

Taffs Well Quarry groundwater abstraction

1. Purpose of this document

This report:

- explains how the application for a transitional full licence (also known as 'New Authorisation' licence) has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the use of specific bespoke conditions within the licence.

In determining this application, NRW has exercised its duties and powers under The Water Abstraction (Transitional Provisions) Regulations 2017.

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3. Summary of the application

This is an application for a full abstraction licence by CEMEX UK Materials Limited to dewater Taffs Well quarry, Taffs Well near Cardiff; which was previously an exempt activity.

The quarry is dewatered by pumping groundwater via a 6" submersible pump from the quarry sump and the majority is then discharged to the River Taff in accordance with environmental permit number AN0222301. A portion of the water is diverted to a storage tank to be used in dust suppression.

A telemetry magnetic flow meter is installed on the discharge pipe and measures flow every 15 minutes. The meter therefore only currently measures the quantity of dewatered water discharged into the river Taff, and does not include the quantity of water taken for dust suppression. The agent has confirmed that a meter will be installed to measure the abstraction for dust suppression.

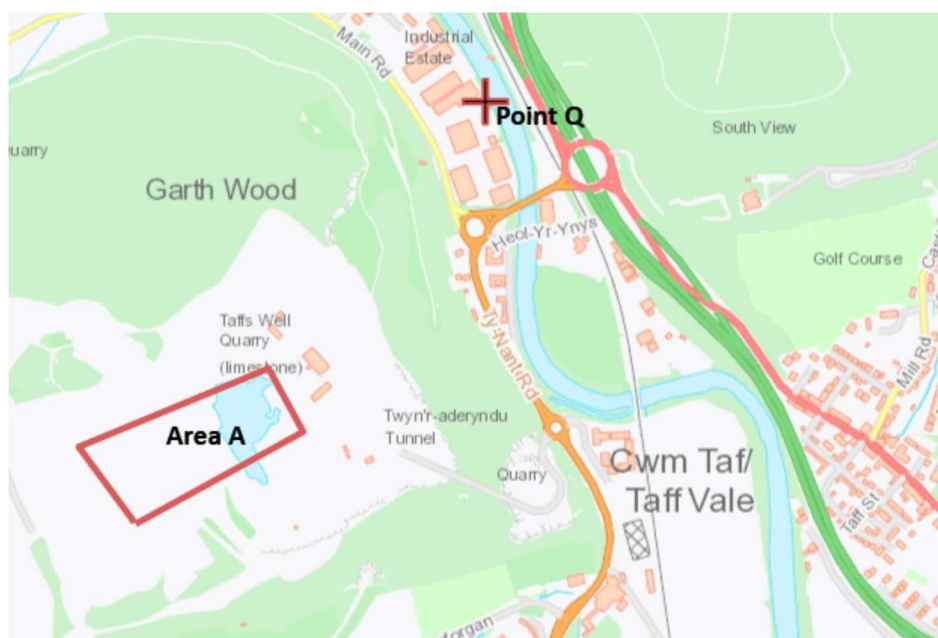


Figure 1 – Map showing Taffs well quarry sump labelled Area A and the discharge into the River Taff at Point Q.

We have decided to issue the licence on xx May 2022. Licensing this abstraction is considered a first step to move towards sustainable abstraction and it will continue to be reviewed through future sustainability review processes.

4. Application and licence determination details

Application details	
Applicant name and address	CEMEX UK Materials Limited CEMEX House Evreux Way Rugby Warwickshire England

	CV21 2DT Company number 04895833
Application contact details	Telephone: 01932 583181 Email: daphne.murray@cemex.com Agent email: deborah@envireauwater.co.uk james@envireauwater.co.uk
Application reference number	PAN-002911
New licence number	WA/057/0025/0015
WFD Waterbody number & name	Surfacewater: GB109057027270 Taff – Conf Rhondda R to Castle street Groundwater: GB40901G203600 SE Valleys Carboniferous Limestone
Abstraction Licensing Strategy (ALS)	Taff and Ely
Catchment and sub-catchment	Taff d/s Cynon C057005 Catchment: 057 Sub-catchment: 0025
NRW Area	South Central

Determination process details

Date application received	18 th July 2018
Date technical checks undertaken	17 th October 2018
Date any final further information received and application validated	<p>2nd November 2018 – Additional information in response to query about planning condition, abstraction location, abstraction quantities and licence duration</p> <p>2nd April 2019 – Agreement to apply for single full abstraction licence and confirmation of abstraction quantities</p> <p>3rd April 2019 – Application validated</p> <p>31st March 2022 – Agent confirmed the method of abstraction for dust suppression and that a meter is to be installed to measure the quantities taken for dust suppression (email re metering)</p>
Reason abstraction was previously exempt	Abstraction is for dewatering as part of mining/quarrying/engineering operations, this activity was previously exempt from licensing under section 29 of the Water Resources Act 1991.
Non- statutory determination date	31 May 2022
Application publication	<p>This advertising decision was agreed by the NA Panel on 14/01/2021 and recorded in the NA Screening spreadsheet.</p> <p>Application advertised in South Wales Echo on 23rd June 2021. No public representations or comments received from statutory bodies. advert proof</p>

National Park notification	Not relevant as abstraction not located within a National Park.
External Consultation	None undertaken in accordance with current policies and guidance.
Environmental Impact Assessment Regulations (EIA) requirements	The proposal is not relevant under these regulations; therefore no environmental statement is required.

Abstraction details	Licence details	
Location of abstraction	Taffs Well Quarry, Taffs Well, Cardiff	
Source of supply	Underground strata comprising of carboniferous limestone at Taffs Well Quarry, Taffs Well, Cardiff.	
Points of abstraction (NGR) (area)	Within the area marked A on the map and not outside the boundary formed by straight lines running between the following National Grid References ST 11884 82197, ST 12218 82338, ST 12278 82228 and ST 11982 82066.	
Purpose of abstraction	Transfer for the purpose of dewatering Dust suppression	
Period of abstraction	All Year	
Quantities and rates:	Dewatering	Dust suppression
cubic metres per hour	255.5	2.5
cubic metres per day	6,090	20
cubic metres per year	643,770	6,000
litres per second	70	70
Means of abstraction	A submersible pump.	
Measurement of abstraction	Meter	
Frequency of measurement	Weekly	
Frequency of recording/reporting	Weekly	
Annual returns requirement	Yes	
Licence end date	31/03/2029 in accordance with Taff and Ely ALS	
Minimum value condition (Y/N)	N	
Issue date	13 May 2022	
Effective date	13 May 2022	

5. Advertisement of application

See Application publication in section 4 above. No representations were received.

6. Location of abstraction and discharge

The applicant has confirmed in email dated 2/11/2018 ([additional info email](#)) that the abstraction area for dewatering sits within National Grid References ST 11884 82197,

ST 12218 82338, ST 12278 82228 and ST 11982 82066. Application form WRH stated a point of abstraction instead of the area.

The discharge point for the transfer is at National Grid Reference ST 12602 82804, as stated in the sites existing Environmental Permit number AN0222301.

7. Rights of Access

The map provided ([rights of access map](#)) includes an outline of the landownership of the applicant and demonstrates that the abstraction point lies within their landownership.

8. Historical Evidence of abstraction and volumes

As part of the transitional licence application, applicants were required to submit evidence to demonstrate the quantities of water abstracted and when the abstraction took place during the seven year 'qualifying period' (January 2011 – December 2017).

The applicant has provided meter readings taken from a magnetic flow meter installed on the discharge pipe as evidence of their ongoing abstraction via a pump between 2012 and 2017, see [daily discharge volumes](#) spreadsheet submitted by applicant. This evidence shows only the quantities for the purpose of dewatering and does not include those for the purpose of dust suppression.

Purpose: Dust suppression

Estimates of abstraction quantities for dust suppression were submitted by the applicant based on 10 pumping hours a day and a maximum pump flow rate of 5 cubic metres per hour. The estimated maximum abstraction quantities based on these factors were originally (see [additional information email](#)):

Maximum daily requirement	=	50	m ³ /d
Peak instantaneous flow rate		1.4	l/s
Annual requirement	=	15,000	m ³ /a

However, the applicant has stated that going forward less water will be required for dust suppression due to new recycling facilities on site and has therefore requested the following maximum abstraction quantities for dust suppression (see [revised abstraction quantities document](#)):

0.7 litres per second
2.5 cubic metres per hour
20 cubic metres per day
6,000 cubic metres per year.

In an email dated 31/03/2022 the applicant has confirmed that only one pump is used for the 2 purposes ([email confirming abstraction method](#)). Therefore a maximum quantity of 70 litres per second in accordance with the quantities for dewatering will be used for both purposes.

Purpose: Dewatering

The evidence provided suggested that the maximum quantities abstracted for dewatering during the qualifying period are as follows:

70 litres per second

255 cubic metres per hour
6090 cubic metres per day
643,770 cubic metres per year.

The applicant has requested an abstraction period of all year which is supported by the time periods given in their evidence. In addition the applicant has provided copies of electromagnetic flow meter installation record sheet dated during 2011 which includes photographs of the pump installed at the quarry. A copy of the flow meter calibration certificates for years 2015 to 2017 has also been provided.

Abstraction Consumptiveness

20m³ a day for dust suppression out of overall 6090m³ a day being dewatered from the quarry sump (total dewatered & water used for dust suppression) means that 0.3% of total water is consumed, which is a very small amount of the overall quantity, the remaining 99.7% of which will be returned to the River Taff.

NRW considers the volumes applied for acceptable. The evidence submitted supports the application and demonstrates that the abstraction has occurred during the qualifying period.

9. Technical assessment of the proposal

The application has been screened according to the New Authorisations (NA) screening process [and the results are recorded within the NA screening spreadsheet](#). Following this the application has been assigned a moderate risk and complexity score. This score was agreed by the [NA Panel on 14/01/2021](#).

9.1 Water Framework Directive Regulations 2017

The abstraction is located within SE Valleys Carboniferous Limestone, Waterbody number GB40901G203600. The status of this waterbody is at Good quantitative status. The relative surface water body (Taff-conf Rhondda R to castle street – GB109057027270) is classified as Moderate. The hydrological regime for the SW body passes for flows, the reason for not achieving Good status is due to failures in fish and chemical status. Although groundwater to surfacewater connectivity cannot be ruled out, as the surfacewater flows pass for achieving good status and the abstraction has been on-going, there will be no further impact to flows in either the groundwater or surfacewater body. Licensing this abstraction should not impede the surface water achieving good status in the future.

In line with the approach set out in [Annex D of OGN 72](#) for amber activities, the application was reviewed as part of the further consultation stage to determine whether scoping / detailed assessment was required under WFD Regulations 2017. This review concluded no scoping / detailed assessment was required under the WFD Regulations 2017, see [ICE pack](#).

The abstraction will be licensed based on historic operation so there will be no change in groundwater levels or quantitative status of the waterbody as a result of this abstraction.

Licensing this abstraction is considered a first step to move towards sustainable abstraction and it will continue to be reviewed through future sustainability review processes.

9.2 Hydrogeology/Hydrology and low flows protection

The abstraction is located in SE Valleys Carboniferous Limestone underground strata and lies 450 metres west of the River Taff. The rest pump water level in the quarry sump as given by the applicant in their application form is 54.8 metres AOD.

The abstraction has been occurring lawfully for many years, and in recognition of this the [2017 Government response](#) allows NRW as the regulator to have some discretion about the application HoFs to transitional licences.

It is recognised that not applying a HoF may not be in line with the Abstraction Licensing Strategy (ALS) for Taff and Ely, but licensing the abstraction is considered a first step towards sustainable management, through future sustainability review processes.

For abstractions that are located within WFD waterbodies where flows are ‘supporting good ecological status’, the [2017 Government response](#) suggests the application of a 75% of Qn99 HoF condition. However, in line with our regulatory discretion, NRW consider this HoF is not required for the following reasons:

- The abstraction is from groundwater. The status of this waterbody is at Good quantitative status and the abstraction is not considered to be impacting surface water flows.
- There is insufficient evidence in Wales that a prescribed flow of 75% of Qn99 would provide any environmental benefit / be likely to result in any improvement to WFD status.
- Finally, flow gauges are not generally considered to operate reliably at such low flows, and therefore any condition applying this HoF would not be considered legally enforceable.

9.3 Impact on fisheries

Not applicable to this application as a groundwater abstraction and considered unlikely to have any impacts to local surface waters

9.4 Impact on water quality

As part of the activity operation most of the water abstracted is discharged to a point on the River Taff via a culvert. A condition is included within the licence to ensure that water abstracted is discharged to the nearby watercourse ensuring that the abstraction consumptiveness is captured. The discharge is permitted under Environmental Permit number AN0222301.

9.5 Protected rights and lawful users

Following MyMap screening and consultation screening 9 licensed abstractions and/or lawful users have been identified in the vicinity of the abstraction.

Licence serial number	Approx. distance / direction from abstraction
21/57/25/0041	Deregulated abstraction 2.4 kilometres South of abstraction area

21/57/31/0021	Deregulated abstraction 3.7 kilometres South West of abstraction area
21/57/25/0023	1 kilometre North East from abstraction area
21/57/25/0046	1.5 kilometres North East from abstraction area
21/57/25/0047	280 metres West from abstraction area. Also held by CEMEX UK Materials Limited.
21/57/25/0066	2.7 kilometres South East from abstraction area
21/57/25/0075	670 metres North East from abstraction area
21/57/25/0080	1.85 kilometres South from abstraction area
WA/057/0025/005	1.57 kilometres South East from abstraction area

NRW acknowledges that the existing abstraction has been operating lawfully for many years under an exemption, without any concerns about impact to other water users/abstractors being raised. NRW considers the abstraction poses no risk to existing water users and should be licensed.

9.6 Habitats Directive, CROW Act, Conservation, heritage and landscape impacts

The following sites have been identified as a result of screening the application using MyMap. See [MyMap screening result](#) for full details.

Designation Type	Name of Site	Potential Impact	Distance & Direction from abstraction
SAC	Cardiff Beech woods	Yes, see below	Borders Taffs Well Quarry
SPA	None identified	Not applicable	
RAMSAR	None identified	Not applicable	
SSSI	Caeau Blaen-Bielly		Approximately 1.5 kilometres West
	Castell Coch woodlands and road section		Approximately 680 metres East
	Coed y Bedw		Approximately 770 metres North West
	Cwarrau Tan Mawr a Fynnon Taf – Ton Mawr and Taffs wells quarries		Quarry within SSSI
	Fforestganol a chwm Nofydd		Approximately 1.7 kilometres North East
	Garth Wood		Borders Taffs Well quarry

	Glamorgan canal / long wood		Approximately 1.6 kilometres South East
	Ty Du Moor		Approximately 2.6 kilometres South West
AONB	None identified	Not applicable	
Protected habitat	Reedbeds	No impact identified	
Source Protection zone	None identified	Not applicable	
National Park	None identified	Not applicable	

A [HRA](#) was completed for Cardiff Beech woods. A conclusion of no likely significant effect was recorded. This was confirmed by the Cardiff and Vale Environment Team Senior Conservation Officer on 03/03/2022.

An [Appendix 4](#) was completed for the SSSIs listed in the table above. A conclusion of no impact on the site or features as a result of conditions to be included on the licence was concluded, as well as the activity has been ongoing for many years with no reported impact on any of the sites identified. The conditions to be included on the licence are:

- Maximum abstraction quantities
- Measurement and recording conditions
- Expiry date

9.7 Serious Damage

Not applicable to this application.

9.8 Cumulative Impacts

The abstraction has been ongoing for many years with no reported impacts, therefore we are satisfied that there are no anticipated cumulative / in-combination impacts.

9.9 Subsidence and Desiccation

The abstraction has been ongoing for many years with no reported impacts, therefore we are satisfied that there are no anticipated impacts relating to subsidence and desiccation.

9.10 Existing legislation and permissions

As stated in CEMEX UK Operations Limited Hydrological impact assessment dated February 2016 (see [email from Geoscience](#)), the quarry operates under planning permission granted on 27 May 1998 which allows mineral extraction to a base level of 30mAOD.

Condition 29 of the Planning Permission states that a Groundwater Protection Scheme must be submitted to and approved by the Mineral Planning Authority prior to the excavation of any material below a depth of 45mAOD. Condition 29 states that this must include:

a) A detailed hydrogeological assessment including a water features survey for the surrounding area and an assessment of the impact of quarry dewatering;

b) An assessment of the results of groundwater level monitoring data for a continuous period of at least 6 months from boreholes in locations to be first agreed with the Mineral Planning Authority

c) A scheme of appropriate and reasonable mitigation measures and a programme for their implementation and maintenance should monitoring demonstrate specified adverse effects at any borehole or identified water-source or abstraction point

d) Arrangements for monitoring the effects of quarrying on groundwater supplies throughout the duration of the mineral extraction operations hereby permitted, including the identification of water-sources and abstraction points to be protected, the location for monitoring boreholes and arrangements for analysis of monitoring results and the carrying out of appropriate action; and

e) Provision for a review of the said scheme with the Mineral Planning Authority at intervals of not more than 5 years.

The trigger and action levels are not within the main HIA report, but in a letter dated 7th March 2017 from CEMEX to NRW (see email from Geoscience link above). We accept these levels in our response letter and the condition is discharged.

Geoscience have confirmed in [email dated 16/03/2022](#) that the discharge of conditions and the implementation of the trigger levels are secured under the planning permission. If the water level drops below the trigger and action levels they will have to temporarily cease pumping until the water level recover as stated in the 7th March 2017 letter. Once levels have recovered they will then start dewatering again. This is to maintain the local groundwater level above 30mAOD. There are no sensitive receptors for groundwater (such as SAC and SSSI and other abstractions) other than the River Taff, however the majority of the abstracted water is discharge to the river.

The flows within the River Taff currently support WFD requirements to meet good status. The consumptive element of the abstraction is limited by the maximum abstraction quantities on the licence and any change in these quantities would need to be assessed in a formal licence variation. This, along with 99.7% of the abstracted water being discharged into the River Taff mitigates against any potential impact from the dewatering activities.

10. Means of measurement of abstraction

The applicant confirmed that the abstraction for dewatering is measured via an existing flow meter (please see form WRH dated 18/07/2018, saved to DMS) and will be advised of the measuring requirements which will comply with Natural Resources Wales's Abstraction Metering Good Practice Manual (R & D Technical Report W84).

The agent confirmed a separate meter will be installed to measure the quantities for the purpose of dust suppression ([additional information email](#)).

In accordance with current guidance, weekly records of water abstracted will need to be submitted to the NRW within 28 days of 31 March each year or within 28 days of the NRW requesting the records in writing.

The Licence Holder will also be required to keep all records for at least 6 years and to make them available for inspection during all reasonable hours

11. Considerations of SMNR – Compliance with our General Purpose

We are satisfied that this decision is compatible with our general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources.

12. Criticality, PALS purposes and abstraction annual charges

Criticality Class

Highly Critical

PALS Purposes

Primary Code	Secondary Code	Use/Loss Level code
I: Industrial, Commercial, Public Services	EXT: Extractive	660: Dewatering- Very low
I: Industrial, Commercial, Public Services	EXT: Extractive	060: Dust suppression - High

Abstraction annual charges

The licence will be charged by multiplying together the following factors:

STANDARD CHARGE:						
Volume (ML)	Source	Season	Loss Purpose:	Special Charges Agreements	SUC	Charge
643.77	1	1	Dewatering: 0.003	n/a	15.89	£30.69
6	1	1	Dust suppression:1	n/a	15.89	£95.34

PLUS

COMPENSATION CHARGE:						
Volume (ML)	EIUC Source	Season	Loss Purpose:	Special Charges	EIUC	Charge
643.77	1	1	Dewatering: 0.003	n/a	0	£0.00
6	1	1	Dust suppression:1	n/a	0	£0.00

Total Charge for 2021/2022	£126.03
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