Form WRD: Application for a new abstraction licence or a technical variation to an abstraction licence

Application type

Reference number (The number you generated in form WRA). Example: WRNATURALRESOURCESWALES1101
WRRWEPEMBROKEPOWERSTATION2105

Are there any applications currently being assessed by us that are linked to this application?
No

Is the proposed abstraction going to be aggregated with another existing abstraction?
No

Are any applications, at the same site; being assessed by the Environment Agency?
No

Tell us when you want your abstraction licence to end: [DD/MM/YY]
31/12/37

Abstraction details

Abstraction location name/reference
Point A

Abstraction point type
Single point

National Grid Reference
SM 93654 02652

Do you have any further points of abstraction?
No

Means of abstraction

Provide full details of the equipment you propose to use to abstract water, such as maximum pump capacity and any relevant dimensions, e.g. pipe diameter. For groundwater abstractions, include details about the borehole (depth and diameter) and details of screening and lining.

The cooling water system at Pembroke Power Station was designed in line with Best Practice. It incorporates an intake designed to limit the velocity of the induced flow. The general overview of the system is as follows:

Fish Deterrent System - A combined acoustic (Acoustic Fish Deterrent or AFD) and high intensity strobe light, fish deterrent system is installed on the intake of Pembroke Power Station. The patented SILAS® system (Synchronised Intense Light And Sound) was manufactured by Fish Guidance Systems Ltd (FGS) and was installed by OVIVO UK Ltd (OVIVO)

Coarse screens - 17 coarse bar screens that protect 4 drum screens from floating trash. Each screen consists of 10mm width bar at 50mm spacing. The individual screens ports are evenly distributed over the entire width of the intake structure.

Drum screens - After passing through the coarse screen arrangement, the abstracted water flows through 4 rotating filter drum screens of 15.5m diameter by 2.5m wide that contain a 6mm mesh screen. Each also drum screen incorporates a fish recovery and discharge facility,

Pumps - 10 cooling water pumps provide cooling water to 5 power generating units. 2 x 50% duty fixed speed cooling water pumps draw water from the pump forebay on the downstream side of the drum screens screens to each of the 5 CCGT units. Although pump discharge rate can vary depending on the state of the tide, the combined total pump flow is limited/controlled to a maximum 40 m3/s in accordance with Abstraction Licence and Environmental Permit requirements.

Pipework - 5 individual pipes supply cooling water to the 5 power generating units. These are of 2.2m in diameter.

Flow meters - 5 x MCERTS certified, NRW approved ultrasonic flow meters measure flow of each of the five cooling water pipelines between the cooling water pumps and the main power plant area.

For further information, please see attached Summary of Supporting Information for the Renewal of Pembroke Power Station Abstraction Licence.

If necessary, continue on a separate sheet and upload below.

- File: Summary of Supporting Information for the Renewal of Pembroke Power Station Abstraction Licence.pdf - Download

Abstraction quantities

Abstraction location name/reference

Pembroke Power Station - National Grid Reference SM 93654 02652

What purpose will the water be used for?

Non-evaporative cooling

Period of abstraction Will it be all year?
Yes

Maximum quantities (cubic metres)	
Annual	1,200,000,000
Daily	3,456,000
Hourly	144,000

Peak abstraction rate (in litres per second)
11.11111111112

Number of hours of abstraction per day
24

Add quantities for another location?
No

Calculations and supporting information

Use this section to show us how you have calculated the amount of water you require. This should include details of your operational regime (for example, number of hours and days you intend to abstract, number of units produced or area to be irrigated). We use this information to determine if the volumes you propose to abstract are appropriate for the purpose. Depending which industry you are in, you may need to provide additional information below.

If your proposal involves the provision of a residual flow via a notch or orifice, provide information on how this is being calculated. This should include details of the equation being used.

Please see attached Summary of Supporting Information for the Renewal of Pembroke Power Station Abstraction Licence for continued justification of need for water (Section 4). The proposal is a like for like renewal of existing licence 22/61/06/0156.

Additional document. (Spreadsheet file formats need to be: .xls, .xlsx, or .ods)

- File: Summary of Supporting Information for the Renewal of Pembroke Power Station Abstraction Licence.pdf - Download

Industry-specific requirements

For industrial use

	Industry sector or process type	Water use per unit produced (state units)	Maximum units produced per year
	Power Generation / Cooling Water	0.015MW per 1m3 of water (approx.)	-
	-	-	-
	-	-	-
	-	-	-

Means of measurement

State how you intend to measure the quantity of water you abstract. You do not need to do this for a temporary or transfer licence.

Meter

Water efficiency

Provide details of what measures you provide or intend to implement, to ensure efficient use of water. This could include water storage, re-use or recirculation, monitoring and checking for leaks, undertaking water audits or other industry specific good practice.

Please see previously attached Summary of Supporting Information for the Renewal of Pembroke Power Station Abstraction Licence document (Section 5).

Fish and eel considerations (surface water abstractions only)

Confirm the fish species present at your site. If you're not proposing any measures to protect fish and eels, you must justify this. For example, we may have confirmed in our pre-application response that the intake is inaccessible to fish or you undertook a fish survey to confirm.

Fish species captured within agreed ongoing monitoring programme.

A Valid eel screen exemption notice is also in place. This is in accordance with the completed assessment that has been approved by NRW that fulfils requirements for exemption in accordance with the requirements for safe passage of eels.

Discharge details

If you intend to return any of the abstracted water to the environment, provide details below. Details of discharge location(s) should correspond with any maps submitted. Do not include discharges to a public sewage system.

	Discharge location name / reference	National Grid Reference of discharge point (12 digit)	Total volume to be discharged (cubic metres)	Environmental Permit for Water Discharge Activity number (if applicable)
	Point Q (refered to as W1 within Environmental Permit)	SM 93096 03228	40 m3 per second (maximum)	EPR/DP3333TA
	-	-	-	-
	-	-	-	-
	-	-	-	-

Provide a description of the structure and equipment involved in discharge.

Once cooling water leaves each of the the 5 CCGT condensers, the 5 effluent pipes meet at the station's seal pit. The 5 inner channels of the seal pit feed water is gravity fed to the seal pit overflow weir. The water then flows through 2 outfall discharge lines which flow through the cliff face and discharge into the Milford Haven Waterway (referred to as Point Q in existing abstraction licence).

Other abstractors / water users

Provide details of nearby abstractors or users of water who could be affected by your proposal. This should include deregulated users (exempt activities or abstractions < 20 cubic metres per day), anglers and canoeists.
Your local authority's environmental health will hold details of exempt domestic abstractors.

N/A

Planning application

Have you sought advice on your planning application?

No

Declaration

By signing below, you are declaring that, to the best of your knowledge; the information given in this form, on any map and in any supporting or additional information; is true.

Signed Daniel McDermott

Print name Daniel McDermott

position Regulations Support Engineer

Date
* 21/05/2024

Would you like a copy of your submission?
Yes

Your email address
daniel.mcdermott@rwe.com