed development.		
PWS06	Raefin	Site visit Borehole	E 340198 / N 857017 415m north-west of the proposed site access off the B9016.	Residents confirmed that the property and farm are served by a borehole located approximately 400m south-west of the property. Water is pumped from the borehole to a holding tank at E 339503 / N 857086 before it is gravity fed to the property and farm. The borehole is located more than 250m from the proposed development. The distribution pipework is also not considered to be at risk from the proposed development.	× PWS source and pipework not considered to be at risk.	N/A
PWS07	Starryhaugh	Site visit Borehole	E 340038 / N 859203 1.8km north-west of the proposed development, at its closest extent.	Residents confirmed that the property historically utilised a spring source within the Site (same source as PWS08), however, recently they established and now use a borehole located adjacent to the property. The borehole is remote from the proposed development. The distribution pipework is not at risk from the proposed development.	× PWS source and pipework not considered to be at risk.	N/A
PWS08	Hawthorn Cottage	Returned Questionnaire Spring	E 341354 / N 857472 (unconfirmed) 90m north-west of the proposed	Residents confirmed that the property is served by a spring source located within the Site, near the banks of the Corsekell Burn, approximately 2.5km south-east of the property. The exact location of the spring was not provided but is reported	✓ PWS source potentially at risk	Controls will be required to safeguard the PWS source from the proposed development to ensure the water sources are not impaired.

PWS ID (Figure 10.3.1)	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
			development, at its closest extent.	to be within dense forestry and inaccessible. Water is gravity fed to a holding tank located at E 339682 / N 858532 before it is piped to the property. It is noted that residents commented that the water quality of the current supply is very poor and unusable. The cause has been attributed to damage to the supply from recent forest felling in the area. The spring is located downstream of the proposed development and, given the proximity of the development to the spring, the PWS is considered to be at risk.		The spring, holding tanks and pipelines between these will need to be clearly marked and protected. Baseline and confirmatory water quality monitoring should be undertaken to assess the efficacy of these controls (see Section 3). Given the existing status of the supply an alternative water source may need to be provided.
PWS09	Allaloth Farm Blackhills Upper Allaloth (unconfirmed)	MC Spring	E 340854 / N 858246 E 340821 / N 858309 (unconfirmed) The nearest spring is located approximately 1km south-west of borrow pit BP1 and 1.1km north of turbine T1.	Permission not granted to access properties and questionnaire not returned at the time of reporting. MC data indicates that the properties are served by two springs located between 360m and 1km south-east of the properties. No development is proposed upstream nor within 250m of the springs. The development is unlikely to cross any distribution pipework from the PWS sources to the properties. 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 required, however, it is recommended that the PWS source(s) is confirmed prior to construction.

PWS ID (Figure 10.3.1)	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
PWS10	Mains of Oxhill Farm	MC Spring	E 341403 / N 341403 E 341164 / N 859396 E 340300 / N 859757 (unconfirmed) The nearest spring is located approximately 700m from the proposed development, at its closest extent.	Residents unavailable during site visit and questionnaire not returned at the time of reporting. MC data indicates that the property and farm are served by three springs located between 70m south-west and 1.1km south-west of the property. No development is proposed within 250m of the springs and the development does not cross the distribution pipework between the sources and the property. Therefore, the PWS is not considered to be at risk.	× PWS source and pipework not considered to be at risk.	None required, however, it is recommended that the PWS source is confirmed prior to construction.
PWS11	Newtonbrae Woodside Cottage	Returned Questionnaire Spring	E 342314 / N 856473 700m south-west of the proposed development (turbine T4) at its closest extent.	Residents confirmed that the properties are served by a spring source which is located approximately 520m north-west of the property, near Henheads Moss. MC data suggest that the Whitestones property shares this source, however, this is unconfirmed. No development is proposed upstream nor within 250m of the spring. The development is unlikely to cross any distribution pipework from the PWS source to the properties. 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.	N/A
PWS12	Sunnybrae Croft	Returned Questionnaire and MC	E 342574 / N 856154 (unconfirmed)	Residents confirmed that the property is served by a spring source near Henheads Moss and near the source of the Burn of	× PWS source and pipework not	N/A

PWS ID (Figure 10.3.1)	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
		Spring	1.1km south-west of the proposed development (turbine T5) at its closest extent.	Sunnybrae. The exact location of the spring source is unknown however MC data indicates that the PWS source is located at the source of the Burn of Sunnybrae, which is consistent with the returned questionnaire. No development is proposed upstream nor within 250m of the spring. The development is unlikely to cross any distribution pipework from the PWS source to the properties. Therefore, the PWS source is not considered to be at risk from the proposed development.	considered to be at risk.	
PWS13	Fernking	Site visit Spring	E 343868 / N 858340 140m north of the proposed access track.	Residents confirmed that the property is served by a spring which is located approximately 1km north-east of the property. No development is proposed upgradient of the spring, however, the pipework between the PWS source and the property will be crossed by existing access tracks which will be utilised as part of the proposed development. If any improvement works are undertaken to the track and any excavation exceeds 1m depth then there is potential that the PWS could be impaired. This should be confirmed as part of the detailed design stage of the	✓ Distribution pipework only. If any track improvements works are undertaken within 250m of the PWS source the risk to the PWS source should be reassessed.	Where water distribution pipework is crossed by the proposed access track this will need to be marked and structural analysis competed to ensure its integrity. Additional protection to pipework to be placed for duration of works / traffic movement as required. Baseline and confirmatory water quality monitoring should be undertaken to assess

PWS ID (Figure 10.3.1)	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
				project and appropriate mitigation identified.		the efficacy of these controls (see Section 3).
PWS14	Drodland Farm	Site visit Spring	E 344659 / N 858649 190m south of the proposed access track, at its closest extent.	Residents confirmed that the farm and associated properties are served by a spring which is located at the source of the Rumbling Burn, approximately 1.3km north-west of the farm. Water is gravity fed through a series of holding tanks down to the farm and associated properties. The spring is located downstream of the proposed development and given the proximity of the development to the spring, the PWS is considered to be at risk.	✓ PWS source potentially at risk	Controls will be required to safeguard the PWS from the proposed development to ensure the water source is not impaired. The spring, holding tanks and pipelines between these will need to be clearly marked and protected. Baseline and confirmatory water quality monitoring should be undertaken to assess the efficacy of these controls (see Section 3).
PWS15	Deerhill Croft	MC Spring	E 346420 / N 856339 (property location) 1.1km south-west of the proposed access track, at its closest extent.	Residents unavailable during site visit and questionnaire not returned at the time of reporting. MC data shows that the property is supplied by a spring, however, the exact location of the spring is unknown. The property is downstream of the proposed development and therefore if it is confirmed that it is served by a PWS it could potentially be at risk from the proposed development.	Unknown	The PWS source, should be confirmed prior to construction and mitigation measures identified as required.

PWS ID (Figure 10.3.1)	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
PWS16	East Balnamoon (unconfirmed) Red Roofs Goukstone Croft Wester Windyhills	Site visit and Returned Questionnaire Well	E 347872 / N 857376 320m north-east of the proposed access track, at its closest extent.	Residents confirmed that the properties are supplied by a well which is located approximately 700m and 770m north-east and north-west of the properties respectively. A questionnaire was left at East Balnamoon which has not been returned at the time of reporting. This property is thought to share the same supply following discussions with the neighbours. No development is proposed upgradient or within 250m of the well, however, an existing road - which will be used to facilitate the development - may cross the pipework between the PWS source and the Red Roofs property. The distribution pipework to this property is therefore considered to be at risk. It is noted that the development is unlikely to cross any distribution pipework from the PWS source to the other properties which share this source.	✓ Distribution pipework only. If any track improvements works are undertaken within 250m of the PWS source the risk to the PWS source should be reassessed.	Where water distribution pipework is crossed by the proposed access track this will need to be marked and structural analysis competed to ensure its integrity. Additional protection to pipework to be placed for duration of works / traffic movement as required. Baseline and confirmatory water quality monitoring should be undertaken to assess the efficacy of these controls (see Section 3).
PWS17	Hill of Balnamoon	Site visit Well	E 347340 / N 856673 350m east of the proposed access track, at its closest extent.	Residents confirmed that the property is supplied by a shallow well (approximately 3m deep) located approximately 220m north-east of the property. Property owner noted that they have issues with water quality when forestry works occurs nearby.	× PWS source and pipework not considered to be at risk.	N/A

PWS ID (Figure 10.3.1)	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
				No development is proposed within 250m of the well and the development does not cross the distribution pipework between the sources and the property. Therefore, the PWS is not considered to be at risk.		
PWS18	Myreside	Unknown	E 348591 / N 857319 930m south-east of the proposed development, at its closest extent.	Residents unavailable and questionnaire not returned at the time of reporting. MC data does not show that the property is supplied by a PWS. The property is downstream of the proposed development and therefore, if served by a PWS, it could potentially be at risk from the proposed development, however, this is not confirmed.	Unknown	The PWS source, if present, should be confirmed prior to construction and mitigation measures applied as required.
PWS19	Langlanburn	Site Visit Well	E 348582 / N 858697 (unconfirmed) 500m east of the proposed development, at its closest extent.	Residents confirmed that the property and farm is supplied by a shallow well (approximately 3m deep), which is located approximately 630m north-east of the property. The exact location of the well is unknown as it is located within dense forestry and was inaccessible during the survey. No development is proposed within 250m of the well and the development is unlikely to cross any distribution pipework from the PWS source to the properties. 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.	N/A

PWS ID (Figure 10.3.1)	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
PWS20	Maryhill Farm School Hill Shielburn Shielmuir Red Moss Stables Greenmoss East Holme West Holme Ben Lawers Ben Vorlich Birchfold	Site Visit Well	E 346283 / N 860432 580m north-west of the proposed development, at its closest extent.	Residents confirmed that eleven properties and a stable within the Drybridge area are supplied by a spring fed well, which is known locally as the 'Blackhill Supply'. The well is located between 900m and 1.7km south and south-east of the properties. Water from the well is fed into a holding tank (located at E 346308 / N 860501) before it is distributed by two distribution pipes to the properties. No development is proposed upgradient or within 250m of the well. The development will not cross any distribution pipework from the PWS source to the properties. 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.	N/A
PWS21	Muirton Farm	Site Visit Spring	E 346066 / N 860453 760m north west of the proposed development, at its closest extent.	Resident confirmed that the property and farm are supplied by a spring which is located approximately 280m south of the farm. No development is proposed upgradient or within 250m of the spring. The development will not cross 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.	N/A

PWS ID (Figure 10.3.1)	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
PWS22	Thornybank Greenbank Newton of Letterfourie	Site Visit Spring	E 344414 / N 859557 610m north of the proposed development, at its closest extent.	Resident at Thornybank confirmed that the three properties and farms share a spring supply which is located between 1.4km and 3km south-west of the properties. Water from the spring is diverted into a holding tank which is located immediately downstream of the source (located at E 344412 / N 859560) before it is gravity fed to the properties and farms. No development is proposed upgradient or within 250m of the spring. The development is unlikely to cross any distribution pipework from the PWS source to the properties. 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.	N/A
PWS23	Hillend	Site Visit Spring	E 343614 / N 859150 E 343615 / N 859162 E 343621 / N 859163 E 343553 / N 859167 E 343574 / N 859156 950m north of the proposed development at its closest extent.	Residents confirmed that the property and farm is supplied by five springs which divert water to two holding tanks immediately downstream of the springs (located at E 343621 / N 859167 and E 343588 / N 859162) before it is gravity fed to the farm and property. No development is proposed upgradient or within 250m of the well. The development will not cross any distribution pipework from the PWS source to the properties. Therefore, the	× PWS source and pipework not considered to be at risk.	N/A

PWS ID (Figure 10.3.1)	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
				PWS source is not considered to be at risk from the proposed development.		
PWS24	Westwood Croft	Site Visit Borehole	E 342617 / N 859759 1.2km north-east of the proposed development, at its closest extent.	Residents confirmed that the property is supplied by a borehole located adjacent to the property. The borehole is sourced by a catchment that is remote and not linked to the proposed development and thus there is no pathway to the PWS. The distribution pipework is also not considered to be at risk from the proposed development.	× PWS source and pipework not considered to be at risk.	N/A
PWS25	Crann Darach	Site Visit Borehole	E 342396 / N 859954 1.3km north-east of the proposed development, at its closest extent.	Residents confirmed that the property is supplied by a borehole located adjacent to the property. The borehole is remote and not hydraulically connected to the proposed development and thus there is no pathway to the PWS. The distribution pipework is also not at risk from the proposed development.	× PWS source and pipework not considered to be at risk.	N/A
PWS26	Berry Baulds Buinnach Farm	Site Visit Spring	E 341611 / N 858937 Adjacent to an existing track which will be utilised as part of the proposed development.	Residents confirmed that the two properties and farm are supplied by a spring which is collected within a concrete tank located between 1.2km and 1.6km south-west of the properties. No development, with the exception of an existing access track which will be utilised as part of the development, is located within 250m of the proposed development. However, given the	✓ PWS source potentially at risk	Controls will be required to safeguard the PWS from the proposed development to ensure the water source is not impaired. The spring, holding tanks and pipelines between these will need to be

PWS ID (Figure 10.3.1)	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
				proximity of the existing track with the PWS source, the PWS is considered to be at risk. In addition, the distribution pipework will cross the existing track and therefore considered to be at risk.		clearly marked and protected. Baseline and confirmatory water quality monitoring should be undertaken to assess the efficacy of these controls (see Section 3).
PWS27	Heads of Auchinderran	MC Spring	E 340832 / N 855325 (property location) 1.3km south-west of the proposed development (turbine T5) at its closest extent.	Residents unavailable during site visit and questionnaire not returned at the time of reporting. MC data shows that the property is supplied by a spring, however, the exact location of the spring is unknown. The property is downstream of the proposed development and therefore if served by a PWS it could potentially be at risk from the proposed development, however, this is not confirmed.	Unknown	The PWS source, if present, should be confirmed prior to construction and mitigation measures identified as required.
PWS28	Rhunoch	Returned Questionnaire Spring	E 340102 / N 855485 1.1km south of the proposed site access off the B9016.	Residents confirmed that the property is supplied by a spring which is collected approximately 210m east of the property. Water is gravity fed to a holding tank located adjacent to the property (located at E 339887 / N 855488). No development is proposed upgradient nor within 250m of the spring and the development does not cross the distribution pipework between the	× PWS source and pipework not considered to be at risk.	N/A

PWS ID (Figure 10.3.1)	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
				source and the property. Therefore, the PWS is not considered to be at risk.		
PWS29	Minduff	Public exhibitions Borehole	E 343442 / N 860345 1.8km north-east of the proposed development, at its closest extent.	Residents confirmed via email, following public exhibitions, that their property is supplied by a borehole which is located adjacent to the property. The borehole is sourced by a catchment that is remote and not hydraulically connected to the proposed development and thus there is no pathway to the PWS. The distribution pipework is also not at risk from the proposed development.	× PWS source and pipework not considered to be at risk.	N/A
PWS30	Burn of Aultmore	Public exhibitions Spring	E 345376 / N 856915 1.7km south-east of the proposed development, at its closest extent.	Residents confirmed via email, following public exhibitions, that their property is supplied by a spring which is located approximately 560m north of the property. No development is within 250m of the spring and the development does not cross the distribution pipework between the source and the property. Therefore, the PWS is not considered to be at risk.	× PWS source and pipework not considered to be at risk.	N/A
PWS31	Plot 5 and 6, Westpark	Public exhibitions Borehole	E 342851 / N 860017 E 343032 / N 860049 1.8km north of the proposed	Residents confirmed via email, following public exhibitions, that their properties, when built, will be supplied by two boreholes. The boreholes would be remote and not hydraulically connected to the proposed development and thus there is no pathway to the PWS. The distribution	× PWS source and pipework not considered to be at risk.	N/A

PWS ID (Figure 10.3.1)	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
			development, at its closest extent.	pipework is also not at risk from the proposed development.		
M1	West Balnamoon	Returned Questionnaire Mains	E 348141 / N 856271 (property location)	Residents confirmed that the property is supplied by mains.	N/A	N/A
M2	Bossy Hillock	Site Visit Mains	E 348954 / N 857306 (property location	Residents confirmed that the property is supplied by mains.	N/A	N/A
M3	Aultmore Lodge	Site Visit Mains	E 349157 / N 859543 (property location	Residents confirmed that the property is supplied by mains.	N/A	N/A

3.0 Example Monitoring Protocol and Intervention Strategy

As identified in Section 2, monitoring is proposed at properties that maintain a PWS source and where there is a source-pathway-receptor linkage to the proposed development.

Pre-development monitoring data can be used to establish baseline water levels and quality and assessment or trigger values to which routine monitoring data collected during construction can be compared against.

The monitoring suite, monitoring locations, monitoring frequency and intervention strategy would be agreed with MC and SEPA prior to any works being undertaken. It is anticipated that this would be secured by an appropriately worded pre-commencement planning condition agreed between the Applicant, MC and SEPA. **Table 3-1** however, shows an example protocol which could be used as a basis to agree a water monitoring protocol with relevant consultees.

Table 3-1: Example Monitoring Protocol

Location	Frequency	Determinand Suite
PWS08 PWS14 PWS16 PWS26	Monthly prior to and during construction.	Field Sampling • pH • Redox • Conductivity • Dissolved Oxygen • Water Level Extractive Samples • pH • Alkalinity (total and bicarbonate) • Suspended solids • Colour • Organic carbon (total and dissolved) • Electrical conductivity • Chloride • Orthophosphate • Sulphate • Nitrate, nitrite and ammonium • Hydrocarbons • Aluminium (total + dissolved) • Calcium (total + dissolved) • Iron (total + dissolved) • Copper (total + dissolved) • Magnesium (total + dissolved) • Manganese (total + dissolved) • Potassium (total + dissolved) • Sodium (total + dissolved) • BOD

Location	Frequency	Determinand Suite
		• COD • TON • Bicarbonate • Ammoniacal nitrogen • Total Coliforms (PWS only) • E Coli (PWS only) • Enterococci (PWS only)

* Monitoring locations, suite and frequency to be agreed with Statutory Consultees

3.1 Monitoring and Reporting Personnel

The monitoring and reporting would be undertaken by appropriately experienced and trained staff.

3.2 Monitoring Methodology

Water samples would be collected following guidance within SEPA, July 2003, Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water, v2 (specifically Section 9 thereof).

Prevailing weather conditions, qualitative flow conditions as well as other visual indicators would be recorded in order to aid the sample reporting.

The water samples would be placed directly into appropriate sterile bottles, which would be labelled and dispatched to a UKAS accredited laboratory under chilled conditions, and accompanied by the relevant chain of custody documentation.

3.3 Example Intervention Strategy

In the unlikely event that the routine monitoring data recorded potential pollution at a private water supply an investigation would be undertaken and intervention strategy would be implemented. The details of this would be agreed prior to any construction and secured by an appropriately worded pre-commencement planning condition.

3.3.1 Alerting Potentially Affected Properties

Contact details (land and mobile numbers / email addresses) for private water supply users would be maintained by site management at all times.

In the event that monitoring data collected at any private water supply is above the baseline monitoring record and above prescribed regulatory standards then property owners would be advised and repeat water sampling undertaken (if agreed with the property owners). Property owners would be advised within 24 hours of receipt of monitoring results. Repeat water sampling would be undertaken as soon as reasonably practicable and within 72 hours.

Details of any affected property would be reported to MC within the timeframe agreed with MC when the monitoring programme was agreed and finalised.

3.4 Provision of Alternative Water Supplies

The Applicant commits to maintaining the yield and wholesomeness of water supplies.

The following measures may be deployed in the unlikely event a private water supply is impaired by the works:

- provision of bottled potable water in the event of a short or transient derogation of a water supply (bottled water would be retained on site ready for quick dispatch to any affected property); and
- provision of an alternative water source (e.g. spring, borehole, alternative surface water abstraction location) in the event of a permanent derogation of a water supply.

In the event of an alternative water source being implemented MC would be advised as soon as is practical.

Figures

340000

860000

Surface Water Catchment

- Buckie Burn
- Burn of Aultmore
- Burn of Gollachy
- Burn of Paithnick
- Burn of Tynet
- Crooksmill Burn / Haughs Burn
- Deskford Burn
- River Isla - Keith to Shiel Burn

N

LEGEND

- Site Boundary
- Turbine Location
- Hydrology 1km Study Area
- Permanent Hardstanding
- Temporary Hardstanding
- Potential Substation Location
- Temporary Construction Compound Location
- Borrow Pit Search Area
- Upgraded Existing Track
- New Track
- Waterbody (OS Open Map Local)
- Watercourse & Waterbody 50 m Buffer
- Future 2085 Fluvial and Coastal Flood Extent

Private Water Supply Source

- Mains
- Property with PWS
- Property with PWS (Unconfirmed)
- Borehole
- Spring
- Spring (Unconfirmed)
- Stream
- Well

0 1 2 Kilometres

VATTENFALL

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AULTMORE WIND FARM REDESIGN

TA 10.3 PWSRA

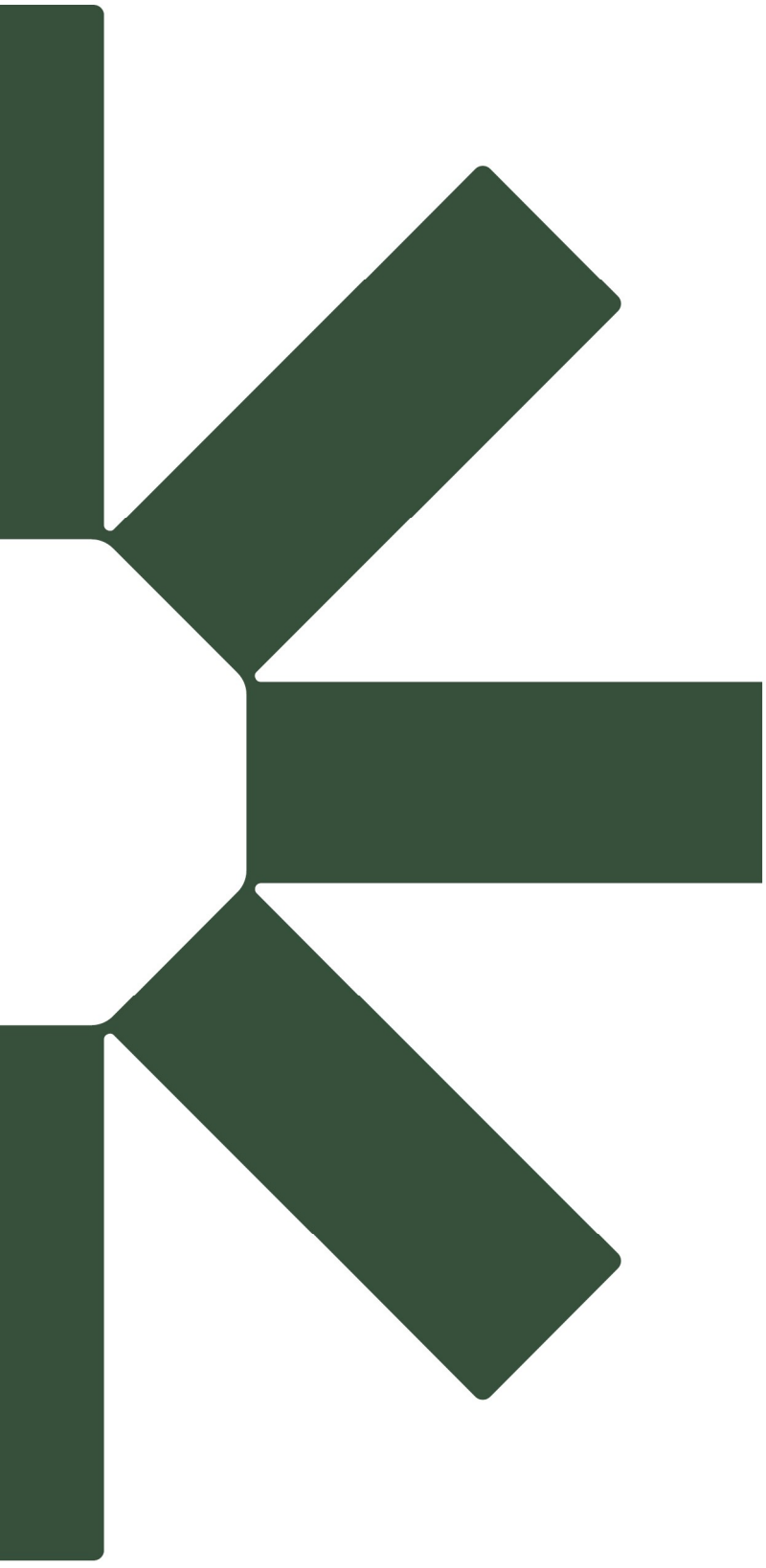
PRIVATE WATER SUPPLY LOCATIONS

FIGURE 10.3.1

Scale 1:40,000 @ A3

Date NOVEMBER 2023

03640.00016.0170.0 PWS Sources



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