

Network Access Code

Version 20 - October 2020

dwrcymru.com

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number			
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Table of Contents

1.	Over	view	7
-	L.1 Ρι	urpose and role of the access code	7
-	L.2 F	Role of key industry players	.10
	1.2.1	Water undertaker	.10
	1.2.2	Licensee	.12
	1.2.3	Ofwat	.13
	1.2.4	Drinking Water Inspectorate (DWI)	.13
	1.2.5	Natural Resources Wales (NRW)/Environment Agency (EA)	.14
	1.2.6	Department for the Environment, Food and Rural Affairs (DEFRA)	.14
	1.2.7	Welsh Government	.15
-	L.3 C	Definition of services	.15
	1.3.1	Primary water undertaker	.15
	1.3.2	Secondary water undertaker	.15
2.	Applica	tion for access to the primary water undertaker's supply system	.16
Ĩ	2.1 P	Process requirements	.16
	2.1.1	Confidentiality agreements	.16
	2.1.2	Information requirements	.16
	2.1.3	Supplementary Authorisations	.16

2.1.4	Timescales	18
2.1.5	Application Fees	18
2.1.6	Credit provisions and credit limits	18
2.2 C	Confirming eligibility	18
2.2.1	Responsibilities	18
2.2.2	Definition of eligible premises	19
2.2.3	Volume threshold	19
2.2.4	Supply arrangements for Licensees	19
2.2.5	Attachment to the supply system	19
2.3 A	pplication process	20
2.3.1	Supplementary Authorisation Arrangements	20
2.3.2	Objections and rejection process	21
2.3.3	Application process - arbitration and disputes resolution	22
2.4 A	ccess criteria	22
2.4.1	Water quality input specification	22
2.4.2	Water flow and pressure	23
2.4.3	Water quality sampling and monitoring	24
2.4.4	Volume measurement	25
3. Cus	tomer Transfer Protocol (CTP)	25
3.1 P	rinciples	25
3.2 R	ules of Behaviour	26
3.3 C	Data Transfer	26
3.4 R	egistration and Operational Processes	26
4. Con	trol and balancing of supply system	26
4.1 S	upply system management	26
4.1.1	Unbilled water	26
4.1.2	Drought and Water Resource plans	27
4.1.3	Telemetry requirements for supply system control	28
4.1.4	Secondary connections	28
4.1.5	Supply system maps and plans	28
4.1.6	Point of entry controls and failure modes	29
4.2 N	letering services	29
4.2.1	Meter asset management	29
4.2.2	Meter Calibration and verification	29

	4.2	2.3	Meter reading and meter reading verification	30
	4.3	S	upply system balancing	30
	4.3	3.1	Strategic balancing	30
	4.3	3.2	Flow balancing and reconciliation processes	31
5.	Sup	oply	system maintenance and Emergency procedures	33
	5.1	D	iagnosis of system issues	33
	5.1	1.1	Obligations with respect to diagnosis of supply system problems	33
	5.1	.2	Quality Issues	33
	5.1	1.3	Hydraulic issues	34
	5.1	1.4	'Real' time information capture systems	34
	5.1	L.5	Reporting procedures	34
	5.2	Ρ	anned system maintenance	34
	5.2	2.1	Obligations with respect to planned maintenance	34
	5.2	2.2	Specification of assets	35
	5.2	2.3	Maintenance standards	35
	5.2	2.4	Risk assessment processes	35
	5.3	U	nplanned system maintenance	35
	5.3	3.1	Obligations with respect to unplanned maintenance	35
	5.3	3.2	Risk assessment processes	36
	5.3	3.3	Emergency notices	36
	5.4	Sa	afety aspects of unplanned and emergency work	36
	5.4	1.1	Status classification	36
	5.4	1.2	Standard emergency reporting procedures	36
	5.4	1.3	Major emergency reporting procedures	36
	5.5	E	mergency procedures for dealing with specific events, issues and incidents	36
	5.6	С	ustomer Protection	37
	5.6	5.1	Customers in Vulnerable Circumstances	37
	5.6	5.2	Large scale customer warning procedures	37
	5.6	5.3	Emergency compensation payments	37
	5.6	5.4	Emergency operational planning exercises	37
	5.7	S	upport processes	37
	5.7	7.1	Arrangements for press liaisons	37
	5.7	7.2	Arrangements for the dissemination of severe weather warnings	38
	5.7	7.3	Emergency contacts	38

5.	8 R	eportable situations	38
6.	Cust	omer contact arrangements	39
6.	1 C	ontact arrangements for operational queries and complaints	39
	6.1.1	Customer meter reading	39
	6.1.2	Operational issues	39
	6.1.3	Complaint handling processes	40
	6.1.4	Obligations on water undertaker	40
	6.1.5	Obligations on Licensees	40
7.	Prov	ision of information to relevant undertakers	40
7.	1 Dis	connection	42
7.	2 C	ustomer contact arrangements for emergencies and events	42
	7.2.1	Customers in vulnerable circumstances	42
	7.2.2	Large scale customer warning procedures	42
	7.2.3	Obligations on water undertakers	42
	7.2.4	Obligations on Licensees	42
8.	Sup	oly system connections	43
8.	1 C	onnection of Licensee's source to supply system	43
8.	2 C	onnection of qualifying premises to the supply system	43
8.		nnection of secondary water undertaker's supply system to the primary water	
ur	ndertal	<prexer's pre="" supply="" system<=""></prexer's>	43
9.	-	Il contract, arbitration and disputes resolution	
9.	1 Co	ontract terms	43
		Contents	
9.	2 A	rbitration and disputes resolution processes	
	9.2.1	Negotiation	46
	9.2.2	Conciliation	46
	9.2.3	Mediation	47
	9.2.4	Arbitration	47
10.	Acc	ess Pricing	47
10	D.1 Ir	dicative access prices	47
10).2 C	ase specific access prices	47
11.	Glos	sary of defined terms	47
APP	ENDIX	1 - Draft Confidentiality Agreement	53
APP	APPENDIX 2 - Water quality		60

APPENDIX 3 - Questionnaires	80
APPENDIX 4 - Operational Code	88
APPENDIX 5 - Indicative Access Prices	94

1. Overview

1.1 Purpose and role of the access code

The Water Industry Act 1991 (as amended) ("WIA 1991") permits a licensed water supplier access to a water undertaker's supply system in order that the Licensee may supply water to eligible premises. Condition S of a water undertaker's Instrument of Appointment requires every water undertaker to publish an access code setting out the basis upon which it will permit access to its supply system. The access code must comply with the requirements of section 66A-66C WIA 1991 and with any Ofwat guidance on access codes, published from time to time.

This is Dŵr Cymru Cyfyngedig ("DCC")'s access code published under Condition S and the WIA 1991 framework (as amended by the Water Act 2003) containing the requirements that apply for access to DCC's supply system. DCC reviews this code at least annually (by 15th October of each year in accordance with Condition S) and modifies it, for example, to reflect changes in Ofwat's relevant guidance.

This access code provides guidance to Licensees holding a "Supplementary Authorisation" who are seeking to introduce water into DCC's supply system to supply their customer in accordance with their restricted retail authorisation. This access code should be read in conjunction with DCC's <u>Compliance Code</u>

Any queries in relation to this access code, DCC's indicative access prices, or in relation to the water supply licensing regime generally should be directed to:

Wholesale Service Centre Dŵr Cymru Welsh Water PO Box 3164 Cardiff CF30 0FF Email: <u>wholesaleservicecentre@dwrcymru.com</u> <u>Telephone: 0800 260 5053</u>

This Network Access Code is published on our website, copies will be provided free of charge from our Wholesale Service Centre on request.

The Water Act 2014 made major changes in England to the present water supply licensing system. It also enabled new entrants to be appointed as Sewerage Licensees. Those changes do not apply in areas supplied by water and sewerage companies based wholly or mainly in Wales, where the existing regime continues.

This access code deals with access to DCC's water supply system only and does not deal with access to DCC's wastewater system, which is not included within the licensed supplier regime. DCC's water supply system is defined in section 17B(5) WIA 1991 as comprising any water mains and other pipes that are used for conveying water from DCC's treatment works to its customers' premises, and any non-potable networks which are used to convey water from any of DCC's sources to its customers' premises.

Access to all other facilities is outside the licensing regime and excluded from this access code.

It is DCC's intention to conform to the following high-level principles in negotiating access agreements.

<u>General</u>

- Prior completion of an access agreement is a requirement of access to the supply system.
- DCC and the Licensee will take all necessary steps to ensure compliance with such laws and regulations as shall apply from time to time and to co- operate with each other in the general interests of continuous provisions of wholesome water and the integrity of the supply systems.
- The responsibility for all elements of wastewater service provision remains with DCC

<u>Supply</u>

- DCC has a duty under WIA 1991 to supply water to premises in its area.
- The activities of the Licensee shall not prejudice this duty.
- DCC will retain ownership, management, maintenance and control of its supply system, including the ability to control flows received from the Licensee. Licensees must co-operate with DCC in its role as supply system operator. Licensees must also behave in a responsible manner that does not put at risk DCC's ability to manage the supply system.
- DCC will set the terms and conditions of supply system access based on technical evaluation.
- DCC will decide all applications without undue discrimination and without compromising the safety and effectiveness of the supply system.
- Licensees will not become owners of any part of the supply system, even where the Licensee has contributed to the construction, upgrade or improvement of the supply system.
- DCC will retain primary responsibility for managing emergency procedures relating to all of its supply system and the Licensee will be expected to cooperate with DCC in the event of an emergency or security issues affecting the supply system.
- DCC operates its system over a number of distinct and separate water supply zones. Inputs of water will only be allowed where the supply is to the water supply zone where the supply system has a physical link between the Licensee's introduction and its customer's premises.
- Inflows must be measured for quality and pressure. Inflows and outflows must be metered.
- The use of the supply system should be at no detriment to any of the customers of the supply system and should not have an adverse impact on water quality, the environment

or the community. This includes compliance with statutory parameters, DCC's own standards and aesthetic issues such as taste, odour and hardness.

- The supply to the Licensee's customers will normally be subject to the same conditions in terms of interruptions, pressure and other conditions as is the supply to DCC's customers.
- DCC shall provide water to the Licensee that is consistent with the quality in the local area in which the Licensee's customers are connected.

Customer Related

- There must be no deterioration in quality of service to any DCC customer.
- The Licensee will be responsible for the management of issues raised by the Consumer Council for Water which relate to elements of the customer's service which the Licensee is providing.

Legal/Contractual

- All Licensees will be treated fairly.
- The Licensee will be required to sign a "Confidentiality Agreement" at the outset of negotiations.
- The Licensee shall, subject to reasonable conditions stipulated by DCC, be able to define the duration of the access agreement. The agreed contract duration shall be stated in the appropriate contractual document.
- Entry is subject to contract. The Licensee will be obliged to sign an access agreement. The access agreement will embody the principles of this access code, but in the event of a conflict, the wording of the access agreement will take precedence.
- Under no circumstances will the Licensee be entitled to assign the access agreement to another party without DCC's agreement.

Cost/Charging

- Prices are calculated in accordance with the principles set out by Ofwat in its letter dated 18 August 2014, "<u>The costs principle and access pricing – companies operating</u> wholly or mainly in Wales".
- Connection and supply system modification charges will be based on actual costs incurred plus a reasonable return.

Where access to DCC's supply system is granted DCC and the Licensee will enter into an access agreement setting out the terms and conditions, including the access price, for access to the network. The terms and conditions of any access agreement with DCC will reflect the provisions of this access code, including any specific local issues.

Section 66D(7) and (8) of WIA 1991 gives Ofwat power to require the modification or termination of any access agreement which appears to Ofwat not to have been made in accordance with Ofwat's guidance on access codes, or if the charges are not fixed in accordance with the <u>costs principle</u>.

1.2 Role of key industry players

1.2.1 Water undertaker

DCC is the appointed water undertaker for an area covering most of Wales and some adjoining areas of England (including parts of Herefordshire and Deeside). DCC is responsible for the public water supply network in this area. Chapter 2A of Part III WIA 1991 places duties and obligations on water undertakers subject to certain conditions and in accordance with Ofwat's access code guidance. DCC is obliged to provide the following services subject to the conditions detailed below:

i) Primary undertaker

a) Wholesale water supply

Where a Licensee requests DCC to provide a supply of water under Section 66A WIA 1991, and the premises are within DCC's area, DCC has a duty to take steps necessary to enable provision of the supply, and having taken those steps to provide the supply.

b) Introduction of water into water undertaker's supply system

Where a water supply Licensee holding a "Supplementary Authorisation" requests DCC's permission to introduce water into DCC's supply system, under section 66B WIA 1991, and in line with the requirements of its "Restricted Retail Authorisation", DCC has a duty to take steps to enable the Licensee to make the introduction of water into the supply system and having taken such steps, to permit the introduction of water into its supply system, as requested.

Where a water supply Licensee requests DCC to permit the introduction of water, as supplied by a neighbouring secondary water undertaker, into DCC's supply system for the purposes of supplying the water supply Licensee's customers within DCC's area, DCC has a duty to take steps to enable the Licensee to make the introduction of the water into its system. This is in accordance with section 66C WIA 1991. These steps may include connecting DCC's supply system to the neighbouring secondary undertaker's supply system. Having taken such steps, DCC has a duty to permit the introduction of water into its supply system, as requested. Where appropriate, the Licensee, primary water undertaker and secondary undertaker may agree trilaterally the terms and conditions of access.

The terms and conditions on which DCC carries out these duties are agreed with the Licensee in accordance with any access code guidance published by Ofwat and the <u>costs principle</u>.

ii) Secondary water undertaker

Where a Licensee requests DCC to provide a supply of water to enable it to supply its customers' premises by using a neighbouring primary water undertaker's supply system, under section 66C WIA 1991 and in accordance with its restricted retail authorisation, DCC has a duty to take steps, to enable the provision of the supply, and having taken those steps to provide that supply.

The terms and conditions on which DCC carries out these duties in its capacity as a primary or secondary undertaker are agreed with the Licensee in accordance with Ofwat's access code guidance and <u>costs principle</u>. The introduction by a Licensee into DCC's water supply system, of a supply obtained from a secondary undertaker involves two transactions, governed by separate agreements:

- 1. the secondary undertaker sells water to the Licensee; and
- 2. the Licensee introduces that water into the primary water undertaker's water supply system.

Where appropriate, the Licensee, primary water undertaker and secondary undertaker may agree trilaterally the terms and conditions of access.

Licensees shall identify and communicate at the earliest stages if a secondary undertaker is likely to be included within an application. This will enable potential secondary undertakers to consult at the earliest opportunity with relevant parties including the primary undertaker, NRW/the EA and the DWI, if necessary. The secondary undertaker will need to understand the demand requirements of the Licensee and an indication of the point to which connection to the primary undertaker's supply system is required. It will also need to discuss with the primary undertaker details of the transfer, including the design of pipework and any pumping arrangements that may be required, any water quality issues and whether any facilities need to be constructed.

If DCC is identified as a secondary undertaker within an access application, DCC expects to be involved as necessary in discussions with the Licensee and the primary undertaker. DCC expects to receive copies of relevant details during the initial and detailed application stages for comment and to be able to request further details as necessary.

iii) Conditions under which duties do not apply

Section 66A WIA 1991 documents the circumstances under which the wholesale water supply duty by a primary undertaker does not apply.

The duty to provide a supply of water to a Licensee, or to take steps to enable it to provide such a supply do not apply if both the first and second conditions below are satisfied, or if the third condition below is satisfied.

The first condition is that:

- the premises to be supplied by the Licensee consist only of land, they do not include a building or part of a building; or
- the supply to be made by the Licensee to the premises is for purposes other than domestic purposes.

The second condition is that the provision of the supply by DCC would:

 require DCC to incur unreasonable expenditure in carrying out works, in order to meet all its existing obligations to supply water for domestic or other purposes, together with its probable future obligations to supply water to buildings or parts of buildings for domestic purposes; or • otherwise put at risk DCC's ability to meet any of those existing or probable obligations.

The third condition is that there is a contravention, as determined in regulations made under section 74 WIA 1991 and related to section 66A (6) WIA 1991, in relation to the water fittings used or to be used in connection with:

- the supply of water to the premises to be supplied by the Licensee; or
- the use of water in those premises.

Under sections 66B and 66C WIA 1991, a primary undertaker has no duty to permit the introduction of water by a Licensee into its supply system, and under section 66C WIA 1991 a secondary undertaker has no obligation to provide a wholesale supply of water, if either the first or second condition below is satisfied:

The first condition is that providing the supply or allowing the introduction of the water into the primary water undertaker's supply system:

- would require DCC, in order to meet all its existing obligations to supply water for domestic or other purposes, together with its probable future obligations to supply buildings and parts of buildings with water for domestic purposes, to incur unreasonable expenditure in carrying out works; or
- would otherwise put at risk its ability to meet any of those existing or probable future obligations.

The second condition is that there is a contravention of the prescribed requirements of regulations made under section 74 WIA 1991 in relation to the water fittings used or to be used in connection with:

- the supply of water to the premises to be supplied by the Licensee; or
- the use of water in those premises.

1.2.2 Licensee

Licensees are responsible for obtaining a licence appropriate to the activities to be undertaken and will have undergone an assessment of their financial and technical compliance by the appropriate regulatory bodies (Ofwat/DWI). Licensees must comply with the terms of their licence, relevant legislation and the contractual arrangements as set out in access agreements.

Section 66I WIA 1991 prohibits unauthorised use of a water undertaker's supply system for the purpose of supplying water to a customer's premises. Under section 66I (3) WIA 1991, unauthorised use for the purpose of supplying water to a customer's premises is a criminal offence. Licensees have a duty to assure themselves that the terms of their licence allow for the use of DCC's supply system.

Section 66J WIA 1991 prohibits unauthorised introduction of water into a water undertaker's supply system. Introduction of water is only permitted by the primary water undertaker itself, or by a Licensee under the terms of its licence, or by another water undertaker under an agreement for a bulk water supply. Under 66J WIA 1991, contravention of this prohibition is a criminal offence. Licensees have a duty to assure themselves that the terms of their licence allow for the introduction of water into DCC's supply system.

Licensees share responsibility with DCC for compliance with the Water Quality Regulations for the water they input in the supply system and for the wholesale supply of water to the customer's tap.

Licensees have a duty to comply with the eligibility requirements as specified in Section 17A (3) WIA 1991 relating to non-household premises, the threshold requirement, and supply by only one Licensee.

1.2.3 Ofwat

The Water Services Regulation Authority (Ofwat) is the economic regulator of the water industry in England and Wales.

Ofwat is required to publish guidance on the operation of the WSSL regime. Ofwat is responsible for granting Supplementary and Restricted Retail Authorisation licences. In doing so, Ofwat will assess whether the applicant has the appropriate skills and competencies required.

Ofwat also has powers to determine disputes about the eligibility of premises, the terms and conditions of proposed access agreements and the conditions for refusing supplies. Further information is available on <u>Ofwat's website</u> under Water and Sewerage Supply Licensing.

1.2.4 Drinking Water Inspectorate (DWI)

The Drinking Water Inspectorate is the regulator for drinking water quality in England and Wales.

DWI has an important role in the Licence application assessment process and needs to be satisfied that the Licensee is aware of and understands the prevailing regulatory requirements and responsibilities of Licensees in relation to drinking water quality at the initial licence application stage. Where a Licensee intends to treat a source of water for potable supply, the treated water cannot be introduced into the public supply system until the DWI is satisfied that the treatment processes meet the relevant regulatory requirements and any treatment works is being operated in a competent manner.

During access negotiations DWI will advise Ofwat as necessary on drinking water quality issues relating to the use of common carriage, particularly in respect of dispute resolution.

Overall, Licensees will be subject to the same level of regulation as undertakers. Further information can be found in the stakeholder's section of the <u>DWI's website</u>.

1.2.5 Natural Resources Wales (NRW)/Environment Agency (EA)

NRW has a duty to secure the proper use of water resources in Wales (the EA has equivalent responsibilities in relation to England). Each agency monitors water in the environment and issues abstraction licences to regulate who can take water from the environment and how much they can take.

Water undertakers produce Drought Plans, which identify how, during a period of drought, they will continue to meet their duties with as little recourse as possible to drought orders or drought permits. NRW reviews these plans and advises the Welsh Government on their adequacy.

Water undertakers also produce Water Resources Management Plans every 5 years; which identify available resources, forecast demand and set out how future deficits may be addressed through either resource development or demand management options. EA and/or NRW also review these plans and advise the Welsh Government on their adequacy.

There is a duty on water supply Licensees to provide information to water undertakers for both Drought Plans and Water Resources Management Plans.

In most cases, licensees holding a Supplementary Authorisation will require a water abstraction licence from the EA or NRW to take water from surface water or groundwater. Every new proposal to abstract or impound water undergoes extensive scrutiny and investigation before a decision is made to grant or refuse an abstraction licence application. There is a need to ensure that water resources are safeguarded and that abstractions do not damage the environment.

Secondary supplies (under section 66C WIA 1991) are meant to encourage use of 'spare water', but the undertaker and the Licensee may not be able to agree on how much water the undertaker has 'spare'. In the absence of agreement, Ofwat may be asked to determine whether a supply under Section 66C should be made, and if so the terms of that supply.

In these instances, the EA and NRW will also play a role in advising Ofwat on whether the criteria for rejecting a proposal for a secondary supply under Sections 66C (5) or (6) WIA 1991 are satisfied. Ofwat will then make a determination.

Further information is available on the websites of the EA and NRW:

1.2.6 Department for the Environment, Food and Rural Affairs (DEFRA)

DEFRA is the government department responsible for WSSL legislation applicable to water undertakers whose area is wholly or mainly in England.

The UK Government has enacted statutory instruments which govern the competition regime for water companies wholly or mainly in England, including the expansion of the competitive market for retail services to include all business customers of those companies. Where further changes occur in future which affect this access code, DCC will revise this access code to reflect any changes relevant to its supply area or customers. Further information is available on DEFRA's website.

1.2.7 Welsh Government

The Welsh Government ensures that DCC complies with EU and UK legislation by issuing statutory guidance. The Welsh Government also issues guidance to Ofwat on the drinking water and environmental quality programmes to be considered when setting price limits.

The Welsh Government's devolved powers include responsibilities in respect of Drought Plans and Water Resource Management Plans. The Welsh Government also provides guidance on water charging which must be taken account of by Ofwat in determining its own guidance to Licensees.

Further information is available on the website of the Welsh Government.

1.3 Definition of services

DCC will offer services to a Licensee for the purposes of supplying water to the Licensee's eligible customers, subject to terms and conditions agreed with the Licensee in accordance with Ofwat's access code guidance. These services are defined in terms of DCC being either the primary undertaker (Section 66A and 66B WIA 1991) or a secondary undertaker (section 66C WIA 1991).

1.3.1 Primary water undertaker

Wholesale water supply

DCC will take steps to enable the provision of the supply, and having taken those steps, provide the supply of water in accordance with Section 66A WIA 1991 to the Licensee for supply to the Licensee's eligible customers.

Introduction of water into the supply system

DCC will take steps to enable the Licensee to make the introduction of water into the supply system and having taken such steps permit the introduction of water into its supply system, in accordance with Section 66B WIA 1991 for the purposes of supply to the Licensee's eligible customers.

DCC will take steps, and having taken such steps, permit the introduction of water, as supplied by a secondary undertaker, into its supply system, in accordance with Section 66C WIA 1991, for the purposes of supply to the Licensee's eligible customers. In some circumstances, steps may include laying such pipes and constructing such other works as are necessary to connect the supply with the pipes in the area of the secondary undertaker.

1.3.2 Secondary water undertaker

DCC will act as a secondary water undertaker or make available a supply of water to a Licensee, for supply to the Licensee's eligible customers, within the area of appointment of another water undertaker in accordance with section 66C WIA 1991. DCC will lay such pipes and construct such other works as are necessary to connect the supply with the pipes in the area of the primary undertaker.

2. Application for access to the primary water undertaker's supply system

When a Licensee requires access to DCC's water supply system, DCC will follow the applicable procedures in this code. Applicants without a licence must apply to Ofwat for a licence before approaching DCC for services. This code sets out the requirements of Licensees and how DCC will assess applications. DCC will provide points of contact to the Licensee during all stages of the process. Access will only be permitted once an access agreement has been executed and any conditions precedent have been fully met and satisfied.

2.1 **Process requirements**

2.1.1 Confidentiality agreements

Condition R of the Instruments of Appointment and Standard Licence Condition A6 impose an obligation on the water undertaker and Licensee not to use or disclose information inappropriately. Licensees and water undertakers must agree a pre- contract confidentiality agreement at the start of their negotiations and agree confidentiality terms in individual access agreements.

DCC's standard confidentiality agreement is set out in Appendix 1. This standard agreement will be the basis of any confidentiality agreement entered into with DCC. It will be adapted in circumstances where there are more than 2 parties e.g. a secondary undertaker is involved. It should be noted that water undertakers are subject to the Environmental Information Regulations 2004. The confidentiality agreement does not affect DCC's obligation to disclose information to third parties where otherwise required or to do so under those Regulations.

2.1.2 Information requirements

DCC will require the following information in order to progress an application for access to its supply system. The list that follows is not exhaustive as information requirements will change with the specific circumstances nor will all the information listed necessarily be requested in every case. The questionnaires at Appendix 3 are sample questionnaires and give an indication of the types of questions that DCC may ask of a Licensee. DCC reserves the right to seek additional information from Licensees.

2.1.3 Supplementary Authorisations

DCC will require a Licensee to demonstrate that it can operate to appropriate standards and that it has access to sufficient water to meet the requirements of the access agreement. Of paramount importance is the safeguarding of water quality to protect public health and the environment, compatibility with existing supplies and security of supply.

- Stage 1 introduction
- The type of licence held by the Licensee

- The Licensee's contact details details of the Licensee representative who is to be the point of contact with DCC, including the postal address, e-mail address and telephone numbers
- Stage 2- initial application
- Signed consent form from each customer, stating that the named customer has expressed an interest in the Licensee becoming its new supplier
- A waiver from the customer allowing DCC to disclose the customer's information to the Licensee (this should be no more than 2 months old)
- The type of premises to be supplied and confirmation of eligibility
- Details of the nature of the services required by the Licensee
- Stage 3 detailed application
- The location of each customer's premises
- Estimates of each customer's demand, including demand profile and an indication of diurnal and seasonal variations
- Expected start date for the supply
- Supply duration
- Forecasts of each customer's demand for the duration of the proposed contract or some other agreed duration
- The location of the points of entry and exit, and hydraulic requirements
- Supply and demand data which might include average and peak deployable outputs of the Licensee's source, the supply pattern and variations in demand, details of any supply or demand management contingency arrangements for drought periods
- Water resource details which might include the type of water resource being used, its reliability and any back-up mechanisms which may exist; a thorough risk assessment by the Licensee of any proposed source, i.e. an assessment of exposure to pollution incidents, vandalism and other risks; evidence of abstraction licence including any associated conditions
- Water quality assessments which might include the predicted quality of water entering the system, history of contamination (where available) of the raw water source; the level and type of treatment proposed, with particular attention to disinfection practices and any additional treatment requirements such as plumbosolvency control and fluoridation, details of the Licensee's cryptosporidium testing process; the safeguards and procedures in the event of treatment failure; the water quality requirements of the potential customer; proposals for monitoring to ensure compliance with water quality regulations. A copy of the risk assessment, as required

under Regulation 27 of the Water Supply (Water Quality) Regulations (Wales) 2018 SI No 647, must also be provided as part of this application.

- Evidence to demonstrate the Licensee's system for informing customers of emergencies

2.1.4 Timescales

The target timescales involved in the application process are set out in the Ofwat Access Code Guidance. Some applications may take longer where there are detailed investigations to be undertaken and third party involvement.

2.1.5 Application Fees

DCC does not charge an application fee for any part of the processes set out in this access code.

2.1.6 Credit provisions and credit limits

Credit and security arrangements will be as with DCC's customers or as may be appropriate in the circumstances.

2.2 Confirming eligibility

Section 17A (3) WIA 1991 sets out the following three requirements that must be satisfied in relation to each of the premises supplied by a Licensee:

- the customer's premises are not household premises;
- when the Licensee first enters into an undertaking with a customer to give the supply, the total quantity of water estimated to be supplied to the premises annually by the Licensee is not less than 50 megalitres (the 'threshold requirement'); and
- the premises are not being supplied by another Licensee (but may be supplied by a Licensee and one or more water undertakers).

2.2.1 Responsibilities

In all cases and for all aspects of eligibility, it is the Licensee rather than the water undertaker which must ensure that the premises of a potential customer are eligible in accordance with Ofwat's guidance on eligibility.

Unless doing so in pursuance of its licence, it is a criminal offence for a Licensee to use a water undertaker's supply system for the purpose of supplying water to any premises of a customer, or for a Licensee to introduce water into a water undertaker's supply system. It is therefore a criminal offence for a Licensee to breach any of the eligibility requirements set out above.

In addition, any Licensee that contravenes these requirements could face enforcement action by Ofwat under Section 18 WIA 1991 and may incur financial penalties under section 22A WIA 1991. Alternatively, a Licensee could face revocation of its licence in accordance with the Standard Conditions A10 and D2 of Water and Sewerage Supply Licences.

Premises may change in such a way as to require the threshold to be satisfied a further time. For example, a customer may sell part of its premises so that the original premises is split and is occupied by different customers. Regarding the threshold requirement, as long as the requirement is met at the time the Licensee first enters into the undertaking to supply a set of premises, and those premises do not change, those premises can continue to be supplied by the same Licensee for the duration of the undertaking even if consumption falls below the threshold.

A Licensee should seek its own legal advice if it is unsure whether a customer's premises are eligible.

2.2.2 Definition of eligible premises

Further information on the definition of an eligible premises for the purpose of Section 66A WIA1991 is set out in <u>Ofwat's Guidance on Eligibility</u> and <u>Supplemental Guidance</u>.

2.2.3 Volume threshold

The threshold requirement applicable to DCC's supply area is that, at the time the Licensee first enters into an undertaking with a customer to supply the premises, the total quantity of water estimated to be supplied annually to the premises by the Licensee pursuant to the undertaking is not less than 50 megalitres. The threshold requirement relates to the amount of water that is supplied by the Licensee using one or more water undertakers' supply systems. The amount of water that a customer receives by means of private supplies does not count towards assessing whether the threshold requirement is satisfied.

2.2.4 Supply arrangements for Licensees

Section 17A WIA 1991 prohibits the supply of an eligible premises by more than one Licensee. However, a premise may be supplied by a single Licensee and one or more undertakers.

2.2.5 Attachment to the supply system

Customers can only be supplied by Licensees if they are connected to the supply system. The supply system is defined in Section 17B (5) WIA 1991. It can be summarised as any water mains and other pipes used for the purpose of conveying potable water from a water undertaker's treatment works to customers' premises and any water mains and other pipes used to convey non-potable water from any source to premises that are not connected directly or indirectly to any water mains or pipes connected to those treatment works.

Section 17A (5) provides that the supplementary authorisation is an authorisation to the Licensee to introduce water into a water undertaker's supply system, by means of which any particular retail supply of water is to take place. In its access code guidance, Ofwat interpret this to mean that a physical link is required between the Licensee's introduction point and its customer's premises.

2.3 Application process

2.3.1 Supplementary Authorisation Arrangements

Supplementary authorisation arrangements will be case specific and will require a separate access agreement with specific terms for each individual access arrangement. The application process takes account of the case specific nature of supplementary authorisation arrangements. The 4 stages of the process are set out below:

i) Stage 1: Initial contact

Initial contact allows a Licensee to express an interest in applying for an access agreement. The Licensee may wish to contact the water undertaker to discuss issues regarding their supplementary authorisation application. Initial contact with DCC should be made in writing to:

Wholesale Service Centre Dŵr Cymru Welsh Water PO Box 3164 Cardiff CF30 0FF Email: wholesaleservicecentre@dwrcymru.com

The Licensee will satisfy DCC's information requirements as set out in 2.1.2 of this access code. Water undertakers and Licensees should only proceed to the next stage of negotiations once the relevant parties have signed a confidentiality agreement.

ii) Stage 2: Initial application

Appendix 3 sets out an example of an initial application form for a Supplementary Authorisation supply arrangement. This is typical of the information DCC will expect from a Licensee at Stage 2. The application should include a signed consent form from each customer, confirming that it has expressed an interest in the Licensee becoming its new supplier. The consent forms must contain a waiver by the customer of any restrictions on disclosure by DCC to the Licensee of information held by it which it is necessary to disclose to the Licensee for the purposes of the proposed new supply arrangements. DCC will then need to know the type of premises to be supplied. A signed declaration from the Licensee that it believes the premises are eligible would also be useful. If a successful application is subsequently made to DCC the onus is on the Licensee to monitor and ensure that any premises it supplies are eligible. The Licensee should also make an outline application to the appropriate water undertaker for supplementary authorisation supply. This should include the details specified in the basic information requirements as agreed at the initial contact stage.

The Licensee should set out in detail what it will require from DCC in order to provide its specified level of service to its customers. DCC will agree with the Licensee how frequently, and in how much detail such operational information is to be provided. DCC will give a preliminary indication of consequential modifications that are likely to be required to the network. Any additional cost arising will be case specific and a charge in addition to any fixed fee. DCC will provide feedback on the properly completed initial application and specify any further information required in order to assess the initial application. The feedback will include preliminary price and non-price terms. The price and non-price terms given at this time shall not be binding.

iii) Stage 3: Detailed application

Appendix 3 contains a sample of a detailed questionnaire, which will be provided at this stage. DCC will meet the Licensee at this stage to clarify any issues arising from the initial feedback and to see what information is required in the specific detailed application, as set out in this access code.

DCC will then carry out any feasibility studies and testing required to determine proposed terms for access.

It is the Licensee's responsibility to inform DCC of any changes to the information details or any further information that becomes available. DCC reserves the right to commence further investigation and to change the price or non-price terms if the information supplied previously changes. An estimate of the cost of these additional investigations will be provided to the Licensee at this time.

The scope and charges for any feasibility studies or tests will be agreed with the Licensee before any such studies or tests are started.

DCC will make an offer of access (price and non-price terms) in writing to the Licensee, normally within ten working days, after the necessary investigations have been conducted and the results reported as satisfactory, including confirming the feasibility of the Licensee's proposals (with any necessary modifications). The period the offer is open for will be specified at the time of making the offer and the offer will be subject to the completion of an access agreement.

DCC will aim to complete an assessment of the application for a supplementary authorisation supply within 50 working days of receiving the required information from the Licensee and other parties, such as DWI and NRW or the EA.

iv) Stage 4: Detailed contract negotiation

The terms offered in stage 3 are open for discussion between the parties for up to 15 working days of the offer being made. Where a change is requested, DCC will draft a new access agreement to include the new terms offered. DCC will advise the Licensee's customer of the intended change of supplier and expected transfer date once there is a final acceptance of a firm offer.

If the Licensee accepts the terms DCC will send the Licensee a signed agreement in duplicate, normally within 10 working days of acceptance. The Licensee should sign the agreements and return one signed copy normally within 10 working days of receipt.

If, despite negotiations, the parties are unable to agree the period, terms and conditions, the Licensee may refer the matter to Ofwat for determination.

2.3.2 Objections and rejection process

Water undertakers, Licensees (in the case of a customer transferring from one Licensee to another), DWI, secondary water undertakers and other relevant parties may discover during any stage of the application process that an application cannot be progressed. As well as statutory conditions in sections 66B-66C WIA 1991, the following list gives examples of the types of objection that might arise during the application process. This is not intended to be an exhaustive list:

- The incoming supplier has provided insufficient or incorrect details to the relevant parties to allow the customer to transfer.
- Refusal by the Licensee to provide necessary information.
- The water undertaker or earlier Licensee considers that the customers premises are not eligible (the Licensee should declare eligibility at the initial application stage).
- An application by another Licensee to supply the customer has been accepted.
- The Licensee's proposals are impracticable, for example unfeasible hydraulic conditions.
- Unacceptable water quality implications.
- Concerns over source risk assessment.
- National security reasons.

The party making the objection should give the applicant full reasons for the objection in writing, as soon as possible after that party becomes aware of a problem. DCC will accommodate reasonable requests for a meeting to discuss the objections and to negotiate solutions to enable the application to progress.

The Licensee may refer the points in dispute to Ofwat for a determination where agreement cannot be reached.

2.3.3 Application process - arbitration and disputes resolution

Where Ofwat is asked to determine an objection to an access application it will follow the procedure set out in 'Procedure for handling water supply licensing determinations.

2.4 Access criteria

2.4.1 Water quality input specification

i) Quality parameters

DCC will specify the water quality requirement that it will require to be met for access to its supply system. In principle the Licensee should input water to a standard required so that the water received by DCC customers meets the higher of the requirements of the Water Supply (Water Quality) Regulations (Wales) 2018 (The Regulations) and/or the level of service DCC customers received prior to any input of water by the Licensee. The access agreement, which the Licensee will be required to comply with will set out all the operational requirements necessary to ensure that performance of the system in terms of reliability, volume, quality, risk etc. is maintained to the required standard.

However, DCC will have its own quality parameters that any party accessing its supply system will be required to meet. In principle the Licensee should input water to a standard such that the water received by DCC customers is subject to no deterioration in water quality. The parameters DCC specifies for any Licensee's input will vary according to access point and when full details of

the access point have been provided will be confirmed to the Licensee. Account will need to be taken of blending and mixing effects and will be subject to variation at the request of DCC. Modelling techniques will be used to support the assessment where appropriate.

ii) Special circumstances relating to water quality standards

Licensees operating in Wales will be required to comply with the Regulations. A Licensee applying to DCC will also be required to meet the sometimes higher standards that DCC sets itself. These standards must not be compromised. Specific requirements in order to maintain water quality standards may need to be met depending on, for example, the access point. These will be dealt with on a case-by- case basis.

The Licensee will be required to provide DCC with detailed analytical data in respect of its water source. DCC will evaluate the likely impact of the Licensee's access of the supply system and any likely effect of a mix of water. DCC will consider whether any input of the Licensee's source will affect aesthetic factors such as taste or odour for DCC customers on the supply system or cause and deterioration in water quality. Any impact on DCC's water supply will be taken into consideration when DCC assess a Licensee's application.

The Licensee will be required to provide DCC with evidence of its contingency plans and risk methodology to demonstrate the mechanisms in place for managing water quality events or emergency situations. This will need to include notification procedures to DCC, communication to customers, stakeholders and regulators as required by Regulation 35 of The Regulations, provision of alternative supplies and evidence of ability and due process to return supplies to normal. DCC will also require the Licensee to specify the process to be used for addressing quality problems, whether as interim measures or longer term, arising from changes in raw or final water quality due to unforeseen circumstances.

Any access agreement with a Licensee will specify among other matters:

- when and in what manner a Licensee will inform DCC of any changes in water quality;
- when the Licensee must turn off the water supply or take such operational steps as may be necessary to protect the integrity of the supply system; and
- when DCC may exercise its right to turn off the water supply.

2.4.2 Water flow and pressure

The pressure in DCC's supply system must be maintained at the appropriate levels to ensure all customers receive water pressure above the prescribed minimum standard of service. At some points it may be necessary to reduce water pressure as an aid to reducing leakage. In order to maintain the water flow and pressure in its system DCC will need to understand from the Licensee:

 the demands of the Licensee's customer. For instance, if there are going to be surges on the supply system due to the customer's demand then storage facilities may be necessary in order to dampen any surge. The Licensee must provide information to DCC as to how customer demand patterns will be regulated. As part of the application process models of demand impact will be run on the system. Where there are no existing models, new models may need to be built at the expense of the Licensee. if the Licensee is providing water from its own source the Licensee must inform DCC as to whether the water will be input into the DCC supply system by pump or gravity feed. Details of the pumping regimes, anticipated pressure and flow will be required and modelling to understand the impact on the existing supply system may be necessary as above.

Pressure will be an important determining factor as to the appropriate point for access to the supply system. There may also be the need for a Pressure Reducing Valve (PRV) to be fitted to vary the pressure with demand. Monitoring of PRVs will also be essential. An operational protocol will be put in place between the parties. The operational protocol will contain the requirements governing the level and profile of the inputs from the Licensee's treatment works. It will govern the measurement of output to the Licensee's customer, network balancing and the control required by DCC as network operator.

Flowmeters will be used to record flow at the specific site (See also 4.2.1 of this Code.)

The standard levels of service for low pressure and supply interruptions must not be compromised. See further DCC's publications "For You: Not for Profit" for metered and unmetered customers.

2.4.3 Water quality sampling and monitoring

DCC will specify the water quality monitoring regime required. Licensees operating in Wales will be required to comply with the Regulations. DCC complies with the Regulations by undertaking sampling and monitoring.

DCC will specify the water quality monitoring regime in the access agreement. This will
include any audit requirements. At a minimum the Licensee will be required to monitor
water quality in accordance with the above regulatory requirement. DCC may specify
additional monitoring requirements to suit specific circumstances. The access
agreement will confirm the process for transfer of water quality data and the provision
of telemetry data from a Licensee's water treatment works.

Systems will be required to be put in place that allow real time monitoring of key performance data. Details will be set out in the access agreement. As a minimum this would be expected to include flow, pressure, and key water quality parameters (e.g. Turbidity at the point of disinfection) and residual disinfectant levels (e.g. chlorine). These requirements will be specified in the access agreement. Telemetry for remote operation of the third party supply of water may be necessary. For network operational reasons, DCC may be required to implement a fail-safe shutdown. Similarly, if there are network failures that require supplies to be shut down such as might occur as a result of a major burst, then DCC as network operator will be authorised to control the third party supply. This would include reducing the supply below the normally agreed level of supply or full shutting off of the supply where that was required. There must be no prejudice or compromise to the DCC supply system and water quality. The Licensee must inform DCC immediately of any failure or abnormality in the treatment process. The access agreement will:

- specify circumstances when the Licensee must inform DCC immediately of water quality problems (by reference to parameters);
- specify circumstances when the Licensee must turn-off its supply immediately (by reference to parameters); and
- provide DCC with the right to turn off the Licensee's supply in defined circumstances.

DCC will remain responsible for the sampling and monitoring of water quality in its water quality zones receiving the supply. Any additional sampling or monitoring required due to the Licensee's source input will be reflected in the access price.

2.4.4 Volume measurement

Meters are necessary to measure volume at certain points of the supply system at the abstraction point, going into or out of treatment works, at points in the treatment works, inlets and outlets to service reservoirs, and branches off the supply system. It is essential that there is a meter on the pipe connecting a Licensee's source to the DCC supply system in order that DCC can understand how the introduction of water from the source affects its system. A meter must also be present at the point of connection with the customer, to measure and understand their usage.

3. Customer Transfer Protocol (CTP)

For the competitive market to function effectively, a clear, simple and standardised transfer process is needed to ensure that customers can easily change supplier in an effective manner. The CTP relates to the process, procedures and associated data required to successfully transfer a customer's eligible premises from one supplier to another.

For detailed information refer to the Ofwat Customer Transfer Protocol (CTP) available on <u>Ofwat's</u> <u>website</u>

3.1 **Principles**

Standard licence condition (SLC) D5 and Appointment Condition S require Licensees and water undertakers, respectively, to comply with Ofwat's CTP. Relevant sections of WIA 1991, condition of appointment R and SLC A6 also place a duty on Licensees and water undertakers to exchange certain information.

Ofwat has developed the CTP with the assistance of customer representatives, potential Licensees and water undertakers. The CTP provides a clear, simple and standardised process for the timely and efficient transfer of customers between:

- a) any water undertaker and any Licensee; and
- b) any two Licensees.

3.2 Rules of Behaviour

All Licensees and water undertakers shall be required to comply with the rules of behaviour of the CTP, as specified in the CTP as issued by Ofwat and as amended from time to time.

3.3 Data Transfer

This section defines the data that needs to be maintained in order to support the process and clarify the responsibility for ownership and maintenance of the data. This section should detail the agreed method of transferring and communicating the data that needs to be exchanged between the relevant parties.

The CTP specifies the data flows, the data items within each data flow and the timescales that apply for transmission of those data flows. All Licensees and water undertakers must comply with those requirements.

All Licensees and water undertakers must give details of the name and contact details (which must include an email address) of the person to whom Licensees and water undertakers should send all CTP data flows in the data format prescribed by the CTP. For DCC these are:

Wholesale Commercial Manager Dwr Cymru Welsh Water Email: wholesaleservicecentre@dwrcymru.com Tel: 0800 260 5053

3.4 Registration and Operational Processes

This includes clarification of the registration and operational processes to be used. All water undertakers and Licensees must follow the operational processes in the CTP for effective customer transfer and the resolution of disputes on transfer.

4. Control and balancing of supply system

4.1 Supply system management

DCC is solely responsible for the operation, maintenance and control of its supply system. Any access arrangement with a Licensee shall ensure that DCC's standards are not compromised.

4.1.1 Unbilled water

i) Leakage

DCC is committed to reducing leakage to levels which are appropriate within its area of operation and reflect a balance of economic, social welfare and environmental conditions. These levels of leakage will be reviewed on a regular basis to take account of changing supply and demand circumstances.

The Licensee shall input water to DCC's supply system to the amount required by the Licensee's customer, such amount shall not take into account any leakage on the DCC supply system. Any leakage on the DCC supply system is the responsibility of DCC and any leakage on the

Licensee's pipework is the Licensee's responsibility. Any leakage on the customer's pipework is the responsibility of the customer.

ii) Unauthorised use of water

DCC will not tolerate any unauthorised use of water. If illegal connections are made to the DCC supply system DCC will disconnect the unauthorised connection and may take legal action against the party concerned.

If an unauthorised connection is made to the system of the Licensee or their customer DCC expects that the Licensee will take action to have the unauthorised connection disconnected.

iii) Fire water

DCC is responsible for the provision of water for firefighting purposes. DCC will not charge Licensees for water used for the purpose of firefighting (including the testing of appliances). If a customer of a Licensee makes a request for a fire hydrant near its premises under section 58 WIA 1991 these will be dealt with in accordance with this section and the cost will be recoverable in accordance with section 147 WIA 1991.

4.1.2 Drought and Water Resource plans

DCC remains solely responsible for preparing and maintaining its drought and water resources management plans. Under Sections 37C and 39C WIA 1991, a Licensee is under a duty to provide a water undertaker with such information as required for the purposes of preparing or revising its drought and water resources management plan. To comply with its licence conditions and legislation a Licensee must co-operate with DCC in its duties to produce such plans. As part of their detailed applications (stage 3), Licensees must provide a thorough outage risk assessment of any proposed source and the criteria by which any risks are assessed, such as an assessment of exposure to pollution incidents, vandalism and other risks.

i) Drought plans

DCC as the water undertaker retains responsibility for drought planning and the ability to apply for drought permits and orders. Additionally, DCC would retain all responsibility with respect to implementing hosepipe bans and restrictions under non-essential use. However, DCC and the Licensee will discuss whether their customers within the same class of customer will be subject to the same risk of interruptions to supply. Standard Licence Condition A5 (Emergencies and drought) requires the Licensee to comply with reasonable instructions from a water undertaker in relation to matters specified in statutory drought plans which are not the subject of a drought order or drought permit for a number of specified purposes.

In relation to any information DCC requires, this will follow the requirements upon it from the EA and NRW as set out in the Water Company Drought Plans Guidelines.

Licensees are also required to comply with any instructions given to it during any emergency, for the same specified purposes. Licensees should notify DCC promptly of any changes to their demand and resources plans.

In Licensees' negotiations with their customers and subsequently with DCC, reliability and drought protection required should be discussed, and it should be clear to the customer how they would be treated in such circumstances compared with other water customers in the locality.

ii) Resource planning

The abstraction licensing process for a new source includes the requirements for providing information to the EA or NRW on the environmental impact of the proposed abstraction and on the prospective water demand (as part of the test of 'reasonable requirement') under the licence.

Risk assessment of water resource reliability is also important. For DCC to fulfil its statutory duty in relation to the preparation of water resource plans, Licensees must comply with all reasonable requests for information from DCC. DCC expects Licensees to provide the same information as is required from DCC in assessing its own resources. The information requirements are as set out in the EA/NRW document Water Resource Planning Guidelines. Licensees must comply with reasonable requests for information that are necessary for the water undertaker to fulfil its statutory duty to supply. The information required should be similar to that used by water undertakers in assessing their own resources.

Any Licensee should notify DCC promptly of any changes to their demand and resources plans. Licensees' negotiations with their customers, and subsequently with DCC as part of the access application, should cover the degree of resource reliability and drought protection required.

4.1.3 Telemetry requirements for supply system control

Full telemetry systems may be required allowing for real time monitoring of key performance data. As a minimum this would be expected to include flow, pressure, and key water quality parameters will also be required e.g. chlorine residual levels. The Licensee's system must be compatible with the DCC Regional Telemetry System. DCC should be able to independently interrogate the Licensee's system.

Telemetry must allow for remote operation of the third party supply of water.

4.1.4 Secondary connections

The only connections allowed will be those specified in the access agreement. Any subsequent connections must not take place unless DCC and the Licensee have agreed an appropriate written amendment to the access agreement. DCC does not allow any unauthorised connections to or work on its apparatus. Further, no additional premises or buildings should be added to the supply without DCC's full knowledge. Any additional connections observed by DCC's operators will be reported to DCC. Should we become aware that a Licensee has made a secondary connection without first obtaining approval to do so, we shall seek to terminate any access agreement in force and shall further seek to recover costs expended by us in the pursuance of the agreement and its termination.

4.1.5 Supply system maps and plans

Relevant maps and plans will be shared, at the detailed application stage (subject to reasonable conditions as to security and copyright if these are documents which would not be publicly available). Under WIA 1991 the Licensee will be able to view maps free of charge at DCC's offices. Information from supply system modelling will also be shared between DCC and the Licensee. Operational practices such as regular flushing programmes will need to be agreed. DCC will highlight to the Licensee known areas at risk of discolouration incidents owing to flow or pressure fluctuations during routine and non- routine use of the system.

4.1.6 Point of entry controls and failure modes

In case of water quality going outside of agreed quality bands DCC may be required to fail-safe shutdown automatically to protect water quality to the customers served by the supply system. The Licensee's system must also include an auto-shutdown facility.

Access to and adequacy of sampling points and interface requirements will be dealt with on a case by case basis.

The Licensee must inform DCC immediately of any failure or abnormality in treatment process.

The access agreement will provide specific details on such issues as the circumstances when a Licensee must inform DCC immediately of water quality problems, when an immediate turn-off of the Licensee's supply must take place. Any failures by the Licensee which result in a failure by DCC to meet appropriate standards will be the subject of sanctions under the terms of the access agreement.

Compliance with water fittings legislation

DCC shall retain responsibility for all inspection and enforcement activity in respect of the Licensee's customers' compliance with the appropriate Water Fittings Regulations and associated legislation. This shall ensure, as far as is reasonably practicable that DCC's water supply system is protected from any event or incident occurring within the Licensee's customers' premises.

4.2 Metering services

4.2.1 Meter asset management

i) Metering solutions available

The design of the Licensee meters and the meter associated layout must be approved by and meet the requirements of DCC.

ii) Meter installations

Installation of meters is carried out by a DCC partner under contract. The terms of the contract determine the charge for the meter installation. Once confidentiality terms have been agreed with the licensed water supplier the price of installation based on the DCC metering contract will be agreed between the parties.

iii) Meter maintenance

Maintenance of DCC meters is carried out under contract by a DCC partner. The terms of the contract determine the charge for any maintenance. Charges will vary depending on the scale of work required. In some circumstances, for example often with customer meters, instead of maintenance or repair being carried out, the meter will be renewed if this is the most cost effective solution.

4.2.2 Meter Calibration and verification

DCC and any licensed water supplier will be responsible for the calibration and verification of their own apparatus. If calibration cannot be carried out in situ, DCC may renew the meter and if

necessary, send it for testing. DCC will carry out this work on behalf of the licensed water supplier if so requested and recover its costs.

Any contract between the parties will include mutual audit provisions.

4.2.3 Meter reading and meter reading verification

DCC and any licensed water supplier will be responsible for the reading and reading verification of their own apparatus. DCC will carry out meter reading on behalf of the licensed water supplier if so requested, but any such work will be reflected in the price charged by DCC for access to its supply system.

The access agreement will include provision for audit of the parties by each other and how disputed meter reads will be dealt with.

If the Licensee is of the opinion that the amount shown on the register of the meter or meters is inaccurate, it may give DCC notice requiring the meter to be tested. The expenses of any such test shall be met by DCC, if the equipment is found to be inaccurate by more than a percentage to be agreed and set out in the access agreement. The expenses of any such test shall be met by the Licensee if the equipment is found to be inaccurate by less than the percentage set out in the access agreement.

If the equipment fails or is found to be inaccurate by more than the said percentage in accordance with a test carried out under the above paragraph, the quantity of water supplied by DCC shall be taken to be such as DCC and the Licensee shall agree or in default of such agreement shall be dealt with in accordance with the dispute resolution provisions in the access agreement. The volume of water to be taken into account for the purposes of calculation of the volume charge shall be that revised volume of water so determined.

4.3 Supply system balancing

4.3.1 Strategic balancing

A full assessment of the Licensee's application will include assessment of the implications of any new source introduced to our system on our strategic transfers and pressure management. The requirements will be case specific depending on for instance the type of source or the point of entry.

i) Annual supply planning

Licensees will be required to provide detailed information to DCC regarding its customer's projected demand and the sources projected output to allow DCC to assess its own resources and supply requirements. This will be undertaken on an annual basis. The Licensee shall also notify DCC of any changes.

ii) Use of strategic supplies

Sections 66G and 66H WIA 1991 allows Ofwat to determine whether one or more introductions of water into a water undertaker's supply system by a Licensee under section 66B or 66C WIA 1991 constitute a strategic supply or a collective strategic supply. The trigger for whether an introduction of water can be designated as a strategic supply is contained in Section 66G (10) WIA 1991. This provides that an introduction of water is strategic if, without the introduction being

made, there is a substantial risk that the water undertaker would be unable to maintain supplies to its own customers as well as supplying the Licensee's customers with water for domestic purposes. The trigger for whether two or more introductions of water can be designated as a collective strategic supply is contained in Section 66H (10) WIA 1991. Section 66H (10) WIA 1991 is in substantially identical terms to Section 66G (10) WIA 1991.

Ofwat may make a determination if a water undertaker asks them to do so, or where Ofwat propose to make a determination that an introduction of water constitutes a strategic supply. Ofwat will also consider requests from customers and Licensees. If an introduction is designated as a strategic supply and it becomes inappropriate for the Licensee to continue to operate as a result of its conduct or the Licensee runs into financial difficulties, the Licensee will be subject to the special administration procedure in sections 23-25 WIA 1991. This means that the introduction that had been designated as a strategic supply would continue to be made into the water undertaker's supply system.

To provide certainty in the market, prices agreed between Licensees and water undertakers in access agreements will remain fixed for the duration of the access agreement, rather than changing in response to subsequent designations or cancellations of introductions as strategic. The water undertaker may offer a price dependent on a supply being designated.

iii) Back-up supplies

DCC will continue to be subject to its various supply duties under the WIA 1991 pursuant to which it is willing to enter into whatever supply arrangements are sought on appropriate terms. The provision of back-up supplies is an optional service and the terms and price will be subject to agreement between DCC and the Licensee.

iv) Interim duty to supply

The statutory provisions as to interim supply are set out in Section 63AC of the WIA 1991. This is a duty on the water undertaker where the Licensee ceases to supply a customer. The water undertaker has a duty to supply the customer for a minimum period of three months. The duty is qualified in that there is no obligation to provide a supply where this would put at risk our ability to provide supplies of water then or in the future.

DCC will set out in its access agreement circumstances in which it will cease to supply the Licensee. If supply is terminated for these reasons, there will be no interim duty to provide water to the Licensee's customer. Such circumstances will include, but not be limited to non-payment of water charges, detrimental effect to the water quality or flow of the supply system.

4.3.2 Flow balancing and reconciliation processes

In general, DCC will require that the Licensee inputs water into a service reservoir or into the network at an appropriate location to maintain the integrity of the water quality.

i) Supply system usage forecast for Supplementary Authorisation supplies

DCC produces internal resource plans and formal water resource plans are produced every 5 years as required by NRW/the EA.

The Licensee will be required to supply information for both the internal plans and the formal Water Resources Management Plan as to their water source and the usage and likely demand of their customer.

ii) Imbalance accounting

Day-to-day operation of the intake from the Licensee's supply will be the responsibility of DCC, in order to preserve the integrity of real time network and quality management. DCC will be responsible for balancing the aggregate demands on the network. To this end, the Licensee will furnish DCC with information on the estimated demands of its customers in a manner and at a frequency to be specified in the access agreement.

Terms in the access agreement will provide for how any over or under supply of water will be addressed. The supply system remains the responsibility of DCC. DCC is responsible for the balancing of its supply system. Where a Licensee is inputting water how that balance is achieved will be affected by which party is responsible for the water entering the system (whether the system in the specific area is operated by "push" or "pull"). This will in turn have a significant bearing on how imbalancing can be accounted for in a case specific access agreement.

However, if the Licensee is responsible for the water entering the system (i.e. the system is operated by push) DCC expects the Licensee to use reasonable endeavours to balance the input of water into DCC's supply system with the customer(s) demand over every 24-hour period. DCC and the Licensee will agree sensible upper and lower thresholds around the supply profile to account for normal variations in demand. Inputs from the Licensee will be addressed for compliance with contractual obligations as specified in the Access Agreement over the agreed balancing period with due account taken for any supply system related losses or events.

Where the Licensee fails to provide the volume of water required by the contractual obligation, DCC will notify the Licensee and DCC will levy the appropriate charges for water, which DCC has been required to supply to make up this shortfall. These charges are termed 'top up supplied' and they will be charged at the applicable published standard tariff. Where the Licensee inputs a higher volume of water than required by contractual obligations, DCC will request that the Licensee reduces its input to match the demand characteristics of its customer (and in line with contractual obligations).

The Licensee should only introduce water into the supply system sufficient to meet the expected demand of its customer taking no account of leakage.

iii) Reconciliation processes

DCC and the Licensee will agree and stipulate in the Access Agreement, a suitable reconciliation period over which to assess the volume of water input by the Licensee and the volume of water taken by its customer(s). When data on consumption is incomplete on the day of reconciliation, DCC will default to the contractual values. When data does become available, DCC will make formal reconciliation of supply and demand. DCC will reserve the right to restrict the Licensee's input to the supply system for operational reasons e.g. to maintain or repair the supply system. If such a restriction is applied on the Licensee's input, any shortfall will normally be allowed to be made up in the following month without balancing charges being applied in the month the restriction was actioned by the Licensee. The detailed process for applying balancing top-up supplies mechanisms will be agreed and specified in the Access Agreement.

iv) Peak season and off-peak reconciliation (where applicable)

There will be reconciliation if applicable.

5. Supply system maintenance and Emergency procedures

5.1 Diagnosis of system issues

5.1.1 Obligations with respect to diagnosis of supply system problems

i) Responsibility of water undertaker

DCC is responsible for the operation, maintenance and control of its supply system. DCC will monitor the supply system and is responsible for diagnosis of supply system problems.

ii) Responsibility of Licensee

The Licensee must co-operate with DCC in its operation, maintenance and control of its supply system. The Licensee must comply with DCC's monitoring requirements to ensure that the supply system is maintained efficiently and any problems diagnosed at an early stage. The Licensee must notify DCC of any actual or potential event which has or may impact on the DCC supply system.

5.1.2 Quality Issues

In general, water undertakers treat their water to a higher standard than specified in the Regulations to allow for variations in water quality in the distribution system to ensure that the water is compliant at the point of supply. Licensees holding a Supplementary Authorisation must ensure that the water they introduce into the water undertaker's supply system is compatible with the water already in supply. This includes factors such as taste, odour, appearance and hardness. Reference should be made to the DWI's guidance on common carriage for information on compatibility. Licensees' water must also comply with the water undertaker's procedures for plumbosolvency control as appropriate. If the quality of water in distribution changes significantly after a scheme goes 'live', Licensees must change their inputs to ensure compatibility. The DWI considers that in most cases it should be possible for the Licensee and the water undertaker to agree a solution to water quality issues without its involvement. The Licensee should bear any associated costs. The water undertaker should tell the Licensee during the application processes about known forthcoming changes to operational standards that might result in a deterioration in the water quality in the DCC supply system following the introduction of the water from the Licensee.

If DCC is required under Section 87(1) WIA 1991 by a strategic health authority or the Welsh Government to fluoridate its potable water supplies, it will require the Licensee to fluoridate water introduced into DCC's supply system. The Licensee should obtain an indemnity (if needed) from the appropriate authority. DCC will reserve the right to suspend, without prior notice, the introduction of water into its supply system if it has reasonable cause to suspect that continued introduction would put it at risk of supplying unwholesome water or at the risk of committing an offence under Section 70 WIA 1991.

The Licensee is required to notify DCC immediately if there is a risk that continued introduction of its water may result in a breach of the water quality standards set out in the Regulations at the point of supply. This is also required by the standard licence conditions.

DCC and the Licensee will have regard to DWI's guidance on common carriage and the maintenance of drinking water quality and any updates that DWI might produce.

DCC retains responsibility for the operation, maintenance and control of its supply system. To comply with the standard conditions of its Water and Sewerage Supply Licence, a Licensee must co-operate with the water undertaker in its role as supply system operator. A Licensee must carry out the activities authorised by its licence in a manner which does not actually or potentially jeopardise the proper, efficient and economical performance by any water undertaker of its functions, including the water undertaker's management of its supply system.

The Licensee should comply with DCC's monitoring requirements. The water quality- monitoring regime will be agreed and set out in the access agreement. Monitoring will meet regulatory requirements in force at the time and DCC may specify additional case specific requirements that will be set out in the access agreement.

5.1.3 Hydraulic issues

DCC is responsible for control of flow and pressure of the supply system.

5.1.4 'Real' time information capture systems

Full telemetry systems must be in place that allow real time monitoring of key performance data as a minimum this would include flow, pressure, hydraulic and quality issues. The telemetry outstation monitoring the asset must be compatible with DCC's Regional Telemetry System. These requirements will be specified in the access agreement.

5.1.5 Reporting procedures

The Licensee must inform DCC's 24 hour control room by telephone immediately of any failure or abnormality. The access agreement will detail the specific circumstances when a Licensee must contact DCC and the follow-up procedure to the initial contact.

5.2 Planned system maintenance

5.2.1 Obligations with respect to planned maintenance

i) Responsibility of water undertaker

DCC remains responsible for the integrity of its supply system and as such the maintenance on the supply system is DCC's responsibility. As much as possible DCC will plan maintenance so as to cause minimum disruption to the Licensee. We will inform the Licensee within 48 hours of any planned work that may affect the Licensee's supply and the likely timescales of any planned work. Access agreements with Licensees will set out exact arrangements. Compensation will be in line with DCC's customer service standards for any overrunning of maintenance.

ii) Responsibility of Licensee

The Licensee must inform DCC within 48 hours of any maintenance it is carrying out which may affect the supply. It is also responsible for liaising with the customer over any planned maintenance. If the maintenance affects DCC's operations, the Licensee may be required to compensate the company, and the situations in which this will apply, and the amount of compensation will be set out in the access agreement.

5.2.2 Specification of assets

In the access agreement between the Licensee and DCC the assets required for maintenance access and the performance standards those assets must meet will be specified. The access agreement will set out regular inspection periods for the assets.

5.2.3 Maintenance standards

DCC endeavours to comply with the Guaranteed Standards Scheme which are outlined in our publications For You: Not for Profit for metered and unmetered customers.

Licensees will benefit from the same standards of service and this and any compensation for failure to meet the standards will be set out in the access agreement. Customers of Licensees do not have the benefit of Guaranteed Standards Scheme; any compensation payments will be made to the Licensee who may pass them onto the customer as appropriate.

5.2.4 Risk assessment processes

DCC will undertake detailed risk assessments before commencing any planned maintenance. In order to complete any risk assessment DCC may make requests of the Licensee for information depending on the nature of the work required. If DCC were working on the main and there was a risk of dirty water, DCC may want to understand the effect this would have on the site and this may affect how DCC plans the work. If the Licensee is unable to provide the information requested DCC will proceed with maintenance on the basis of the information it currently possesses and in a situation where the Licensee refuses, neglects or does not otherwise provide input, the Licensee shall be deemed to have indemnified DCC against any claim for compensation by or on behalf of the Licensee's customer(s).

Where the Licensee intends to carry out planned maintenance work(s) on its assets, and that work may impact us, the Licensee shall operate to a similar procedure whereby DCC are invited to review and comment.

5.3 Unplanned system maintenance

5.3.1 Obligations with respect to unplanned maintenance

i) Responsibility of water undertaker

DCC will endeavour to maintain supplies to the Licensee's customer in the event of unplanned maintenance.

ii) Responsibility of Licensee

The Licensee must inform DCC as soon as it is aware of any incident or potential incident, which may affect DCC's supply system or the quality of water. If maintenance on the Licensee's assets will affect the volume of water entering the DCC supply system, the Licensee must alert DCC immediately. Procedures for liaising between the parties will be set out in detail in the access agreement.

The Licensee shall have regard to any guidance, procedures and requirements, and any policies relating to civil emergencies and national security notified by the Welsh Government as far as they relate to the Licensee.

5.3.2 Risk assessment processes

DCC will, as far as is reasonably possible, undertake risk assessments before commencing maintenance. In order to complete any risk assessment DCC may make requests of the Licensee for information depending on the nature of the work required. The Licensee will be expected to do the same when carrying out any maintenance on its pipework and assets.

5.3.3 Emergency notices

Emergency procedures will be set out in the access agreement. Any emergency notice issue requirements e.g. if there is a burst or pollution incident shall be met by the party responsible for the assets on which the unplanned maintenance work is to take place.

If the responsibility falls to the Licensee, the Licensee shall provide copies of the notification when the work to be carried out is within DCC's statutory water supply area. Emergency procedures will be set out in the access agreement and once the Licensee has signed the confidentiality agreement with DCC, DCC will provide upon request relevant sections of its emergency operational manual.

5.4 Safety aspects of unplanned and emergency work

5.4.1 Status classification

Details will be set out in the access agreement.

5.4.2 Standard emergency reporting procedures

Details will be set out in the access agreement.

5.4.3 Major emergency reporting procedures

Details will be set out in the access agreement.

5.5 Emergency procedures for dealing with specific events, issues and incidents

DCC and the Licensee will brief each other on their respective emergency procedures to ensure compatibility. The access agreement will set out the details of any meetings and any detailed procedures to be followed. Meetings will take place at least once a year.

5.6 Customer Protection

5.6.1 Customers in Vulnerable Circumstances

DCC maintains a Priority Services Register (PSR) which contains the details of premises where there are customers with particular requirements (e.g. due to age, health, medical condition or extra communication requirements) which mean that we might need to contact them in a particular way or as a matter of priority in the event of an interruption to supply or other operational emergency. Keeping information on the PSR means that we can respond quickly and adapt our services to their requirements.

We rely on a "Substantial Public Interest" to collect, hold and share their personal information to protect them from harm or safeguard their interests (where we think that we need to, or where they tell us that they need assistance).

We may share PSR data with organisations in their area whose role also involves keeping them safe or safeguarding their interests, such as other utility providers, emergency services, local authorities and health services so that they can also help our customers in vulnerable circumstances during an emergency. We may add our customers to our PSR because another organisation has let us know about their additional needs.

If the Licensee has customers which they consider should be on the PSR they should apply to DCC for registration subject to compliance with data protection requirements. Under Standard Licence Condition LA. (6) (b) (b), the licensee must inform DCC of relevant details if a PSR customer occupies or is likely to occupy any premises that the licensee supplies.

5.6.2 Large scale customer warning procedures

Please refer to 7.2.2 in this code

5.6.3 Emergency compensation payments

Any GSS compensation payments are made to the Licensee who will pass them onto the customer.

5.6.4 Emergency operational planning exercises

The procedures which are to be followed will be set out in the Access Agreement. Emergency operational planning exercises will be carried out as and when appropriate. The Licensee will take part in DCC's planning exercises. The plan should make provision to maintain in the event of an unavoidable failure of the water a minimum alternative water supply as notified by the Welsh Government. It should also allow for priority to be given to the priority services customers and regard will be given for non- domestic users.

5.7 Support processes

5.7.1 Arrangements for press liaisons

In the event of an emergency connected with the supply system occurring, DCC will undertake any contact with the press. If the problem originates on the Licensee's assets, as far as reasonably possible DCC will liaise with the Licensee on an agreed statement.

5.7.2 Arrangements for the dissemination of severe weather warnings

When DCC receives a severe weather warning which may affect the Licensee's supply to its customer it will inform the Licensee as soon as reasonably possible. Points of contact will be specified in the access agreement.

5.7.3 Emergency contacts

The Licensee must contact the DCC 24 hour control room by telephone. The access agreement will detail the specific circumstances when a Licensee must contact DCC and the follow-up procedure to the initial contact.

5.8 **Reportable situations**

There are a wide variety of reportable situations and the Licensee will be expected to familiarise themselves with these and the relevant regulatory points of contact. When there are any reportable situations, the parties should liaise with each other as appropriate and as set out in the access agreement.

The procedures between DCC and the Licensee will make provision for consultation with and reporting to all appropriate organisations including:

- Local Authority Environmental Health Departments
- Health Authorities/Trusts
- Public Health Wales
- Renal Dialysis Co-ordinators
- Medical Advisor/CCDC's
- DWI
- Ofwat
- Welsh Government
- NRW/EA
- Consumer Council for Water

It is DCC's policy to provide the information required by regulators irrespective of whether it is a mandatory requirement or request. Accordingly, the Licensee must also provide such information via DCC.

- The Water Industry (Suppliers' Information) Direction requires specific information within 24 hours, 72 hours and 20 days of incidents and events.
- Ofwat requires information as soon as possible on any incident which affects the customer. Ofwat requires this information to answer customer and press queries.
- The Consumer Council for Water should be kept informed of any incident which affects the customer.

• NRW/EA require information on any incident which has the potential of affecting watercourses or groundwater. The effects can result from the incident or the remedial actions which follow. NRW/ EA require the information to carry out their statutory duties.

6. Customer contact arrangements

6.1 Contact arrangements for operational queries and complaints

Where access has been granted to DCC's supply system, DCC will nevertheless retain control of the operation of that supply system. The Licensee will be responsible for customer services unless it is agreed otherwise with DCC.

6.1.1 Customer meter reading

The Licensee will also be required to share meter readings with the sewerage undertaker, where the sewerage services are provided by a different undertaker.

The access agreement will set out the procedure for dealing with any disputed meter reads post-transfer. (The CTP sets out the process which will be followed to resolve disputed transfer meter readings. This relates to disputed readings at customer transfer only).

6.1.2 Operational issues

i) Water supply queries

DCC retains responsibility for the operation, maintenance and control of its supply system.

Standard Condition A6 of the Water Supply Licence, Condition of Appointment R and the Wholesale/Retail Code operational terms set out the duties of Licensees and water undertakers respectively to provide information to each other on operational issues.

DCC will as far as possible agree timescales with the Licensee for any planned maintenance. The Licensee will be responsible for informing the customers Retailer of any disruption which may be caused as a result of maintenance. If planned maintenance overruns compensation will only be payable on terms agreed in the access agreement. The access agreement will also set out the agreement between the parties as to any compensation to be paid by the Licensee if any work it carries out disrupts the system.

The Licensee will be responsible for communicating with the Retailer. However, in the case of an emergency, DCC will also need to be able to contact the Retailer and / or customer. Contact information must therefore be provided to DCC and kept up to date by the Licensee.

The parties may agree that it is DCC that should be contacted in certain circumstances. If this is the case, these circumstances will be set out in the access agreement, and it is the responsibility of the Licensee to inform the customer of the circumstances when they should contact DCC.

ii) Sewerage queries

Sewerage undertakers and/or billing agents will generally retain their existing relationships with their sewerage customers. The Licensee and sewerage undertaker may agree that the Licensee will carry out some or all this contact on behalf of a sewerage undertaker.

6.1.3 Complaint handling processes

Any access agreement with DCC and a Licensee will set out how complaints are allocated and transferred.

6.1.4 Obligations on water undertaker

Condition of Appointment R sets out the water undertaker's duty to provide information to the Licensee on issues such as water quality, water pressure, continuity of supply and matters affecting the supply system. DCC, as water undertaker, remains responsible for the operation and maintenance of the supply system. DCC will liaise with the Licensee over any problems in the supply so that the Licensee may inform their customers.

6.1.5 Obligations on Licensees

A Licensee must ensure the safe operation of the supply system and give DCC all information required as specified by the terms of their Water and Sewerage Supply Licence.

7. **Provision of information to relevant undertakers**

(1) In so far as the provision of information to a relevant water undertaker is not provided for by or under any enactment, the Licensee shall provide any relevant water undertaker with such information as the undertaker reasonably requires –

(a) for the purposes of carrying out its functions;

(b) to determine whether the Licensee has sufficient product and public liability insurance for the activities authorised by its licence;

- (c) to comply with any condition of the undertaker's appointment;
- (d) in relation to national security or civil emergencies; or

(e) to comply with any reasonable request for information made by Natural Resources Wales or the Environment Agency.

(2) The Licensee may impose reasonable conditions on the use which the undertaker may make of information provided under this paragraph.

- (3) Any question as to the reasonableness of -
 - (a) any requirement to provide information under sub-paragraph (1); or

(b) any condition proposed by the Licensee under sub-paragraph (2), shall be resolved by referring that question to Ofwat for its determination.

(4) A reference under sub-paragraph (3) shall have the effect of suspending the requirement so referred pending Ofwat's determination.

(5) The Licensee shall not be required under this paragraph to provide any information which would be protected from disclosure or production in proceedings in the High Court on grounds of legal professional privilege.

(6) The Licensee shall immediately inform the relevant water undertaker of relevant details—

(a) if the Licensee becomes aware of any actual or potential incident which adversely affects or is likely adversely to affect–

- i) water quality;
- ii) water pressure;
- iii) continuity of supply; or
- iv) any other matter relating to the relevant water undertaker's supply system; or

(b) if a customer in vulnerable circumstances occupies or is likely to occupy any premises which the Licensee supplies.

(7) The Licensee shall inform the relevant water undertaker as soon as reasonably practicable if—

(a) any premises which the Licensee supplies are no longer occupied by any customer in vulnerable circumstances; or

(b) the Licensee has any planned interruptions in supply.

(8) Where the Licensee intends to supply water to the premises of a customer which were not previously connected to a relevant water undertaker's supply system, the Licensee shall, as soon as reasonably practicable, inform any third party sewerage undertaker which provides or will provide services to those premises of—

- (a) the date of connection;
- (b) the address of the premises; and

(c) the name and address of the Licensee's customer with respect to those premises.

(9) For the purposes of sub-paragraph (6), an incident includes regulatory infringements which may put the Licensee or relevant water undertaker at risk of supplying water which is unwholesome as determined under Section 67 WIA 1991 (standards of wholesomeness) or unfit for human consumption within the meaning of section 70 WIA 1991 (offence of supplying water unfit for human consumption).

(10) The Licensee shall inform DCC of any notices served by Welsh Ministers under the requirements of the Water Supply (Water Quality) Regulations (Wales) 2018.

7.1 Disconnection

Water undertakers may reasonably seek similar provisions from Licensees as they have with their own customers. It is DCC's policy to rely on the power to disconnect where pursuing the non-payment of bills. The same disconnection procedure that DCC currently operates in relation to its large users for non-payment will be built in to any access agreement DCC has with a Licensee and further, it will be a condition of reconnection that the Licensee makes full payment of any outstanding sums together with the payment of a security deposit.

7.2 Customer contact arrangements for emergencies and events

7.2.1 Customers in vulnerable circumstances

The Licensee and the water undertaker must keep each other informed of the needs of individuals identified as in vulnerable circumstances, subject to data protection consideration.

7.2.2 Large scale customer warning procedures

If a large geographical area and/or large number of properties are affected by a supply issue DCC will inform the Licensee. The Licensee's customer will also receive warnings direct from DCC as part of its procedure through, for example, press warnings and leaflets.

7.2.3 Obligations on water undertakers

Water undertakers are required to notify the relevant bodies of any incident that may affect drinking water quality or sufficiency of supplies. The water undertaker must comply with the Security and Emergency Measures (Water & Sewerage Undertakers) Direction 1998, the Security and Emergency Measures (Water Undertakers) Direction 2017 and guidance SEMG(8). If DCC has reasonable cause to suspect that an incident has or is likely to occur, it may stop the further introduction of water by the Licensee until the incident is over. Subject to the exceptions in section 63AC of the WIA 1991, DCC will provide supplies to the Licensee's customer under its interim supply duty. DCC will brief any Licensee on relevant emergency action plans before a live connection is made. DCC will liaise with the Licensee and the EA/NRW as to nationally agreed security standards.

Access agreements between Licensees and DCC will set out relevant procedures and responsibilities where these are not stipulated by statute.

7.2.4 Obligations on Licensees

A Licensee must inform the relevant bodies and DCC of any incident that may affect the drinking water quality or sufficiency of supply. The Licensee must comply with the 2.4.. The Licensee must immediately inform DCC as soon as they become aware of any incident or potential incident that affects or is likely to affect water quality. Licensees should adhere to best practices adopted by water undertakers. There are statutory provisions detailing Licensees' duties in respect of water resource management, drought planning, emergency planning and security and emergency measures. The Licensee should provide details of their emergency procedures and demonstrate

them to DCC's satisfaction. They should also liaise with DCC and the EA/NRW over pollution control and proper management of incidents.

The access agreement will contain a detailed protocol for the dissemination of information between the parties and to the Licensee's customer in the case of an emergency.

8. Supply system connections

8.1 Connection of Licensee's source to supply system

DCC is the owner of the supply system. Connections to the DCC supply system will be carried out by DCC and any work on the supply system required due to the connection will be carried out by DCC. The Licensee may choose to lay its own pipes to DCC's supply system in accordance with self-lay policy and procedures or DCC may lay the pipe from the main.

WIA 1991 sets out the statutory framework in relation to self-lay (s.51A).

The location of the access point and its configuration is to be agreed with DCC.

8.2 Connection of qualifying premises to the supply system

In most circumstances the qualifying premises will already be connected to the supply system. Where they are not, DCC's policy for new connections and mains laying will be followed.

DCC's policy on new connections as applies to its own customers is set out in our <u>Developer</u> <u>Services Schedule of Charges</u>.

The Licensee and DCC will agree responsibility of the provision of information to the sewerage undertaker e.g. meter details, where DCC is not the relevant sewerage undertaker.

8.3 Connection of secondary water undertaker's supply system to the primary water undertaker's supply system

All connections to and any work on the DCC supply system will be carried out by DCC. The arrangements for any pipes required to be laid between the DCC supply system and the secondary undertaker's supply system will be agreed between DCC, the Licensee and the secondary undertaker.

9. Legal contract, arbitration and disputes resolution

9.1 Contract terms

Where a Licensee is to be given access to DCC's supply system the parties must enter into an access agreement setting out the terms and conditions of the access arrangement. It will incorporate the general terms of any access together with specific requirements according to the individual customers the Licensee intends to be supplied.

9.1.1 Contents

Set out below is a non-exhaustive list of the headings of clauses that may be incorporated in any agreement with DCC. This list is subject to change according to the specific case circumstances:

- Recitals The recital explains the background to the agreement and is not intended to be legally binding.
- ii) Definitions This defines terms used in the agreement.
- Premises specific contract schedules
 Covering the process to be used in the transfer of customers and agreement of specific terms.
- Primary Water Undertaker obligations
 Outlines DCC's obligations under the agreement, e.g. adherence to statutory obligations.
- v) Supply obligation Sets out obligations in respect of supply e.g. quantity.
- vi) Water flow and pressure Confirms DCC's obligations in respect of flow and pressure.
- vii) Licensed Water Supplier obligations Outlines the Licensees obligations towards DCC e.g. obligation to advise of any material change affecting the operation of the agreement.
- viii) Charges Explains for instance where charges may be adjusted.
- ix) Billing and payment Confirms arrangements and time period for billing and payment.
- x) Ownership of the supply system Confirms DCC's ownership of the supply system
- xi) Meter ownership installation and maintenance Sets out the ownership and responsibility of DCC and the Licensee in relation to meters.
- xii) Meter reading Confirms the arrangements for meter reading.
- xiii) Security of supply Confirms the responsibility for drought and water resource management planning.
- xiv) Interruptions to supply

Sets out the relevant notices in respect of interruptions that each party will endeavour to adhere to.

xv) Network maintenance

Sets out the relevant notification etc. that will be given before maintenance on the network will be undertaken.

- xvi) Customer service arrangements
 Confirms the contact arrangements and information to be given to the Licensee customer by both parties.
- xvii) Disconnection Sets out the instances when disconnection may be used and when any reconnection will be made.
- xviii) Insurance Confirms the insurance cover the parties have in place.
- xix) Liabilities

Sets out the respective liabilities of each party, when any liability will be triggered and any limits on such liability.

- xx) Costs Confirms each party's liability for costs incurred in reaching agreement.
- Intellectual Property rights
 Confirms that each party maintains any rights it may have had in relation to any document, product or data.
- xxii) Termination Sets out how and when the agreement may be terminated.
- xxiii) Confidentiality Confirms each party's confidentiality obligations under the agreement.
- xxiv) Notices and communication
 Informs the parties on how any notice under the agreement should be given and relevant contact details.
- Assignment and procurement
 This sets out any restrictions on the assignment of rights and obligations under this agreement.
- xxvi) Force majeure This sets out the circumstances in which either party may be excused from performing its obligations under the agreement if performance is hindered or prevented by circumstances ooutside that party's control.
- xxvii) Dispute resolution

Sets out the procedure to be followed in resolving any dispute between the parties in respect of the operation of the agreement.

xxviii) General

Includes some general clauses, e.g., variation of the agreement and governing jurisdiction.

9.2 Arbitration and disputes resolution processes

The access agreement may be terminated early in accordance with the provisions set out therein. DCC will expect grounds for early termination to include, but not be limited to:

- mutual agreement;
- a serious breach of the Licensee's obligations under the access agreement; and
- loss of customer.

Dispute, appeal and arbitration procedures will be as agreed between the parties and could include:

- negotiation;
- conciliation;
- mediation;
- arbitration; or
- litigation.

Ofwat has the power to make determinations about some aspects of the licensing regime and so may also be involved in the resolution of disputes that arise between a Licensee and water undertaker. Further information is available on <u>Ofwat's website</u>.

9.2.1 Negotiation

The parties negotiate with a view to reaching an agreement. Failing a resolution of the dispute through negotiation one or both parties may refer the matter for alternative dispute resolution using one or more of the methods below.

9.2.2 Conciliation

An impartial independent third party acts as a communicator between the parties and encourages a move towards resolution. Any settlement will be non-binding.

9.2.3 Mediation

A neutral third party helps the parties to find a mutually acceptable resolution by offering suggestions to help them move towards a settlement. Any settlement will be non-binding.

9.2.4 Arbitration

The dispute is referred to an arbitrator or panel of arbitrators who will gather information and if appropriate witness statements in order to decide a settlement of the dispute. The decision reached at arbitration will be binding on both parties.

10. Access Pricing

10.1 Indicative access prices

In accordance with Ofwat Guidance on Access Codes DCC has produced indicative access prices for supplementary authorisation situations as detailed in Appendix 5 of this document.

In calculating these indicative prices DCC has had due regard to the objectives set out in the relevant section of the Ofwat Guidance on Access Codes and in particular the costs principle.

10.2 Case specific access prices

The general principles set out in Ofwat's guidance and the costs principle will be applied in calculating case-specific prices. DCC will provide case specific access prices to Licensees in a standard format as prescribed in Ofwat's Guidance on Access Codes. The calculation of price will be conducted in a non- discriminatory manner and the process will be open and transparent.

11. Glossary of defined terms

Access: The wholesale supply of water by a water undertaker to a Licensee for the purpose of making a retail supply of water to the premises of the Licensee's customer; and the introduction of water by the Licensee into a water undertaker's supply system to supply its retail customer.

Access agreement: An agreement between a water undertaker and a Licensee for access by a Licensee to a water undertaker's supply system.

Access code: A water undertaker's document that sets out all principal aspects of access to its supply system and the terms and conditions on which it will grant access to its supply system by a Licensee. The access code comprises the standard terms and conditions common to all water undertakers and the terms and conditions specific to that water undertaker.

Access terms: The terms under which a water undertaker and a Licensee agree access to a water undertaker's supply system.

Adjoining supply system: Supply systems of other water undertakers with direct physical connections to the water undertaker's own supply system.

Back-up supplies: These are supplies that can be called into operation in the event of failure of the 'duty' supply.

Boil notices: A notice issued by the undertaker as a warning that water should be boiled before drinking as a precautionary measure.

Borehole: A hole for abstracting groundwater constructed by boring.

Chemical parameters: Limits for the level of chemicals found in water. Examples are iron, chlorine, sulphates, pesticides, ammonium compounds.

Chlorination: The use of chlorine to disinfect water.

Coliform bacteria: A group of bacteria found in the intestine and faeces of most animals. Coliforms can sometimes be found in untreated water. The treatment process removes them, and disinfection prevents their reappearance in the distribution system.

Compensation water: Water released to the environment to offset impacts of abstraction or to comply with Appointment Conditions (or both).

Costs principle: As defined in section 66E of the WIA 1991.

Cryptosporidium: A waterborne micro-organism, single celled protozoan parasite, which causes disease and illness.

Defra: Department for Environment, Food and Rural Affairs.

DWI: Drinking Water Inspectorate.

Deployable output: The output of a commissioned water supply source, group of sources or bulk supply under worst historic drought conditions as constrained by: abstraction license, if applicable; environment; treatment; raw water mains and/or aquifers; pumping plant and/or well/aquifer properties; transfer and/or output main; water quality.

Disinfection: The process of treating water in order to kill harmful organisms.

Diurnal variations: Variations occurring within a daily (24 hrs) cycle.

Drought: A prolonged period of dry weather that reduces rivers flows, reservoir inflows or groundwater levels to unusually low levels.

E.Coli: A bacterium taken as an indicator of faecal contamination.

Eligible premises: Premises that satisfy the eligibility requirements in section 17A (3) WIA 1991 and Ofwat's guidance on Eligibility. Each of the following three requirements must be satisfied in relation to each of the premises in order for a customer's premises to be eligible:

- The customer's premises must not be "household premises" (as defined in Section 17C WIA 1991);
- When the Licensee first enters into an undertaking with a customer to give the supply, the total quantity of water estimated to be supplied to the premises annually by the Licensee must be not less than 50 megalitres (the "threshold requirement", Section 17D WIA 1991); and
- The premises may only be supplied by one Licensee (but may also be supplied by one or more water undertakers).

Fit and proper person: For the purpose of making an access agreement, a person or party will not be deemed fit and proper if there are any relevant convictions, concerns over technical ability, insufficient financial resources available.

Fluoridation: Application of fluoride to drinking water at the request of Strategic Health Authorities or in Wales the Welsh Government as a preventative measure against dental decay.

Groundwater: For the purposes of an access agreement groundwater is defined as water abstracted directly from an aquifer by means of a well, borehole or spring.

Guaranteed Standards Scheme (GSS): A scheme that lays down the minimum guaranteed standards of service that water companies have to deliver. Water companies have to pay compensation to customers if they fail to meet these standards.

Hardness: Characteristics of waters containing dissolved calcium and magnesium salts.

HSE: Health and Safety Executive is a government agency responsible for administering all regulations pertaining to health and safety and public security.

Instrument of Appointment: The water (and sewerage) companies operate under Instruments of Appointment, granted by the then Secretaries of State for the Environment and for Wales, or by Ofwat, to provide water and sewerage services in England and Wales. The Instrument of Appointment imposes conditions on the companies, which Ofwat is required to enforce.

Interruptible supply points: These are supply points where a continuous water supply is not necessary.

Leakage: The loss of water from the supply network which escapes other than through a controlled action.

Licensee: A company holding either a restricted retail authorisation or/and supplementary authorisation licence.

Major Emergency Procedures: The Major Emergency Procedures are evoked when the situation or the number of people affected is in excess of those which can be dealt with by the Standard Emergency Procedures.

Mandatory parameters: Levels of chemical or biological indicators that must be measured by law. Examples for drinking water are E coli, nitrates, chlorides.

Microbiological parameters: Levels of bacteria for example E coli, coliforms, enterococci, whose presence indicate that the water may be polluted and therefore should not be used as drinking water.

Non-potable water: Water which is not intended for domestic or food production purposes.

Outage: A temporary loss of unusable water output due to planned or unplanned events.

Pathogen: An organism which is capable of producing disease.

Point of entry: The point at which treated water enters the supply system as defined by the isolation valve provided by the primary undertaker.

Point of exit: The point at which treated water leaves the supply system. In general, this will be either to specific premises or to the supply system of an adjoining water company.

Potable: Water for domestic and food production purposes which is wholesome at the time of supply. This is defined in section 68 of the WIA 1991 and the Water Supply (Water Quality) Regulations 2018 (The Regulations).

Primary water undertaker: For the purposes of section 66A WIA 1991 (wholesale water supply by primary water undertaker) and section 66C WIA 1991 (wholesale water supply by secondary water undertaker), a water undertaker is the primary water undertaker if the undertaker's supply system is to be used for the purposes of making the supply to the premises of the Licensee's customer.

Priority Service Register: Register of premises where customers in vulnerable circumstances are present.

Priority supply points: Supply points as specified by Defra.

Rechlorination: Usually applied to injection of chlorine to drinking water in the distribution system after it has left the treatment works. Often used to boost chlorine levels at a service reservoir.

Reconciliation process: The balancing of actual demand against actual water supplied into the supply system and the associated financial implications.

Regulatory Compliance Sampling Programme: This is the annual programme of drinking water sampling which the Water Companies must undertake to comply with the requirements of the Regulations and subsequent amendments.

Restricted Retail authorisation: The water supply licence that authorises the holder to use the supply system of an appointed water company whose area is wholly or mainly in Wales to supply eligible premises of its customers only.

Supplementary authorisation for water supply licences: A Water Supply Licence that authorises the holder to introduce water into the supply system of an appointed water company whose area is wholly or mainly in Wales provided that:

- the supply to that customer will use the supply system of the relevant appointed water company;
- the supply is in accordance with that licensee's restricted retail authorisation; and
- the introduction is made in connection with that intended supply.

Secondary water undertaker: A water undertaker other than the relevant primary water undertaker (Section 66C (1)(a)(I) WIA 1991).

Security of supply: The extent to which water supplies to customers are reliable and not subject to possible restrictions because of a lack of rainfall over a period of time.

Service reservoirs: Any reservoir, statutory or otherwise, which is used to store treated drinking water.

Sewerage undertaker: A company appointed under the WIA 1991 to provide sewerage services in respect of a geographical area of England and Wales.

Standard conditions of water supply licenses: The standard terms and conditions of Water Supply Licenses determined and published by the Secretary of State (for the Environment Food and Rural Affairs) pursuant to section 17H WIA 91.

Standard Emergency Procedure: These are a set of procedures for dealing with an emergency. The full or partial implementation of the procedures is dependent on the degree of seriousness of the emergency.

Supplementary Authorisation: This is a water supply licence that authorises the holder to introduce water into the supply system of an appointed water company whose area is wholly or mainly in Wales provided that:

- the supply to that customer will use the supply system of the relevant appointed water company;
- the supply is in accordance with that licensee's restricted retail authorisation; and
- the introduction is made in connection with that intended supply.

Supply system: Any water mains and other pipes used for the purposes of conveying water from a water undertaker's treatment works to customer's premises and any water mains and other pipes used to convey non-domestic water from any source to premises that are not connected directly or indirectly to any water mains or pipes connected to those treatment works. This term is defined in Section 17B (5) of the WIA 1991.

Supply system balancing: The process of matching the 'water in' against the 'water out' from the supply system.

Telemetry: The technology for automatically measuring and transmitting data by radio or other means from remote sources to receiving stations.

Treated water: Water of a suitable quality for input to the treated water distribution system and that which results in satisfactory DWI compliance at the customer's tap.

Treated water quality monitoring: Regular sampling and analysis of untreated and treated water. Examples include daily measurement of free chlorine at treatment works or annual sampling for mercury at customers' taps.

Treatment works: Works where raw water from rivers or reservoirs is treated to produce drinking water. Treatment typically includes coagulation, filtration and disinfection.

Trihalomethanes: A group of chemicals produced by the reaction of chlorine with natural organic chemicals present in the raw water.

Turbidity: A measure of the optical clarity of water.

UKWIR: UK Water Industry Research Limited.

Ultra-violet disinfection: Inactivation of microbiological organisms by ultraviolet radiation.

Untreated water: Raw water not of a suitable quality to enter the supply system.

WIA 1991: The Water Industry Act 1991 (as amended by subsequent legislation).

WRZ: Water Resource Zone.

Water Fittings Regulations: The Water Supply (Water Fittings) Regulations 1999 (SI 1999/1148, amended by SI 1999/1506 and SI 2005/2035). These Regulations replaced the Water Bylaws in England and Wales and are largely enforced by the water undertakers. The Water Supply (Prescribed Water Fittings Requirements) Regulations 2005 (relates to wholesale water supply to a Licenced Water Supplier).

Water resources management plan: A water undertaker's long term strategic plan for water resource development in its area (see section 37A WIA 1991).

Water Supply Licence: A licence granted to a company giving it the Retail Authorisation, or both the Retail Authorisation and the Supplementary Authorisation.

Water Supply (Water Quality) Regulations (the "Regulations"): The Water Supply (Water Quality) Regulations 2016 which apply to water undertakers whose area of supply is wholly or mainly in England; The Water Supply (Water Quality) Regulations 2018, which apply to water undertakers whose area of supply is wholly or mainly in Wales. The Regulations specify the standards used to define wholesomeness of drinking water, the level of monitoring required, treatment requirements, reporting requirements and also specify the requirements for using approved substances and products. The DWI enforces the Regulations.

Water undertaker: A company appointed under the WIA 1991 to provide water services to a defined geographic area and which owns the supply system and other infrastructure.

APPENDIX 1 - Draft Confidentiality Agreement

THIS AGREEMENT is dated [TO BE INSERTED]

PARTIES

(1) DWR CYMRU CYFYNGEDIG (Registered Number 02366777) whose registered office is at Pentwyn Road, Nelson, Treharris, Mid Glamorgan CF46 6LY ("Party 1"); and

(2) [INSERT PARTY 2 NAME] (Registered Number [INSERT NUMBER]) whose registered office is at [INSERT ADDRESS] ("Party 2").

BACKGROUND

Each party wishes to disclose to the other party Confidential Information in relation to the Purpose. Each party wishes to ensure that the other party maintains the confidentiality of its Confidential Information. In consideration of the benefits to the parties of the disclosure of the Confidential Information, the parties have agreed to comply with the following terms in connection with the use and disclosure of Confidential Information.

AGREED TERMS

1. **DEFINITIONS AND INTERPRETATION**

1.1 The following definitions and rules of interpretation in this clause apply in this agreement:

Business Day: a day other than Saturday or Sunday or a bank holiday or public holiday in England.

Confidential Information: all confidential information (however recorded, preserved or disclosed) disclosed by a party or its Representatives to the other party and that party's Representatives including but not limited to:

1.1.1 the fact that discussions and negotiations are taking place concerning the Purpose and the status of those discussions and negotiations;

1.1.2 any information that would be regarded as confidential by a reasonable businessperson relating to:

(i) the business, affairs, customers, clients, suppliers, plans, intentions, or market opportunities of the Disclosing Party; and

(ii) the operations, processes, product information, know-how, designs, trade secrets or software of the Disclosing Party;

1.1.3 any information or analysis derived from Confidential Information; and but not including any information that:

1.1.4 is or becomes generally available to the public other than as a result of its disclosure by the Recipient or its Representatives in breach of this agreement or of any other undertaking of confidentiality addressed to the party to whom the information relates; or

1.1.5 was, is or becomes available to the Recipient on a non-confidential basis from a person who, to the Recipient's knowledge, is not bound by a confidentiality agreement with the Disclosing Party or otherwise prohibited from disclosing the information to the Recipient; or

1.1.6 was lawfully in the possession of the Recipient before the information was disclosed to it by the Disclosing Party; or

1.1.7 is developed by or for the Recipient independently of the information disclosed by the Disclosing Party.

Disclosing Party: a party to this agreement which discloses or makes available directly or indirectly Confidential Information.

Purpose: [INSERT A DESCRIPTION OF THE PURPOSE]

Recipient: a party to this agreement which receives or obtains directly or indirectly Confidential Information.

Representative: employees, agents, officers, advisers and other representatives of the Recipient.

1.2 Clause and paragraph headings shall not affect the interpretation of this agreement.

1.3 A **person** includes a natural person, corporate or unincorporated body (whether or not having separate legal personality) [and that person's legal and personal representatives, successors and permitted assigns].

1.4 Unless the context otherwise requires, words in the singular shall include the plural and, in the plural, include the singular.

1.5 A reference to a statute or statutory provision is a reference to it as it is in force for the time being, taking account of any amendment, extension, or re-enactment, and includes any subordinate legislation for the time being in force made under it.

1.6 References to clauses are to the clauses of this agreement; references to paragraphs are to paragraphs of the relevant schedule.

2. OBLIGATIONS OF CONFIDENTIALITY

2.1 The Recipient shall keep the Disclosing Party's Confidential Information confidential and, except with the prior written consent of the Disclosing Party, shall, and shall procure that its Representatives shall:

2.1.1 not use or exploit the Confidential Information in any way except for the Purpose;

2.1.2 not disclose or make available the Confidential Information in whole or in part to any third party, except as expressly permitted by this agreement;

2.1.3 not copy, reduce to writing or otherwise record the Confidential Information except as strictly necessary for the Purpose (and any such copies, reductions to writing and records shall be the property of the Disclosing Party);

2.2 The Recipient may only disclose the Disclosing Party's Confidential Information to those of its Representatives who need to know this Confidential Information for the Purpose, provided that:

2.2.1 it informs these Representatives of the confidential nature of the Confidential Information before disclosure and obtains from its Representatives enforceable undertakings to keep the Confidential Information confidential in terms at least as extensive and binding upon the Representatives as the terms of this agreement are upon the parties; and

2.2.2 at all times, it is responsible for these Representatives' compliance with the obligations set out in this agreement.

2.3 A party may disclose Confidential Information to the extent such Confidential Information is required to be disclosed by law, by any governmental or other regulatory authority, or by a court or other authority of competent jurisdiction provided that, to the extent it is legally permitted to do so, it gives the other party as much notice of this disclosure as possible.

2.4 No party shall make, or permit any person to make, any public announcement concerning this agreement without the prior written consent of the other party (such consent not to be unreasonably withheld or delayed) except as required by law or any governmental or regulatory authority (including, without limitation, any relevant securities exchange) or by any court or other authority of competent jurisdiction.

3. **RETURN OF INFORMATION AND ANNOUNCEMENTS**

3.1 At the request of the Disclosing Party, the Recipient shall:

3.1.1 destroy or return to the Disclosing Party all documents and materials (and any copies) containing, reflecting, incorporating, or based on the Disclosing Party's Confidential Information;

3.1.2 erase all the Disclosing Party's Confidential Information from its computer systems or which is stored in electronic form (to the extent possible); and

3.1.3 certify in writing to the Disclosing Party that it has complied with the requirements of this clause, provided that a Recipient may retain documents and materials containing, reflecting, incorporating, or based on the Disclosing Party's Confidential Information to the extent required by law or any applicable governmental or regulatory authority and to the extent reasonable to permit the Recipient to keep evidence that it has performed its obligations under this agreement. The provisions of this agreement shall continue to apply to any documents and materials retained by the Recipient.

3.2 If the Recipient develops or uses a product or a process which, in the reasonable opinion of the Disclosing Party, might have involved the use of any of the Disclosing Party's Confidential

Information, the Recipient shall, at the request of the Disclosing Party, supply to the Disclosing Party information reasonably necessary to establish that the Disclosing Party's Confidential Information has not been used or disclosed.

4. **RESERVATION OF RIGHTS AND ACKNOWLEDGEMENT**

4.1 All Confidential Information shall remain the property of the Disclosing Party. Each party reserves all rights in its Confidential Information. No rights, including, but not limited to, intellectual property rights, in respect of a party's Confidential Information are granted to the other party and no obligations are imposed on the Disclosing Party other than those expressly stated in this agreement.

4.2 Except as expressly stated in this agreement, no party makes any express or implied warranty or representation concerning its Confidential Information, or the accuracy or completeness of the Confidential Information.

4.3 The disclosure of Confidential Information by the Disclosing Party shall not form any offer by, or representation or warranty on the part of, the Disclosing Party to enter into any further agreement.

4.4 The Recipient acknowledges that damages alone would not be an adequate remedy for the breach of any of the provisions of this agreement. Accordingly, without prejudice to any other rights and remedies it may have, the Disclosing Party shall be entitled to the granting of equitable relief (including without limitation injunctive relief) concerning any threatened or actual breach of any of the provisions of this agreement.

4.5 The Recipient shall be liable to the Disclosing Party for the actions or omissions of the Recipient's Representatives under this agreement, as if they were the actions or omissions of the Recipient.

5. **INDEMNITY**

5.1 Each Recipient shall indemnify and keep fully indemnified the Disclosing Party at all times against all liabilities, costs (including legal costs on an indemnity basis), expenses, damages and losses (including any direct, indirect or consequential losses, loss of profit, loss of reputation and all interest, penalties and other costs and expenses suffered or incurred by the Disclosing Party arising from any breach of this agreement by the Recipient and from the actions or omissions of any Representative of the Recipient.

6. TERM AND TERMINATION

6.1 If either party decides not to become or continue to be involved in the Purpose with the other party it shall notify the other party in writing immediately. The obligations of each party shall, notwithstanding any earlier termination of negotiations or discussions between the parties in relation to the Purpose, continue for a period of [TERM] years from the termination of this agreement.

6.2 Termination of this agreement shall not affect any accrued rights or remedies to which either party is entitled.

7. ENTIRE AGREEMENT AND VARIATION

7.1 This agreement constitutes the entire agreement between the parties and supersedes and extinguishes all previous drafts, agreements, arrangements and understandings between them, whether written or oral, relating to its subject matter.

7.2 Each party agrees that it shall have no remedies in respect of any representation or warranty (whether made innocently or negligently) that is not set out in this agreement. Each party agrees that its only liability in respect of those representations and warranties that are set out in this agreement (whether made innocently or negligently) shall be for breach of contract.

7.3 No variation of this agreement shall be valid unless in writing signed by both parties.

8. NO WAIVER

8.1 Failure to exercise, or any delay in exercising, any right or remedy provided under this agreement or by law shall not constitute a waiver of that or any other right or remedy, nor shall it preclude or restrict any further exercise of that or any other right or remedy.

8.2 No single or partial exercise of any right or remedy provided under this agreement or by law shall preclude or restrict the further exercise of that or any other right or remedy.

9. NOTICES

9.1 Any demand, notice or communication must be in writing and may be given by hand or sent by first class pre-paid post or facsimile transmission and shall be deemed to have been duly served:

9.1.1 if delivered by hand, when left at the proper address for service;

9.1.2 if given or made by prepaid first class post, 48 hours after being posted (excluding Saturdays, Sundays and public holidays);

9.1.3 if given or made by facsimile transmission at the time of transmission, provided that a confirming copy is sent by first class pre-paid post to the other party within 24 hours after transmission,

9.1.4 provided that, where in the case of delivery by hand or transmission by facsimile, such delivery or transmission occurs either after 4.00 p.m. on a Business Day, or on a day other than a Business Day, service shall be deemed to occur at 9.00 a.m. on the next following Business Day (such times being local time at the address of the recipient).

9.2 Any demand, notice or communication shall be made in writing or by facsimile addressed to the recipient at its registered office or its address stated in this Agreement (or such other address or facsimile number as may be notified in writing from time to time) and shall be marked for the attention of:

9.2.1 for Party 1 - Legal and Compliance Director and Company Secretary, Dŵr Cymru Welsh Water, Linea, Fortran Road, St Mellons, Cardiff CF3 0LT

9.2.2 For Party 2 – [INSERT DETAILS]

10. GOVERNING LAW

The formation, construction, performance, validity and all aspects whatsoever of this Agreement and any non-contractual obligations arising out of or in connection with it shall be governed by the laws of England and Wales as applied in Wales and the parties hereby agree to submit to the exclusive jurisdiction of the English and Welsh Courts.

This agreement has been entered into on the date stated at the beginning of it.

IN WITNESS WHEREOF the Parties have caused this Agreement to be executed by their duly representatives on the date which first appears on page 3.

Signed by	Nan	ne
Position		
For and or	n behalf of DŴR CYMRU CYFYNGEDIG	

Signed by	Name
Position	
For and on behalf of [INSERT NAME OF PART	Y 2]

Issue Number 20 Published October 2020

The Schedule

[Define the Project]

APPENDIX 2 - Water quality

The following pages set out extract Schedules from the Water Supply (Water Quality) Regulations (Wales) 2018:

SCHEDULE 1 Regulations 2,4,6,14,15,18,20 AND 22

TABLE A

MICROBIOLOGICAL PARAMETERS

Part 1: Directive requirements

ltem	Parameters	Concentration or Value (maximum)	Units of Measurement	Point of compliance
1	Enterococci	0	number / 100ml	Consumers' taps
2	E. coli	0	number / 100ml	Consumers' taps

Part 2: National requirements

Item	Parameters	Concentration or Value (maximum)	Units of Measurement	Point of compliance
1	Coliform bacteria	0	number / 100ml	Service reservoirs (1) and water treatment works
2	E. coli	0	number / 100ml	Service reservoirs and water treatment works

Note:

(1) Compliance required as to 95% of samples from each service reservoir (regulation 4(6)).

TABLE B

CHEMICAL PARAMETERS

Part 1: National requirements

ltem	Parameters	Concentration or Value (maximum)	Units of Measurement	Point of compliance
1.	Acrylamide	0.10	μg/l	(1)
2.	Atimony	5.0	μgSb/l	Consumers' taps
3.	Arsenic	10	µgAs/I	Consumers' taps

4.	Benzene	1.0	μg/I	Consumers' taps
5.	Benzo(a)pyrene	0.010	μg/l	Consumers' taps
6.	Boron	1.0	mgB/I	Consumers' taps
7.	Bromate	10	μgBrO3/I	Consumers' taps
8.	Cadmium	5.0	μgCd/l	Consumers' taps
9.	Chromium	50	μgCr/l	Consumers' taps
10.	Copper (i)	2.0	mgCu/l	Consumers' taps
11.	Cyanide	50	μgCN/I	Consumers' taps
12.	1, 2 dichloroethane	3.0	μg/l	Consumers' taps
13.	Epichlorohydrin	0.10	μg/l	(1)
14.	Fluoride	1.5	mgF/I	Consumers' taps
15.	Lead	10	μgPb/l	Consumers' taps
16.	Mercury	1.0	μgHg/l	Consumers' taps
17.	Nickel	20	μgNi/l	Consumers' taps
18.	Nitrate (2)	50	mgNO3/I	Consumers' taps
19.	Nitrite (2)	0.50 0.10	mgNO2/I	Consumers' taps Treatment Works
20.	Pesticides (3)(4) Aldrin Dieldrin Heptachlor Heptachlor Epoxide	0.030	μg/I	Consumers' taps
	Other pesticides	0.10	μg/I	Consumers' taps
21.	Pesticides: Total (5)	0.50	μg/l	Consumers' taps
22.	Polycyclic aromatic hydrocarbons (6)	0.10	μg/l	Consumers' taps
23.	Selenium	10	μgSe/l	Consumers' taps
24.	Tetrachloroethene and Trichloroethene (7)	10	μg/I	Consumers' taps
25.	Trihalomethanes: Total (8i)	100	μg/l	Consumers' taps taps
26.	Vinyl chloride	0.50	μg/l	(8)

Notes:

(1) The parametric value refers to the residual monomer concentration in the water as calculated according to specifications of the maximum release from the corresponding polymer in contact with the water. This is controlled by product specification.

(2) See also regulation 4(2)(d).

(3) See the definition of "pesticides and related products" in regulation 2.

(4) The parametric value applies to each individual pesticide.

- (5) "Pesticides: Total" means the sum of the concentrations of the individual pesticides
- detected and quantified in the monitoring procedure.
- (6) The specified compounds are:
 - benzo(b)fluoranthene benzo(k)fluoranthene benzo(ghi)fluoranthene indeno(1,2,3-cd)pyrene.

The parametric value applies to the sum of the concentrations of the individual compounds detected and quantified in the monitoring process.

(7) The parametric value applies to the sum of the concentrations of the individual compounds detected and quantified in the monitoring process.

(8) The specified compounds are:

chloroform

bromoform

dibromochloromethane

bromodichloromethane.

The parametric value applies to the sum of the concentrations of the individual compounds detected and quantified in the monitoring process.

Part 2: National requirements

ltem	Parameters	Concentration or Value (maximum unless stated otherwise)	Units of Measurement	Point of compliance
1.	Aluminum	200	µgAl/l	Consumers' taps
2.	Colour	20	mg/l Pt/Co	Consumers' taps
3.	Iron	200	µgFe/l	Consumers' taps
4.	Manganese	50	µgMn/l	Consumers' taps
5.	Odour	Acceptable to consumers and no abnormal change		Consumers' taps
6.	Sodium	200	mgNa/l	Consumers' taps
7.	Taste	Acceptable to consumers and no abnormal change		Consumers' taps
8.	Tetrachlorome- thane	3	µg/I	Consumers' taps
9.	Turbidity	4	NTU	Consumers' taps

SCHEDULE 2 Regulations 2,6,12,15 and 19

INDICATOR PARAMETERS

ltem	Parameters	Specification Concentration or Value (maximum) or State	Units of Measurement	Point of monitoring
1.	Ammonium	0.50	µgAl/l	Consumers' taps
2.	Chloride (1)	250	mgCl/l	Supply point(5)
3.	Clostridium 0 perfringens (including spores)		Number/100ml	Supply point(5)
4.	Coliform bacteria	0	Number/100ml	Consumers' taps
5.	Colony counts	No abnormal change	Number/1ml at 22°C	Consumers' taps, service reservoirs and treatment works
6.	Conductivity (1)	2500	μS/cm at 20°C	Supply point(5)
7.	Hydrogen ion	9.5 6.5 (minimum)	pHvalue	Consumers' taps
8.	Indicative dose	0.10 (a) gross alpha (b) gross beta	mSv Bq/l Bq/l	Supply point(5) Supply point(5) Supply point(5)
9.	Radon (3)	100	Bq/l	Supply point
10.	Sulphate (1)	250	mgSO4/l	Supply point(5)
11.	Total organic carbon (TOC)	No abnormal change	mgC/I	Supply point
12.	Tritium (for radioactivity) (4)	100	Bq/I	Supply point
13.	Turbidity	1	NTU	Treatment works

Notes:

(1) The water should not be aggressive.

(2) Where treatment to reduce the level of radionuclides in water intended for human consumption has been taken, monitoring must be carried out to ensure the continued efficacy of the treatment.

(3) Remedial action may be taken by the Welsh Ministers on radiological protection grounds without further consideration and deemed to be justified where radon concentrates exceed 1,000 Bq/1.

(4) If tritium concentration exceeds its parametric value, an investigation (which may include analysis) of the presence of artificial radionuclides is required.

(5) May be monitored from samples of water leaving treatment works or other supply point, as no significant change during distribution.

SCHEDULE 3

Regulations 2,6,8 and 9

MONITORING

TABLE 1

Group A parameters and circumstances for monitoring

(1) Item	(2) Parameter	(3) Circumstances
1.	Aluminium	When used as water treatment chemical or where the water originates from, or is influenced by, surface waters
2.	Ammonium	Where chloramination is practised
3.	Coliform bacteria	In all circumstances
4.	Colony counts 22 ⁰ C	In all circumstances
5.	Colour	In all circumstances
6.	Conductivity (1)	In all circumstances
7.	Escherichia coli (E. coli)	In all circumstances
8.	Hydrogen ion	In all circumstances
9.	Iron	When used as water treatment chemical or where the water originates from, or is influenced by, surface waters
10.	Manganese	Where the water originates from, or is influenced by, surface waters
11.	Nitrate	When chloramination is practised
12.	Nitrite	When chloramination is practised
13.	Odour	In all circumstances
14.	Residual disinfectant	In all circumstances
15.	Taste	In all circumstances
16.	Turbidity	In all circumstances

Notes:

(1) Sampling for this parameter in water supply zones may be substituted by sampling at supply points.

TABLE 2

Group B1 parameters and circumstances for monitoring to be used for sampling in water supply zones (or supply points)

em number	Parameter (2)	Circumstances
	Aluminium	Where –
		(i) not used as a water treatment chemical; or
		(ii) the water neither originates from, nor is
		influenced by, surface waters.
	Ammonium	Where chloramination is not practised
	Antimony	In all circumstances
	Arsenic	In all circumstances
	Benzene (1)	In all circumstances
	Benzo(a)pyrene	In all circumstances
	Boron (1)	In all circumstances
	Bromate (2)	In all circumstances
	Cadmium	In all circumstances
).	Chloride (1)	In all circumstances
L.	Chromium	In all circumstances
2.	Clostridium perfringens	In all circumstances
	(including spores)	
3.	Copper	In all circumstances
1.	Cyanide (1)	In all circumstances
5.	1,2 dichloroethane (1)	In all circumstances
5. 5.	Enterococci	In all circumstances
7.	Fluoride (1)	In all circumstances
3.	Gross alpha (1) (3) (4)	In all circumstances
).	Gross beta (1) (3) (4)	In all circumstances
).	Iron	Where –
		(i) not used as a flocculant; or
		(ii) the water neither originates from, nor is
		influenced by, surface waters.
L.	Lead	In all circumstances
2.	Manganese	Where the water neither originates from, nor is
		influenced by, surface waters.
3.	Mercury (1)	In all circumstances
1.	Nickel	In all circumstances
5.	Nitrate	Where chloramination is not practised
5.	Nitrite	Where chloramination is not practised
7.	Pesticides	In all circumstances
3.	Polycyclic aromatic	In all circumstances
).		In all circumstances
).	Selenium	In all circumstances
L.	Sodium	In all circumstances
	· · ·	
7. 3. 9.).	Pesticides Polycyclic aromatic hydrocarbon Radon (1) (4) Selenium	In all circumstances In all circumstances In all circumstances In all circumstances

36.	Tritium (1) (4)	In all circumstances
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Notes:

(1) Sampling for these parameters may be within water supply zones (Group B1) or at supply points (Group B2).

(2) Monitoring of this parameter in water supply zones is required only where sodium hypochlorite is added after water has left the treatment works. In other circumstances, monitoring is required at supply points, see Group B2.

(3) To monitor for indicative dose.

(4) In the event that a single sample is taken in a year, a further sample must be taken if there is any change in relation to that supply that could affect the concentration of radionuclides in the water supply.

TABLE 3

Group B2 parameters and circumstances for monitoring to be used for sampling at works or supply points

Item number	Parameter (2)	Circumstances
1.	Benzene (1)	In all circumstances
2.	Boron (1)	In all circumstances
3.	Bromate (2)	In all circumstances
4.	Chloride (4)	In all circumstances
5.	Clostridium perfringens (including	In all circumstances
	spores)	
6.	Cyanide (1)	In all circumstances
7.	1, 2 dichloroethane (1)	In all circumstances
8.	Fluoride (1)	In all circumstances
9.	Gross alpha (1) (3) (4)	In all circumstances
10.	Gross beta (1) (3) (4)	In all circumstances
11.	Indicative dose	In all circumstances
12.	Mercury (1)	In all circumstances
13.	Nitrite	Where chloramination is not practised
14.	Pesticides and related products	In all circumstances
	(1)	
15.	Radon (1) (4)	In all circumstances
16.	Sulphate (1)	In all circumstances
17.	Tetrachloroethene (1)	In all circumstances
18.	Tetrachloromethane (1)	In all circumstances
19.	Total organic carbon (1)	
20.	Trichloroethane	In all circumstances
21.	Tritium (1) (4_	V

Notes:

(1) Sampling for these parameters may be within water supply zones (Group B1) or at supply points (Group B2).

(2) Monitoring of this parameter in water supply zones is required where sodium hypochlorite is not added after water has left the treatment works. In other circumstances, see Group B1.

(3) To monitor for indicative dose.

(4) In the event that a single sample is taken in a year, a further sample must be taken if there is any change in relation to that supply that could affect the concentration of radionuclides in the water supply.

TABLE 4

Group A1 parameters

Item number	Parameter
1.	Coliform bacteria
2.	E.Coli
3.	Residual disinfectant

TABLE 5

Group A2 parameters

Item number	Parameter	
1.	Coliform bacteria	
2.	Colony counts 22° C	
3.	E.coli	
4.	Nitrite	
5.	Residual disinfectant	
6.	Turbidity	

TABLE 6

Group A3 parameters

Item number	Parameter
1.	Conductivity

TABLE 7

Group A4 parameters

Item number	Parameter
1.	Aluminium
2.	Ammonium
3.	Colony counts 22° C
4.	Colour
5.	Conductivity
6.	Hydrogen ion

7.	Iron
8.	Manganese
9.	Nitrate
10.	Nitrite
11.	Odour
12.	Taste
13.	Turbidity

SCHEDULE 4

Regulation 6

MONITORING FOR INDICATIVE DOSE AND ANALYTICAL PERFORMANCE CHARACTERISTICS

Monitoring for compliance with the indicative dose

1.—(1) A water undertaker may use reliable screening strategies to indicate the presence of radioactivity in water intended for human consumption.

(2) The strategies may include screening for-

(a) certain radionuclides or individual radionuclide; or

(b) gross alpha activity or gross beta activity (where appropriate gross beta activity may be replaced by residual beta activity after subtraction of the K-40 activity concentration).

Screening for certain radionuclides, or screening for an individual radionuclide

2.—(1) If one of the activity concentrations exceeds 20% of the corresponding derived value or the tritium concentration exceeds its parametric value listed in Schedule 2 an analysis of additional radionuclides is required.

(2) In deciding which radionuclides are required to be measured for each supply, a water undertaker must take into account all relevant information about likely sources of radioactivity.

Screening strategies for gross alpha activity and gross beta activity

3.—(1) A water undertaker may use a screening strategy for gross alpha and gross beta to monitor for the parametric indicator value for indicative dose.

(2) Subject to sub-paragraph (3) the recommended screening values are—

- (a) 0,1Bq/l for gross alpha activity; and
- (b) 1,0Bq/l for gross beta activity¹.

(3) If the gross alpha activity exceeds 0,1Bq/l or the gross beta activity exceeds 1,0Bq/l, analysis for specific radionuclides is required.

(4) The Welsh Ministers may set alternative screening levels for gross alpha activity and gross beta activity where it can be demonstrated by the water undertaker that the alternative levels are in compliance with an indicative dose of 0,1 mSv.

(5) The radionuclides to be measured must be based on all relevant information about likely sources of radioactivity.

Calculation of the indicative dose

4.—(1) The indicative dose must be calculated from—

¹ Where appropriate, gross beta activity may be replaced by residual beta activity after subtraction of the K-40 activity concentration

- (a) the measured radionuclide concentrations and the dose coefficients referred to as "standard values and relationships" in Article 13, and recommended for the estimation of doses from internal exposure in the definition of "standard values and relationships" in Article 4(96), of Council Directive 2013/59/Euratom laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation²;or
- (b) more recent information recognised by the Welsh Ministers, on the basis of the annual intake of water (730 l for adults).

(2) Where the following formula is satisfied, it can be assumed that the indicative dose is less than the parametric value of 0,1 mSv and no further investigation is required—

$$\sum_{i=1}^{n} \frac{C_i(obs)}{C_i(der)} \leq 1$$

where-

"*Ci(obs)*" means observed concentration of radionuclide I; "*Ci(der)*" means derived concentration of radionuclide i; "*n*" means number of radionuclides detected.

Table 1

Derived concentrations for radioactivity in water intended for human consumption

This table includes values for the most common natural and artificial radionuclides: these are precise values, calculated for a dose of 0.1 mSy, an annual intake of 730 litres and using the dose coefficients referred to as "standard values and relationships" in Article 13, and recommended for the estimation of doses from internal exposure in the definition of "standard values and relationships" in Article 4(96), of Council Directive 2013/59/Euratom. Derived concentrations for other radionuclides can be calculated on the same basis, and values can be updated on the basis of more recent information recognised by the Welsh Ministers.

Origin	Nuclide	Derived concentration
Natural	U-238 (a)	3,0 Bq/1
	U-234 (a)	2,8 Bq/1
	Ra-226	0,5 Bq/1
	Ra-228	Ra-228
	Pb-210	0,2 Bq/1
	Po-210	0,1 Bq/1
Artificial	C-14	240 Bq/1

² OJ No L 13, 17.1.2014, p.1. For the estimation of doses from internal exposure, Article 4(96) refers to chapter 1 of ICRP (International Commission on Radiological Protection) Publication 119. See Table F.1 in Annex F. A copy of ICRP Publication 119 can be obtained from the ICRP website (www.icrp.org) or from the Welsh Government Water Branch, Welsh Government, Cathays Park, Cardiff, CF10 3NQ.

Sr-90	4,9 Bq/1
Pu-239/Pu-240	0,6 Bq/1
Am-241	0,7 Bq/1
Co-60	40 Bq/1
Cs-134	7,2 Bq/1
Cs-137	11 Bq/1
1-131	6,2 Bq/1

Notes

(a) This table allows only for the radiological properties of uranium, not for its chemical toxicity.

Performance characteristics and methods of analysis

For the following parameters and radionuclides, the method of analysis used must, as a minimum, be capable of measuring activity concentrations with a limit of detection specified below:

Parameters and	Limit of detection	Notes
radionuclides	(Notes (1), (2))	
Tritium	10 Bq/1	Note (3)
Radon	10 Bq/1	Note (3
gross alpha	0,04 Bq/1	Note (4)
gross beta	0,04 Bq/1	Note (4)
U-238	0,02 Bq/1	
U-234	0,02 Bq/1	
Ra-226	0,4 Bq/1	
Ra-228	0,02Bq/1	Note (5)
Pb-210	0,02 Bq/1	
Po-210	0,01 Bq/1	
C-14	20 Bq/1	
Sr-90	0,4 Bq/1	
Pu-239/Pu-240	0,04 Bq/1	
Am-241	0,06 Bq/1	
Co-60	0,5 Bq/1	
Cs-134	0,5 Bq/1	
Cs-137	0,5 Bq/1	
1-131	0,5 Bq/1	

Notes

(1) The limit of detection must be calculated according to the ISO standard 11929: Determination of the characteristic limits (decision threshold, detection limit, and limits of confidence interval) for measurements of ionising radiation – Fundamentals and application, with probabilities of errors of 1st and 2nd kind of 0,05 each.

(2) Measurement uncertainties must be calculated and reported as complete standard uncertainties, or as expanded uncertainties with an expansion factor of 1,96 according the ISO Guide for the Expression of Uncertainty in Measurement.

(3) The limit of detection for tritium and for radon is 10% of its parametric value of 100 Bq/1.

(4) The limit of detection for gross alpha activity and gross beta activities are 40% of the screening values of 0,1 and 1,0 Bq/1 respectively.

(5) This limit of detection applies only to initial screening for indicative dose for a new water source; if initial checking indicates that it is not plausible that Ra-228 exceeds 20% of the derived concentration, the limit of detection may be increased to 0,08 Bq/1 for routine Ra-228 nuclide specific measurements, until a subsequent re-check is required.

SCHEDULE 5

Regulations 15 and 16

ANALYTICAL METHODOLOGY

Table A1

Parameters for which, subject to Regulation 15(7), methods of analysis are specified

(1)	(2)
Parameter	Method of analysis
E.coli and coliform bacteria	EN ISO 9308-1 ³ or
	EN ISO 9308-24
Enterococci	EN ISO 7899-2 ⁵
Pseudomonas aeruginosa	EN ISO 16266 ⁶
Enumeration of culturable microorganisms	EN ISO 62227
– colony count 22°c	
Enumeration of culturable microorganisms	EN ISO 6222
– colony count 36°c	
Clostridium perfringens including spores	EN ISO 14189 ⁸

³ This standard entitled "Water quality - Enumeration of Escherichia coli and coliform bacteria - Part 1: Membrane filtration method for waters with low bacterial background flora (ISO 9308-1:2014)" was approved by the European Committee for Standardization (CEN) on 18 January 2017. Under reference BS EN ISO 9308-1:2014+A1:2017, it is published as a UK standard by the British Standards Institution (ISBN 978 0 580 92379 1)

⁴ This standard entitled "Water quality - Enumeration of Escherichia coli and coliform bacteria - Part 2: Most probable number method (ISO 9308-2:2012)" was approved by the European Committee for Standardization (CEN) on 11 April 2014. Under reference BS EN ISO 9308-2:2014, it is published as a UK standard by the British Standards Institution (ISBN 978 0 580 84023 4)

⁵ This standard entitled "Water quality - Detection and enumeration of intestinal enterococci - Part 2: Membrane filtration method (ISO 7899-2:2000)" was approved by the European Committee for Standardization (CEN) on 11 April 2014. Under reference BS EN ISO 7899-2:2000, it is published as a UK standard by the British Standards Institution (ISBN 0 580 34953 5).

⁶ This standard entitled "Water quality - Detection and enumeration of Pseudomonas aeruginosa - Method by membrane filtration (ISO 16266:2006)" was approved by the European Committee for Standardization (CEN) on 11 January 2008. Under reference BS EN ISO 16266:2008, it is published as a UK standard by the British Standards Institution (ISBN 978 0 580 59736 7).

⁷ This standard entitled "Water quality - Enumeration of culturable micro-organisms - Colony count by inoculation in a nutrient agar culture medium (ISO 6222:1999)" was approved by the European Committee for Standardization (CEN) on 16 March 1999. Under reference BS EN ISO 6222:1999, it is published as a UK standard by the British Standards Institution (ISBN 0 580 32495 8).

⁸ This standard entitled *Water quality - Enumeration of Clostridium perfringens - Method using membrane filtration (ISO 14189:2013)*" was approved by the European Committee for Standardization (CEN) on 15 July 2016. Under reference BS EN ISO 14189:2016, it is published as a UK standard by the British Standards Institution (ISBN 978 0 580 92184 1).

TABLE A2 Parameters in relation to which methods of analysis must satisfy prescribed characteristics

(1)	(2)	(3)	(4)
(±) Parameters	(Z) Trueness % of	(S) Precision % of	(+) Limit of detection %
ruiumeters	prescribed	prescribed	of prescribed
	concentration or	concentration or value	concentration or
	value or specification	or specification	value or
	value of specification	or specification	specification
Aluminium	10	10	10
Ammonium	10	10	10
Antimony	25	25	25
Arsenic	10	10	10
Benzene	25	25	25
Benzo(a)pyrene	25	25	25
Boron	10	10	10
Bromate	25	25	25
Cadmium	10	10	10
Chloride	10	10	10
Chromium	10	10	10
Colour	10	10	10
Conductivity	10	10	10
Copper	10	10	10
	10	10	10
Cyanide (1)			
1,2 dichloroethane Fluoride	25 10	25 10	10
	0.2	0.2	10
Hydrogen ion	0.2	0.2	
concentration pH (expressed in pH units)			
Iron	10	10	10
	10	10	10
Lead	10	10	10
Manganese	20	10	20
Mercury Nickel			
	10	10	10
Nitrate	10	10	10
Nitrite	10	10	10
Pesticides and related	25	25	25
products (2)	25	25	25
Polycyclic aromatic	25	25	25
hydrocarbons (3)	10	40	10
Selenium	10	10	10
Sodium	10	10	10
Sulphate	10	10	10
Tetrachloromethane	20	25	10
Trichloroethene (4)	25	25	10
Trihalomethanes:	25	25	10
Total (3)	10	10	10
Turbidity (5)	10	10	10
Turbidity (6)	25	25	25

Notes

(1) The method of analysis should determine total cyanide in all forms.

(2) The performance characteristics apply to each individual pesticide and will depend on the pesticide concerned.

(3) The performance characteristics apply to the individual substances specified at 25% of the parametric value in Part 1 of Table B in Schedule 1.

(4) The performance characteristics apply to the individual substances specified at 50% of the parametric value in Part 1 of Table B in Schedule 1.

(5) The performance characteristics apply to the prescribed value of 4NTU.

(6) The performance characteristics apply to the specification of 1NTU for water leaving treatment works.

TABLE A3

Minimum performance characteristic "uncertainty of measurement"

The uncertainty of measurement laid down in this table must not be used as an additional tolerance to the parametric values set out in Schedules 1 and 2.

(1)	(2)
Parameters	Uncertainty of measurement % of
	the parametric value (except for
	pH) (1)
Aluminium	25
Ammonium	40
Antimony	40
Arsenic	30
Benzene	40
Benzo(a)pyrene (2)	50
Boron	25
Bromate	40
Cadmium	25
Chloride	15
Chromium	30
Colour	20
Conductivity	20
Copper	25
Cyanide (3)	30
1,2 - dichloroethane	40
Fluoride	20
Hydrogen ion concentration pH	0.2
(expressed in pH units)	
Iron	30
Lead	25
Manganese	30
Mercury	30
Nickel	25
Nitrate	15

Nitrite	20
Oxidisability (4)	50
Pesticides (5)	30
Polycyclic aromatic hydrocarbons (6)	50
Selenium	40
Sodium	15
Sulphate	15
Tetrachloroethene (6)	30
Tetrachloromethane	30
Trichloroethene (7)	40
Trihalomethanes: Total (6)	40
Total organic carbon (8)	30
Turbidity 9	30

Notes

(1) Uncertainty of measurement" is a non-negative parameter characterising the dispersion of the quantity values being attributed to a measurement, based on the information used. The performance criterion for measurement uncertainty (k = 2) is at least the percentage of the parametric value stated in the table. If the value of uncertainty of measurement cannot be met, the best available technique must be selected (up to 60 % of the parametric value).

(2) The method determines total cyanide in all forms.

(3) Reference method: European standard EN ISO 8467 entitled "Water quality - Determination of permanganate index (ISO 8467)"⁹.

(4) The performance characteristics for individual pesticides are given as an indication. Values for the uncertainty of measurement as low as 30% can be achieved for several pesticides, higher values up to 80% may be allowed for a number of pesticides.

(5) The performance characteristics apply to individual substances, specified at 25% of the parametric value in Part 1 of Table B in Schedule 1.

(6) The performance characteristics apply to individual substances, specified at 50 % of the parametric value in Part 1 of Table B in Schedule 1.

(7) The uncertainty of measurement must be estimated at the level of 3 mg/l of the total organic carbon (TOC) in accordance with European standard EN 1484 entitled "*Water analysis - Guidelines for the determination of total organic carbon and dissolved organic carbon*"¹⁰ and dissolved organic carbon (DOC) shall be used.

(8)The uncertainty of measurement must be estimated at the level of 1,0 NTU in accordance with European standard EN ISO 7027-1 entitled "Water quality - Determination of turbidity - Part 1: Quantitative methods (ISO 7027-1"¹¹

⁹ This standard was approved by the European Committee for Standardization (CEN) on 3 November 1994. Under reference EN ISO 8467:1995, it is published as a UK standard by the British Standards Institution (ISBN 0 580 23435 5). ¹⁰ This standard was approved by the European Committee for Standardization (CEN) on 6 April 1997. Under reference BS EN 1484:1997, it is published as a UK standard by the British Standards Institution (ISBN 0 580 28372 0).

¹¹ This standard was approved by the European Committee for Standardization (CEN) on 15 April 2016. Under reference BS EN ISO 7027-1:2016, it is published as a UK standard by the British Standards Institution (ISBN 978 0 580 81961 2)

APPENDIX 3 - Questionnaires

INITIAL QUESTIONNAIRE

This questionnaire must be completed with due consideration of DCC's Access Code requirements.

1. General Company Information

Licensee name:	
Licensee address:	
Contact name and designation:	
Telephone number:	
Fax number:	
Email address:	
Licensee company registration number:	
Company registered office:	
1980 SIC code	
VAT no. and nature of business:	

2. Licence / Customer Information

Please provide a copy of your other your Restricted Retail and Supplementary Authorisation licences:	
Length of required access agreement:	
Name and address of proposed customer:	
Customer site address, if different to above:	
Ordnance survey co-ordinates of customer site:	
Please provide evidence supporting your view that the premises are eligible.	

Please provide a copy of the consent form from the customer.	
When do you require access to begin?	
Please supply details of the customer demand requirements.	

3. Water Source

Please provide the name and location of the raw water source including the ordnance survey co- ordinates of the source site.	
Please provide a copy of the abstraction licence application form and a copy of your abstraction licence.	

4. Water Treatment

Provide details of the proposed treatment processes and demonstrate that processes used for water treatment follow DWI raw water classification criteria.	
Please confirm if the water treatment works and associated pipe work to the point of supply are in your ownership, if not please confirm arrangements.	
Please demonstrate that the necessary legal arrangements, (i.e. easements) are in place to facilitate the maintenance and repair of your assets.	

5. Water Supply

Please supply details of the proposed point of entry including ordnance survey co-ordinates.	
Please supply details of the volumes of water you propose to input to our network (i.e. minimum, maximum and average annual, monthly, daily, hourly m ³ and l/s). Please provide details of the size of connection required and the materials proposed to be used.	

If input is likely to be less than demand, please detail your requirements from DCC and indicate if these will be for the duration of the agreement and under what circumstances this will occur.	
Please confirm the delivery range of pressure.	
Please confirm whether the supply will be pumped or gravity fed and clarify what control systems are in place to prevent surges.	

DETAILED QUESTIONNAIRE

This questionnaire must be completed with due consideration of DCC's Access Code requirements.

1. General Company Information

Licensee name:	
Licensee address:	
Contact name and designation:	
Telephone number:	
Fax number:	
Email address:	
Licensee company registration number:	
Company registered office:	
1980 SIC code	
VAT no. and nature of business:	

2. Licence / Customer Information

Please provide a copy of both your Restricted Retail and Supplementary Authorisation licences your combined licence:	
Length of required access agreement:	
Name and address of proposed customer:	
Customer site address, if different to above:	
Ordnance survey co-ordinates of customer site:	
Please provide evidence supporting your view that the premises are eligible.	
Please provide a copy of the consent form from the customer.	
When do you require access to begin?	
Please state the duration of your contract with the customer.	

Please supply a copy of the relevant sections of the agreement with your customer regarding the water supply, including customer specific requirements (e.g. type of water).	
Do you intend to supply additional customers? If yes provide details.	
Please supply details of the customer demand requirements, i.e. minimum, maximum and average annual, monthly, daily, hourly m ³ and l/s.	

3. Water Source

Please provide the name and location of	
the raw water source including the	
ordnance survey co- ordinates of the	
source site.	
Please provide a copy of the abstraction	
licence application form and a copy of	
your abstraction licence.	
Please confirm that the resource	
operation is in line with the abstraction	
licence granted.	
Please demonstrate that the water	
resources are sufficient in terms of	
volume to meet your proposed	
customers' demands throughout the	
year.	
Provide evidence of the long term	
sustainability of abstraction in terms of	
quantity in accordance with the EA	
supply demand guidelines including	
behaviour under drought conditions.	
Provide details of the volume of water	
available over and above proposed	
customer demand.	
Provide details of the water quality at	
the source i.e. records of sample data	
and monitoring over the previous 12	
month period as a minimum.	
Provide details of the cryptosporidium	
risk assessments and results of any	
monitoring undertaken.	

Provide source protection details and notification procedures in the event of a pollution incident or abnormal operation.	
Please provide details of any raw water storage at the source.	

4. Water Treatment

Provide details of the proposed treatment processes and demonstrate that processes used for water treatment follow DWI raw water classification criteria. All products used in the treatment of or contact with raw or treated water must have Water Supply (Water Quality) Regulations 2018 approval. Please provide evidence of this.	
The Licensee must have recognised accreditation such as ISO 9001 to cover all aspects of water treatment. Please provide evidence of this.	
The supply must have an emergency shut down facility, which is triggered by the continuous measurements of chlorine, residual coagulant, pH and turbidity. These must be measured at a point upstream of the supply point and trigger levels must be set to prevent breach of PCV (permitted concentration values). Please provide details demonstrating your compliance with this.	
Please provide a comprehensive drinking water safety plan for each source used.	
Please provide details of any treated water storage at the treatment works.	
Please confirm if the water treatment works and associated pipe work to the point of supply are in your ownership, if not please confirm arrangements.	
Please demonstrate that the necessary legal arrangements, i.e. easements are in place to facilitate the maintenance and repair of your assets.	

Additional requirements that must be met by the Licensee are detailed below. The Licensee must demonstrate compliance.

Treatment must be compliant with the recommendations of the following 3 reports: (i)

Badenoch, John. (1990). Cryptosporidium in water supplied: report of the

group of experts. HMSO, London.

- (ii) Badenoch, John. (1995). Cryptosporidium in water supplied: second report of the group of experts. HMSO, London.
- (iii) Bouchier, Ian. (1998). Cryptosporidium in water supplied: third report of the

group of experts. HMSO, London.

Plumbosolvency of the water must be assessed by an approved method, both on its own and in admixture of receiving water and treatment must be supplied if needed.

5. Water Supply

Please supply details of the proposed point of entry including ordnance survey co-ordinates. Please supply details of the volumes of water you propose to input to our network (i.e. minimum, maximum and average annual, monthly, daily, hourly m ³ and I/s).	
Please provide details of the size of connection required and the materials proposed to be used.	
If input is likely to be less than demand please detail your requirements from DCC and indicate if these will be for the duration of the agreement and under what circumstances this will occur.	
Please confirm the delivery range of pressure.	
Please confirm whether the supply will be pumped or gravity fed and clarify what control systems are in place to prevent surges.	

Please confirm what measures will be in place to sustain flows and pressures (i.e. generator backup, standby pumps, equipment repair levels of service, general emergency procedures, and maintenance regimes.	
Please confirm what storage is available at the point of supply.	
DCC will require an impact assessment including hydraulic analysis, to be carried out and this cost will be recharged to the Licensee. Please confirm your acceptance of this.	

Requirements that must be met by the Licensee are detailed below. The Licensee must demonstrate compliance.

The Licensee must provide a meter at the point of supply; the meter and its installation must be in accordance with DCC's specification. 15 minute pressure and flow data must be made available to DCC via a logger which has the facility to SMS text alarms.

6. Health and Safety

Please provide a copy of your policy	
statement regarding Health and Safety	
Management, which should demonstrate	
your compliance with Health and Safety	
regulations and legislation.	

7. General

Please clarify the details of your Business Management System in operation and whether this is registered to ISO 9001.	
Please include a copy of your quality policy statement.	
Please include a copy of your Environment Policy.	
Please clarify your arrangements management and operation of supply (i.e. staffing levels, 24 hr availability).	

APPENDIX 4 - Operational Code

1. Overview

1.1 Order of precedence

If there is any conflict between the following, the order of precedence shall be:

- a) any law;
- b) the Access Codes Guidance, incorporating the operational code and common contract.

1.2 Definitions

a) References to 'the Act' are to the Water Industry Act 1991 (as amended) unless otherwise specified.

b) References to an 'appointed water company' are to an undertaker appointed under the Act to provide water services to a defined geographic area.

c) References to a 'licensee' are to a company holding a water and sewerage supply licence under the Act.

- d) References to 'the parties' are to the licensee and appointed water company that have an agreement, or are seeking to enter into an agreement, for the wholesale supply of water under section 66A of the Act, unless the context requires otherwise.
- e) References to 'the operational code' are to this document as amended from time to time.
- f) References to 'the common contract' are to the common contract for wholesale supplies under section 66A of the Act as amended from time to time.

1.3 Objectives and purpose

The operational code establishes rules for the wholesale supply of water under section 66A of the Act and the entry into an agreement for such supply.

- **1.4** Status and enforceability
 - a) Under section 66D (4) of the Act, Ofwat is required to issue guidance in accordance with which the terms and conditions of agreements under sections 66A-66C of the Act must be made.
 - b) The operational code forms part of Ofwat's guidance and applies to wholesale supplies of water by an appointed water company to a licensee under section 66A of the Act.
 - c) Each appointed water company is required by Licence Condition S to publish an access code which conforms to Ofwat's guidance, and to comply with it.

d) In accordance with these requirements, the operational code must be included in an appointed water company's access code, and the appointed water company must comply with its provisions.

1.5 Ofwat's role

- a) Ofwat shall ensure the effective implementation and operation of the Operational code.
- b) In so doing, Ofwat shall:
 - Act independently of the interests of any market participant or group of market participants;
 - (ii) Act impartially and show no undue preference in its relationship with market participants; and
 - (iii) Act with appropriate speed in taking any necessary action.
- c) Ofwat has the power under section 18 of the Act to issue enforcement orders to secure compliance with appointed water companies' Conditions of Appointment (for example, Condition of Appointment R (Provision of combined and wholesale water supplies) and Condition of Appointment S (Introduction of water under the water supply licensing regime) and licensees' standard licence conditions.
- d) Ofwat has the power under sections 66D, 66G and 66H of the Act to make determinations on aspects of the water and sewerage supply licensing framework.

f) Ofwat may from time to time revise its guidance under section 66D of the Act, in accordance with section 66F of the Act.

1.6 Duties of appointed water companies and licensees to other bodies

Appointed water companies and licensees shall respond promptly to any requests for information and comply with any relevant guidance from:

- a) Consumer Council for Water;
- b) Environment Agency (including Natural Resources Wales); and
- c) Drinking Water Inspectorate.
- **1.7** England and Wales

Appointed water companies and licensees shall have regard to any differences in the relevant laws in England and Wales.

2. Applying for access

- 2.1 This section sets out the process which shall be followed when an eligible customer wishes to be supplied by a licensee and the licensee wishes to purchase a wholesale supply of water from an appointed water company under section 66A of the Act in order to supply that customer. For a wholesale supply, the licensee is entitled to use the common contract as the access agreement between the parties unless it wishes to negotiate a supply on different terms.
- **2.2** If a licensee wishes to use the common contract as the access agreement between the parties, the application process is as follows:
 - a) Licensee submits its application to the appointed water company. That application shall comprise:
 - (i) a copy of the customer's consent to switch supplier (see further sections 2.4 and 2.5 below); and
 - (ii) a completed copy of the common contract (see further section 2.6 below).
 - b) The appointed water company shall offer an access price for the licensee's customer and provide a signed copy of the common contract within 10 working days of receiving the licensee's application. The access price offered by the appointed water company shall remain valid for six (6) months and shall specify the discount in p/m3 from the standard retail tariff. The offer shall also explain:
 - (i) the basis of the discount from the standard retail tariff; and
 - (ii) any difference between the indicative discount for such a customer and the discount in the customer-specific offer.
 - c) If the licensee accepts the access price offered by the appointed water company, the Customer Transfer Protocol process will switch the customer to the licensee. If the licensee is unable to agree an access price with the appointed water company, the parties shall follow the dispute resolution procedure set out in section 4 below.
- **2.3** If a licensee has chosen not to use the common contract as the access agreement between the parties, the application process is as follows:
 - a) Licensee submits its application to the appointed water company. That application shall comprise:
 - (i) a copy of the customer's consent to switch supplier (see further sections 2.4 and 2.5 below); and
 - (ii) any contract or terms that is/are proposed or agreed between the parties.
 - b) The appointed water company shall contact the licensee within two (2) working days of receiving the licensee's application to discuss that application and commence any negotiation.
 - c) The appointed water company shall offer an access price for the licensee's customer and provide a signed copy of an agreed contract within 10

working days of receiving the licensee's application (or such longer period as the parties may agree). The access price offered by the appointed water company shall remain valid for six (6) months and shall specify the discount in p/m3 from the standard retail tariff. The offer shall also explain:

- (i) the basis of the discount from the standard retail tariff;
- (ii) any difference between the indicative discount for such a customer and the discount in the customer-specific offer; and
- (iii) any specific terms agreed by the parties.
- d) If the licensee accepts the access price offered by the appointed water company, the Customer Transfer Protocol process will switch the customer to the licensee. If the licensee is unable to agree an access price with the appointed water company, the parties shall follow the dispute resolution procedure set out in section 4 below.
- **2.4** The customer's consent to switch supplier shall include the following information:
 - a) Contact name(s) for the customer;
 - b) Full contact details for the customer;
 - c) Any customer reference number provided by the existing supplier;
 - d) Meter serial number(s), if known; and
 - e) Previous three (3) years' water consumption, if available.
- **2.5** The customer's consent to switch supplier shall be dated no more than two (2) months before the licensee submits its application to the appointed water company, or otherwise verified by the customer as being in force as at the date of the licensee's application.
- **2.6** If the licensee has chosen to use the common contract as the access agreement between the parties and provided all of the information required of it by that contract, the appointed water company shall not reject the licensee's application on the grounds of insufficient information.
- **2.7** An appointed water company shall not recover from a licensee any costs of processing an access application.
- **2.8** An appointed water company shall not charge the licensee for providing copies of any documents relating to the transfer of a customer or for clarifying its policy and information requirements.
- **2.9** A licensee shall not charge the appointed water company for providing any information which is necessary for the carrying out of the appointed water company's functions.
- **2.10** The parties shall comply with any reasonable request for information received from each other.

3. Access pricing

- **3.1** Appointed water companies shall publish indicative charges for the wholesale supply of water. These charges shall be published in such manner as may be specified by Ofwat.
- **3.2** Appointed water companies operating wholly or mainly in Wales shall, as a minimum, publish indicative wholesale supply charges for customers consuming 50MI and 500MI per year.
- **3.3** Indicative wholesale supply charges published by an appointed water company shall be for the service defined in clause 2 of the common contract.
- **3.4** When publishing or amending any indicative charging information, an appointed water company shall explain any assumptions it has made for the purpose of calculating that information.
- **3.5** Indicative charging information shall be reviewed by an appointed water company every year by 15 October. This information may also be reviewed at any other time. An appointed water company shall notify Ofwat and publish updated information on its website within seven (7) days of making any modifications to its indicative charging information.
- **3.6** If requested, an appointed water company shall provide Ofwat with information to explain how it has calculated its indicative wholesale supply charges. Such information shall be provided in such manner, and by such time, as Ofwat may specify.
- **3.7** Nothing in this operational code limits an appointed water company's ability to publish indicative charging information for supplies and in respect of circumstances which are not specified in this section.
- **3.8** If a licensee has made an application to an appointed water company in respect of the supply to a particular customer, the appointed water company may offer its published indicative wholesale charge for such supply if it considers that charge to be appropriate.

4. Dispute resolution procedure

- **4.1** This section sets out the dispute resolution procedure applicable to all disputes and differences arising out of or in connection with this operational code.
- **4.2** The parties shall, in the first instance, attempt to resolve any dispute or difference using the following procedure:
 - (i) Either party may serve a notice on the other party which expressly refers to this section and provides sufficient information to enable the other party to understand the nature of the dispute or difference. Following service of such a notice, the parties shall each use reasonable endeavours to resolve the dispute or difference by prompt discussion in good faith at a level appropriate to the dispute or difference in question.

- (ii) If the dispute or difference remains unresolved after 10 working days (or such other period as agreed by the parties) of the notice being served, an appropriate representative of each party's senior management shall attempt to resolve the dispute or difference by prompt discussion in good faith.
- (iii) If the dispute or difference remains unresolved after 10 working days (or such other period as agreed by the parties) of such referral to senior management then, unless the parties agree otherwise, this initial procedure shall be treated as having been exhausted.
- **4.3** For any dispute or difference which has not been resolved through the initial procedure in section 4.2, either party may:
 - a) refer it to such alternative dispute resolution process as agreed by the parties; or
 - b) refer it to a competent authority, provided that such authority has specific powers to resolve the dispute or difference

APPENDIX 5 - Indicative Access Prices

The prices stated in this document are indicative only and based on assumptions, which may differ substantially from case-specific access prices.

The wholesale price is calculated from the Wholesale Tariff Document 2020/21. The common carriage discount is calculated in compliance with Ofwat's Access Charges guidance. The indicative large user price increases are based on the PR19 Final Determinations for wholesale water.

The information in this publication is based on the latest Water Resource Management Plan. Discounts stated in this document are subject to change as a result of the water resource planning process.

If sufficient water is input to either Pembrokeshire or Tywyn Aberdyfi, capital schemes could potentially be deferred. Any discounts arising from deferred capital schemes will be reflected in case-specific access prices, taking into account the latest available information from the Water Resource Management Plan.

Indicative Access Price Information

Price base: 2020/21

Water Resource Zone: North Eryri Ynys Mon	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	MI/d	9.43	9.37	9.23	9.21	9.07
50MI per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0536	0.0526	0.0522	0.0519	0.0517
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	9.56	9.51	9.37	9.35	9.20
500MI per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0536	0.0526	0.0522	0.0519	0.0517
Surplus supply with licensee's water and water						
undertaker's revised investment plan	Ml/d	10.80	10.74	10.60	10.58	10.44

Water Resource Zone: Clwyd Coastal	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	MI/d	0.98	1.24	1.51	1.79	1.99
50Ml per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0718	0.0705	0.0700	0.0695	0.0692
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	1.12	1.38	1.65	1.93	2.12
500MI per year Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891

Common carriage discount	£/m³	0.0718	0.0705	0.0700	0.0695	0.0692
Surplus supply with licensee's water and water						
undertaker's revised investment plan	Ml/d	2.35	2.61	2.88	3.16	3.36
Water Resource Zone: Alwen/Dee	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	MI/d	1.80	2.10	2.38	2.74	2.99
50Ml per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0739	0.0726	0.0720	0.0715	0.0712
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	1.94	2.24	2.52	2.87	3.12
500MI per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0739	0.0726	0.0720	0.0715	0.0712
Surplus supply with licensee's water and water						
undertaker's revised investment plan	Ml/d	3.17	3.47	3.75	4.11	4.36

Water Resource Zone: Bala	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	0.29	0.30	0.30	0.32	0.32
50MI per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0608	0.0597	0.0593	0.0588	0.0586
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	0.43	0.43	0.44	0.45	0.46
500MI per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0608	0.0597	0.0593	0.0588	0.0586
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	1.66	1.67	1.67	1.69	1.69

Water Resource Zone: Tywyn/Aberdyfi	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	MI/d	-0.71	-0.82	-0.92	-1.02	-1.12
50MI per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.1725	0.1694	0.1682	0.1669	0.1662
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	-0.58	-0.68	-0.78	-0.88	-0.99
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.1725	0.1694	0.1682	0.1669	0.1662

Surplus supply with licensee's water and water						
undertaker's revised investment plan	Ml/d	0.66	0.55	0.45	0.35	0.25

Water Resource Zone: Blaenau Ffestiniog	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	0.17	0.20	0.22	0.24	0.26
50Ml per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.1439	0.1413	0.1403	0.1392	0.1387
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	0.31	0.33	0.35	0.38	0.40
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.1439	0.1413	0.1403	0.1392	0.1387
Surplus supply with licensee's water and water	541/1		4 5 7	1 50	4.64	1.62
undertaker's revised investment plan	Ml/d	1.54	1.57	1.59	1.61	1.63

Water Resource Zone: Barmouth	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	0.00	0.00	0.00	0.00	0.00
50MI per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0609	0.0598	0.0594	0.0589	0.0587
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	0.14	0.14	0.14	0.14	0.14
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0609	0.0598	0.0594	0.0589	0.0587
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	1.37	1.37	1.37	1.37	1.37

Water Resource Zone: Lleyn/Harlech	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	3.00	3.08	3.19	3.31	3.38
50Ml per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0567	0.0557	0.0553	0.0549	0.0546
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	3.13	3.22	3.33	3.45	3.52
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0567	0.0557	0.0553	0.0549	0.0546

Surplus supply with licensee's water and water						
undertaker's revised investment plan	Ml/d	4.37	4.45	4.56	4.68	4.75

Water Resource Zone: Dyffryn Conwy	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	2.00	2.57	3.13	3.70	4.20
50Ml per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0763	0.0749	0.0744	0.0738	0.0735
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	2.14	2.71	3.26	3.83	4.33
500MI per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0763	0.0749	0.0744	0.0738	0.0735
Surplus supply with licensee's water and water						
undertaker's revised investment plan	Ml/d	3.37	3.94	4.50	5.07	5.57

Water Resource Zone: South Meirionnydd	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	MI/d	0.40	0.42	0.45	0.48	0.50
50Ml per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.1116	0.1096	0.1088	0.1080	0.1075
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	0.53	0.56	0.59	0.62	0.64
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.1116	0.1096	0.1088	0.1080	0.1075
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	1.77	1.79	1.82	1.85	1.87

Water Resource Zone: Ross-on-Wye	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	3.10	3.17	3.23	3.31	3.36
50Ml per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.1294	0.1271	0.1262	0.1252	0.1247
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	3.24	3.31	3.37	3.44	3.50
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.1294	0.1271	0.1262	0.1252	0.1247

Surplus supply with licensee's water and water						
undertaker's revised investment plan	Ml/d	4.47	4.54	4.60	4.68	4.73

Water Resource Zone: Elan/Builth	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	0.94	0.99	1.03	1.09	1.13
50MI per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.1082	0.1063	0.1055	0.1047	0.1043
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	1.07	1.12	1.17	1.23	1.27
500MI per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.1082	0.1063	0.1055	0.1047	0.1043
Surplus supply with licensee's water and water						0.50
undertaker's revised investment plan	Ml/d	2.31	2.36	2.40	2.46	2.50

Water Resource Zone: Hereford C.U. Area	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	8.27	8.65	8.77	9.18	9.48
50Ml per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0215	0.0211	0.0210	0.0208	0.0207
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	8.41	8.79	8.91	9.32	9.62
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0215	0.0211	0.0210	0.0208	0.0207
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	9.64	10.02	10.14	10.55	10.85

Water Resource Zone: Llyswen	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	MI/d	1.40	1.44	1.48	1.53	1.57
50MI per year Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
•						
Common carriage discount	£/m³	0.0711	0.0698	0.0693	0.0688	0.0685
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	1.54	1.58	1.62	1.67	1.70
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0711	0.0698	0.0693	0.0688	0.0685

Surplus supply with licensee's water and water						
undertaker's revised investment plan	Ml/d	2.77	2.81	2.85	2.90	2.94

Water Resource Zone: Monmouth	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	0.49	0.53	0.57	0.62	0.66
50MI per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0754	0.0741	0.0735	0.0729	0.0727
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	0.62	0.67	0.71	0.76	0.80
500MI per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0754	0.0741	0.0735	0.0729	0.0727
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	1.86	1.90	1.94	1.99	2.03

Water Resource Zone: Pilleth	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	0.32	0.33	0.35	0.37	0.39
50MI per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0910	0.0894	0.0887	0.0880	0.0877
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	0.45	0.47	0.49	0.51	0.52
500MI per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0910	0.0894	0.0887	0.0880	0.0877
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	1.69	1.70	1.72	1.74	1.76

Water Resource Zone: Brecon/Portis	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	MI/d	0.33	0.39	0.43	0.49	0.54
50Ml per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0682	0.0670	0.0665	0.0660	0.0657
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	0.47	0.52	0.57	0.63	0.68
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0682	0.0670	0.0665	0.0660	0.0657

Surplus supply with licensee's water and water						
undertaker's revised investment plan	Ml/d	1.70	1.76	1.80	1.86	1.91

Water Resource Zone: SEWCUS	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	MI/d	17.88	20.85	22.78	25.91	27.37
50Ml per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0610	0.0599	0.0595	0.0590	0.0588
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	18.02	20.99	22.92	26.04	27.50
500MI per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0610	0.0599	0.0595	0.0590	0.0588
Surplus supply with licensee's water and water undertaker's revised investment plan	MI/d	19.25	22.22	24.15	27.28	28.74

Water Resource Zone: Vowchurch	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	0.00	0.00	0.00	0.00	0.01
50Ml per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0716	0.0703	0.0698	0.0693	0.0690
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	0.14	0.14	0.14	0.14	0.15
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0716	0.0703	0.0698	0.0693	0.0690
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	1.37	1.37	1.37	1.37	1.38

Water Resource Zone: Whitbourne	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	MI/d	0.00	0.00	0.00	0.00	0.01
50MI per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0897	0.0881	0.0874	0.0868	0.0864
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	0.14	0.14	0.14	0.14	0.14
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0897	0.0881	0.0874	0.0868	0.0864

Surplus supply with licensee's water and water						
undertaker's revised investment plan	Ml/d	1.37	1.37	1.37	1.37	1.38

Water Resource Zone: Tywi C.U. Area	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	19.57	20.98	22.50	24.34	25.36
50Ml per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0658	0.0646	0.0641	0.0637	0.0634
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	19.71	21.12	22.63	24.48	25.50
500MI per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0658	0.0646	0.0641	0.0637	0.0634
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	20.94	22.35	23.87	25.71	26.73

Water Resource Zone: Mid-South Ceredigion	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment		2.72	2.93	3.11	3.34	3.51
50MI per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0676	0.0664	0.0659	0.0654	0.0651
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	2.86	3.06	3.24	3.48	3.64
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0676	0.0664	0.0659	0.0654	0.0651
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	4.09	4.30	4.48	4.71	4.88

Water Resource Zone: North Ceredigion	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	Ml/d	1.78	1.86	1.93	2.02	2.10
50MI per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0653	0.0641	0.0637	0.0632	0.0629
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	1.92	2.00	2.07	2.16	2.24
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0653	0.0641	0.0637	0.0632	0.0629

Surplus supply with licensee's water and water						
undertaker's revised investment plan	Ml/d	3.15	3.23	3.30	3.39	3.47

Water Resource Zone: Pembrokeshire	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Large user price increases	%	0.00%	-1.78%	-0.76%	-0.76%	-0.39%
Forecast supply surplus without licensee's water or water undertaker's investment	MI/d	-0.52	-1.36	-2.15	-2.99	-3.86
50MI per year						
Wholesale price	£/m³	1.3322	1.3085	1.2986	1.2888	1.2837
Common carriage discount	£/m³	0.0933	0.0916	0.0909	0.0903	0.0899
Surplus supply with licensee's water and water undertaker's revised investment plan		-0.39	-1.23	-2.01	-2.85	-3.72
500Ml per year						
Wholesale price	£/m³	0.9226	0.9062	0.8994	0.8926	0.8891
Common carriage discount	£/m³	0.0933	0.0916	0.0909	0.0903	0.0899
Surplus supply with licensee's water and water undertaker's revised investment plan	Ml/d	0.85	0.01	-0.78	-1.62	-2.49

Annual Average Supply-Demand Balance

Zone No	8001	8012	8014	8020	8021	8026	8033	8034
Zone Name	North Eryri / Ynys Mon	Clwyd Coastal	Alwen / Dee	Bala	Tywyn / Aberdyfi	Blaenau Ffestiniog	Barmouth	Lleyn / Harlech
Units	Ml/d	Ml/d	Ml/d	Ml/d	MI/d	Ml/d	Ml/d	MI/d
2020-21	9.43	0.98	1.80	0.29	-0.71	0.17	0.00	3.00
2021-22	9.37	1.24	2.10	0.30	-0.82	0.20	0.00	3.08
2022-23	9.23	1.51	2.38	0.30	-0.92	0.22	0.00	3.19
2023-24	9.21	1.79	2.74	0.32	-1.02	0.24	0.00	3.31
2024-25	9.07	1.99	2.99	0.32	-1.12	0.26	0.00	3.38
2025-26	9.42	2.32	3.61	0.35	-1.21	0.28	0.00	3.57
2026-27	9.54	2.48	3.70	0.36	-1.31	0.30	0.00	3.59
2027-28	9.22	2.58	3.67	0.37	-1.43	0.31	0.00	3.58
2028-29	9.01	2.73	3.75	0.37	-1.53	0.32	0.00	3.58
2029-30	8.81	2.88	3.81	0.38	-1.64	0.33	0.00	3.57
2030-31	9.35	3.30	4.59	0.41	-1.69	0.36	0.00	3.82
2031-32	9.54	3.49	4.89	0.42	-1.71	0.38	0.00	3.92
2032-33	9.74	3.70	5.16	0.43	-1.72	0.39	0.00	4.03
2033-34	9.95	3.89	5.43	0.44	-1.74	0.41	0.00	4.13
2034-35	10.13	4.09	5.68	0.45	-1.76	0.42	0.00	4.25
2035-36	10.70	4.38	6.32	0.47	-1.75	0.45	0.00	4.46
2036-37	10.84	4.56	6.54	0.48	-1.77	0.46	0.00	4.52
2037-38	10.95	4.70	6.74	0.48	-1.78	0.47	0.00	4.60
2038-39	11.09	4.85	6.95	0.49	-1.80	0.48	0.00	4.66
2039-40	11.21	4.99	7.16	0.50	-1.82	0.49	0.00	4.73
2040-41	11.74	5.31	7.80	0.52	-1.80	0.51	0.00	4.94
2041-42	11.85	5.45	8.02	0.52	-1.82	0.52	0.00	5.01
2042-43	12.00	5.59	8.17	0.53	-1.84	0.53	0.00	5.08
2043-44	12.12	5.73	8.38	0.53	-1.86	0.55	0.00	5.14
2044-45	12.24	5.88	8.59	0.54	-1.88	0.55	0.00	5.21

Zone No	8035	8036	8101	8102	8103	8105	8106	8107
Zone Name	Dyffryn Conwy	South Meirionny dd	Ross-on- Wye	Elan / Builth	Hereford C.U. Area	Llyswen	Monmouth	Pilleth
Units	Ml/d	Ml/d	MI/d	MI/d	Ml/d	MI/d	MI/d	MI/d
2020-21	2.00	0.40	3.10	0.94	8.27	1.40	0.49	0.32
2021-22	2.57	0.42	3.17	0.99	8.65	1.44	0.53	0.33
2022-23	3.13	0.45	3.23	1.03	8.77	1.48	0.57	0.35
2023-24	3.70	0.48	3.31	1.09	9.18	1.53	0.62	0.37
2024-25	4.20	0.50	3.36	1.13	9.48	1.57	0.66	0.39
2025-26	4.71	0.54	3.46	1.21	9.98	1.61	0.72	0.42
2026-27	4.97	0.55	3.51	1.24	10.13	1.63	0.75	0.43
2027-28	5.12	0.56	3.54	1.25	10.19	1.63	0.76	0.43
2028-29	5.32	0.57	3.59	1.27	10.33	1.65	0.79	0.44
2029-30	5.52	0.58	3.63	1.30	10.54	1.66	0.81	0.45
2030-31	6.12	0.62	3.75	1.39	11.11	1.71	0.88	0.48
2031-32	6.43	0.63	3.80	1.42	11.38	1.73	0.91	0.50
2032-33	6.73	0.65	3.85	1.45	11.62	1.74	0.94	0.51
2033-34	7.03	0.67	3.91	1.49	11.86	1.76	0.98	0.53
2034-35	7.31	0.68	3.96	1.53	12.12	1.78	1.01	0.54
2035-36	7.75	0.71	4.04	1.59	12.61	1.81	1.06	0.57
2036-37	7.95	0.72	4.08	1.61	12.79	1.82	1.08	0.58
2037-38	8.15	0.74	4.12	1.64	12.99	1.84	1.10	0.58
2038-39	8.33	0.75	4.16	1.67	13.17	1.85	1.12	0.59
2039-40	8.53	0.76	4.20	1.69	13.39	1.86	1.15	0.60
2040-41	8.95	0.79	4.28	1.75	13.87	1.89	1.20	0.63
2041-42	9.12	0.80	4.32	1.77	14.07	1.91	1.22	0.64
2042-43	9.32	0.81	4.36	1.80	14.24	1.92	1.24	0.65
2043-44	9.50	0.82	4.40	1.82	14.46	1.93	1.26	0.66
2044-45	9.68	0.83	4.44	1.85	14.66	1.94	1.29	0.67

Zone No	8108	8121	8110	8111	8201	8202	8203	8206
Zone Name	Brecon / Portis	SEWCUS	Vowchurch	Whitbourne	Tywi C.U. Area	Mid - South Ceredigion	North Ceredigion	Pembroke shire
Units	Ml/d	Ml/d	MI/d	Ml/d	Ml/d	MI/d	MI/d	MI/d
2020-21	0.33	17.88	0.00	0.00	19.57	2.72	1.78	-0.52
2021-22	0.39	20.85	0.00	0.00	20.98	2.93	1.86	-1.36
2022-23	0.43	22.78	0.00	0.00	22.50	3.11	1.93	-2.15
2023-24	0.49	25.91	0.00	0.00	24.34	3.34	2.02	-2.99
2024-25	0.54	27.37	0.01	0.01	25.36	3.51	2.10	-3.86
2025-26	0.61	32.67	0.05	0.09	28.09	3.81	2.25	-3.71
2026-27	0.64	34.02	0.07	0.12	29.12	3.92	2.29	-4.66
2027-28	0.67	33.70	0.09	0.14	29.51	3.99	2.31	-5.70
2028-29	0.70	34.68	0.10	0.17	30.54	4.08	2.35	-6.74
2029-30	0.72	35.45	0.11	0.19	31.67	4.17	2.38	-7.78
2030-31	0.80	43.20	0.16	0.28	34.96	4.51	2.56	-7.22
2031-32	0.83	46.59	0.18	0.32	36.41	4.65	2.63	-7.28
2032-33	0.87	49.60	0.20	0.35	37.94	4.80	2.71	-7.29
2033-34	0.90	52.89	0.21	0.38	39.48	4.94	2.79	-7.25
2034-35	0.94	56.19	0.23	0.42	40.96	5.07	2.86	-7.31
2035-36	0.99	62.85	0.26	0.47	43.48	5.30	3.00	-6.39
2036-37	1.02	64.88	0.26	0.50	44.57	5.39	3.05	-6.52
2037-38	1.04	67.23	0.27	0.52	45.60	5.48	3.10	-6.63
2038-39	1.06	69.46	0.28	0.54	46.68	5.56	3.15	-6.67
2039-40	1.09	71.48	0.29	0.56	47.61	5.64	3.20	-6.81
2040-41	1.14	78.20	0.32	0.62	50.36	5.87	3.34	-5.93
2041-42	1.16	80.01	0.33	0.64	51.38	5.95	3.39	-5.98
2042-43	1.18	82.34	0.34	0.66	52.44	6.03	3.44	-6.07
2043-44	1.20	84.48	0.35	0.68	53.57	6.12	3.49	-6.15
2044-45	1.22	86.78	0.36	0.70	54.57	6.22	3.54	-6.25