Notice of Modification of Consent to discharge

Water Resources Act 1991 (as amended by the Environment Act 1995)

Consent Holder	**Dŵr Cymru Cyfyngedig** **c/o Environment Quality Scientist** **Pentwyn Road** **Nelson** **Treharris** **CF46 6LY**
Company Registration Number	**02366777**
Consent to Discharge from	**Trefnant Sewage Treatment Works** **Trefnant** **Denbighshire**
Consent Number	**CM0049001**

Water Resources Act 1991
Section 88, Schedule 10
(as amended by the
Environment Act 1995)

ENVIRONMENT AGENCY

Notice of Modification of Consent to discharge

Modification of consent reference
CM0049001

To:
Dŵr Cymru Cyfyngedig ("the Consent Holder"),
c/o Environment Quality Scientist
Pentwyn Road
Nelson
Treharris
CF46 6LY

Following a review of the conditions of its consent, the **ENVIRONMENT AGENCY** ("the Agency") in pursuance of its powers under the Water Resources Act 1991 **HEREBY MODIFIES ITS CONSENT** to the making of a discharge **OF SEWAGE EFFLUENT**, as follows**:**

Nature of discharge:
Biologically treated sewage disinfected by ultra violet

From:
Trefnant Sewage Treatment Works

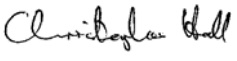
At:
Trefnant, Denbighshire

To:
Afon Clwyd

Subject to the provisions of Paragraphs 7 and 8 of Schedule 10 of the Water Resources Act 1991, no notice shall be served by the Agency, altering this Notice, without the agreement of the Consent Holder, during a period of 4 years from the date this notice is issued.

This consent modification is issued on 29th March 2010 and takes effect on:
31st March 2012

Signed



Christopher Hall - Team Leader National Permitting Service

1 Conditions of consent for biologically treated sewage disinfected by ultra violet (UV)

1.1 Nature

1.1.1

a The Discharge shall consist solely of biologically treated sewage effluent which has been disinfected by means of ultra violet (UV) irradiation. For the purpose of this consent, “disinfection” is defined as the use of a process designed specifically to reduce the number of viable, potentially infectious micro-organisms in the effluent.

b The Discharge shall be disinfected by means of **a broad spectrum medium pressure artificial UV source** with at least 85% of the available **UV irradiation** emitted in the wavelength range **200 to 300nm**. A measured applied UV dose of 30 mJ/cm^2 must be exceeded subject to condition 1.1.1c and 1.1.1d.

c The measured applied UV dose must exceed the limit set out in condition 1.1.1b for at least 99% of the recorded measurements (as required by condition **1.11.2aii**) in any period of 12 consecutive months.

d No more than 10% of measurements taken consecutively during any 24 hour period from midnight to midnight should fall below 15 mJ/cm^2.

e The period(s) when the measured applied UV dose limit is less than the limit set out in conditions 1.1.1b and 1.1.1d above shall not be used by the Consent Holder for the maintenance of the UV plant. Maintenance is defined in the UV Code of Practice attached to this Consent.

1.2 Location

1.2.1 The Discharge shall be made in the manner and at the place specified as:

a discharging to the Afon Clwyd;

b at National Grid Reference SJ 0610 7171;

c shown marked OUTLET on location plan attached to this consent;

1.3 Volume

1.3.1 The Dry Weather Flow of the discharge shall not exceed 630.7 cubic metres per day. The consented Dry Weather Flow limit is set at the Consent Holder’s planned annual 80%-exceeded flow.

1.3.2 In determining compliance with this consent, the measured Dry Weather Flow is that total daily volume that is exceeded by 90% of the recorded measured total daily volume values in any period of 12 months.

1.3.3 The numeric value of the measured Dry Weather Flow shall not exceed the numeric value of the consented Dry Weather Flow limit.

1.3.4 If the measured Dry Weather Flow exceeds the consented Dry Weather Flow limit then the consent holder shall as soon as is practicable investigate the reasons for the exceedance. The Consent Holder shall report the reasons for the exceedance to the Agency and the steps that it proposes to take to restore compliance. An exceedance of the Dry Weather Flow limit shall not be recorded as a failure if the Consent Holder takes appropriate steps to restore compliance.

1.3.5 If the measured Dry Weather Flow exceeds the consented Dry Weather Flow limit because of unusual rainfall during the 12-month period, then it will not be recorded as a failure of the Dry Weather Flow limit. For the purposes of this condition, unusual rainfall shall mean rainfall that causes significantly higher sewage flows during the three-month period that normally records the lowest flows.

1.3.6 For unusual rainfall to be considered, the Consent Holder shall notify the Agency and provide supporting evidence as part of the normal specified data returns.

1.4 Composition

1.4.1

a Subject to paragraph b below, the Discharge shall not contain more than;

i 35 milligrammes per litre of biochemical oxygen demand (measured after 5 days at 20^{o}C with nitrification suppressed by the addition of allyl-thiourea);

ii 50 milligrammes per litre of suspended solids (measured after drying at 105^{o}C);

iii 15 milligrammes per litre of ammoniacal nitrogen (expressed as N)

b The limit for any of the relevant determinands set out in paragraph a above may be exceeded where, in any series of samples of the Discharge taken at regular but randomised intervals in any period of twelve consecutive months as listed in Column 1 of the 'Look-up table' attached to this consent, no more than the relevant number of samples, as listed in Column 2 of the said table, exceed the applicable limit for that relevant determinand.

1.4.2 As far as is reasonably practicable, the works shall be operated so as to prevent the Discharge from containing any significant trace of visible oil or grease.

1.5 Failure of UV measurement systems

1.5.1 In the event of failure of the flow monitor or UV transmittance meter used in the control of the UV dosing system:

a the maximum available number of duty banks of UV lamps shall be automatically activated;

b the minimum applied UV dose at maximum effluent flow rates at a calculated UV transmittance (at 254nm) of **45%**, shall not be less than 30 mJ/cm^2.

1.6 Sample point conditions

1.6.1 The outlet to controlled waters shall be constructed and maintained so that a representative sample of the Discharge may be obtained at National Grid Reference SJ 0610 7171as shown marked OUTLET on Plan CM0049001.

1.7 Flow Measurement

1.7.1 A continuous flow measurement and recording system ("the flow system") that complies with the MCERTS Flow Monitoring scheme, shall be provided and operated to record the total daily volume of sewage through the treatment works.

1.7.2 The flow system shall also measure and record either the instantaneous flow at least every 15 minutes or the 15-minute averaged flow every 15 minutes. The Consent Holder shall provide and operate an on-site visual display from which the Agency can readily obtain the instantaneous or 15-minute averaged flow readings.

1.7.3 The Consent Holder shall hold records of the total daily volume and the 15-minute flow readings.

1.7.4 As soon as reasonably practicable after installation of the flow system and before the expiry of any certificate issued, the Consent Holder shall employ an independent expert to certify that the flow system complies with the MCERTS Flow Monitoring scheme.

1.7.5 The Consent Holder shall immediately on issue provide a copy of the MCERTS certificate to the Agency and shall provide a copy of the independent expert's report to the Agency on request.

1.7.6 The Consent Holder shall ensure that the flow system is always subject to a current MCERTS certificate.

1.7.7 The Consent Holder shall produce and maintain documented procedures for the calibration, operation and maintenance of the flow system ("maintenance procedures").

1.7.8 The Consent Holder shall employ an independent expert to certify that the maintenance procedures comply with the MCERTS requirements.

1.7.9 The Consent Holder shall calibrate, operate and maintain the flow system in accordance with the maintenance procedures. The Consent Holder shall keep a record of the maintenance procedures and maintenance records available for inspection by the Agency and provide a copy to the Agency on request.

1.7.10 The Consent Holder shall produce and maintain a formal Quality Management System ("QMS") for the management of the flow system and the implementation of the maintenance procedures. An appropriate independent certifier shall certify the QMS.

1.7.11 The Consent Holder shall record all failures of the flow system and any other breaks in the flow record. The reasons for all failures and breaks that lead to missing or suspect total daily volume records and all steps taken to prevent a re-occurrence shall be recorded.

1.7.12 The Consent Holder shall ensure that the flow system remains fully operational at all times and shall remedy any failures as soon as reasonably practicable.

1.7.13 The Consent Holder shall provide records of the flow readings and the reasons for any significant breaks in the record when requested, in a format specified by the Agency.

1.7.14 Flows of sewage through the treatment works shall be measured at (a) point(s) as is (are) agreed by the Agency.

1.8 Unusual weather conditions

1.8.1

a No sample of the Discharge taken at a time when unusual weather conditions are adversely affecting the operation of the sewage treatment works, shall be taken into account in deciding whether or not the conditions contained in paragraph(s) **1.4.1ai, 1.4.1aii, 1.4.1aiii and 1.15.1** of this consent have been complied with.

b For the purpose of this condition "unusual weather conditions" shall include:

i low ambient temperatures as evidenced by effluent temperatures of 5^{o}C or less, or by the freezing of mechanical equipment in the works;

ii significant snow deposits;

iii tidal or fluvial flooding;

iv weather conditions causing unforeseen loss of power supply to the sewage treatment which could not be ameliorated by the reasonable provision and operation of standby generation facilities.

c On any occasion where unusual weather conditions adversely affect the operation of the sewage treatment works, the Consent Holder shall use its best endeavours to mitigate that adverse effect.

d For a sample of the Discharge to be considered for the purposes of paragraph **a** above, the Consent Holder shall notify the Agency by fax or telephone as soon as unusual weather conditions are known to have adversely affected operations and shall confirm the circumstances in writing as soon as possible thereafter (and in any event within 14 days of the occurrence of such conditions). That notification shall include a full description of the unusual weather conditions and their impact on the operation of the works.

1.9 Notice of Change Condition

The Consent Holder shall notify the Agency in writing if any known or planned introduction or material change occurs, in respect of discharges from trade premises to the sewerage system, that may increase or introduce into the effluent any "dangerous substance" included on Lists I, II or Red List (set out in the ‘List of dangerous substances’ attached to this consent, as updated by the Agency from time to time and notified to the Consent Holder in writing), or any other substance considered by the Consent Holder as having or likely to have a significant effect on the receiving waters.

1.10 Recording and reporting

1.10.1

a The Consent Holder shall establish and operate a documented maintenance programme including the method and frequency of cleaning and replacement of UV lamps, transmittance meters, and flow meters, and record all non-routine actions undertaken that may have adversely affected effluent quality. Details of the maintenance programme shall be provided to the Agency for agreement. Copies of the programme shall be made available for inspection by the Agency's officers at all reasonable times.

b The Consent Holder shall keep records of the maintenance undertaken (both routine and non-routine). Copies of these records shall be maintained by the Consent Holder and kept available for inspection by the Agency’s officers at all reasonable times.

c On request, the Consent Holder shall supply the Agency with a written report on the maintenance, and all non-routine actions that may have adversely affected effluent quality.

1.10.2

a Continuous recorders, with on-site visual displays from which readings may readily be obtained, shall be provided and maintained by the Consent Holder enabling the following to be measured and recorded at 15 minute intervals:

  i the instantaneous flow rate through each UV irradiation channel

  ii the instantaneous measured applied UV dose for each UV irradiation channel

  iii the number of operational UV lamps for each UV irradiation channel

  iv the instantaneous measured UV transmittance at the inlet to the UV irradiation plant

  v any other parameters used in calculating the UV dose

b Copies of the records shall be maintained by the Consent Holder for a minimum of 2 years or such longer time as the Agency may from time to time specify and be kept at a nominated place available for inspection by the Agency’s officers at all reasonable times.

c The Consent Holder shall supply to the Agency, 1 month in arrears, in a format specified by the Agency, on a quarterly basis, the records of the readings specified in condition 1.10.2a.

1.10.3

a The Consent Holder shall supply to the Agency at three monthly intervals, or upon request, a written report, detailing all occurrences where, at any time:

i there were any failures of any measurement system used to control the UV dosing system

ii the external power supply to the UV disinfection system was interrupted

iii a discharge of sewage effluent was made which had not been subjected to the required UV dose as specified in conditions 1.1.1d or 1.5.1 of this consent.

b The report shall detail the reasons why the situation occurred, and the actions taken by the Consent Holder. The report shall include an assessment of what measures can be adopted in the future to minimise such occurrences.

c The Agency, if satisfied that the cause of such an occurrence is an emergency and outside the control of the Consent Holder, and that all possible measures were taken to minimise the impact of the discharge on controlled waters, shall exclude the measurements for the period of that occurrence for compliance purposes with condition 1.1.1d.

1.11 Emergency notification

1.11.1 The Consent Holder shall notify the Agency in the event of a discharge of sewage effluent which has not met the requirements of conditions 1.1.1d or 1.5.1 of this consent, or of power failure causing loss of secondary treatment. Such notification must be made as soon as practicable and no later than 24 hours after the event, and shall detail the reasons why the situation occurred, and the actions taken by the Consent Holder.

1.12 Telemetry

1.12.1 A telemetry alarm system connected to a 24-hour manned station shall be provided and maintained by the Consent Holder to provide a warning in the event that:

a the external power supply to the UV disinfection system has been interrupted;

b failure of any measurement system used to control the UV dosing system has occurred;

c a discharge of sewage effluent has occurred which has not been subjected to UV dose as specified in conditions 1.1.1d and 1.5.1 of this consent.

1.13 Power

1.13.1 Full stand-by power generation facilities shall be provided and maintained by the Consent Holder in good working order to enable automatic resumption of power to the UV disinfection system in the event of external power supply failure to the UV disinfection plant.

1.14 Maintenance

1.14.1 The works shall be operated and maintained in accordance with good operational practice such that:

a it remains fully operational except at times of unavoidable mechanical or electrical breakdown which shall be attended to and returned to normal operation as soon as practicable after the failure;

b the Agency shall be informed of any failure that may have adversely affected effluent quality as soon as practicable after the failure;

c tanks shall be desludged at sufficient frequency and in such a manner to prevent excessive carryover of suspended solids.

1.14.2 The Consent Holder shall maintain the outfall pipe in an efficient operational condition, so as to minimise the probability of blockages or other failures, and shall implement periodic inspections of the integrity and performance of the outfall pipe.

1.15 Works operation

1.15.1 The works shall be operated and the effluent shall be treated in a manner which, so far as reasonably practicable, minimises the polluting effects of the Discharge made from the works on controlled waters

This condition does not require:

a any higher standard to be achieved in relation to any characteristic of the Discharge which is specifically regulated by conditions 1.4.1 and **Error! Reference source not found.** than is required by those conditions;

b any alteration of the works or a change in the type of treatment used.

1.16 Substantial change

1.16.1 A discharge shall not be made from the works if it would cause a significant increase in the polluting effects of the discharge on controlled waters as a result of a new or altered discharge of trade effluent into the works.

a A discharge of trade effluent into the works is new if:

i it is made by the sewerage undertaker and is of a kind not made into the works by the undertaker immediately before the date of effect of this consent; or

ii it is made by a third party and the discharge is authorised on or after that date.

b A discharge of trade effluent into the works is altered if:

i it is made by the sewerage undertaker and its composition or quantity changes significantly on or after the date of effect of this consent; or

ii it is made by a third party and the alteration of the discharge is authorised on or after that date.

c An increase in the polluting effects of the Discharge on controlled waters is not significant for the purposes of this condition if it relates to any characteristic of the Discharge which is specifically regulated by conditions 1.4.1and **Error! Reference source not found.** of this consent but it may be significant if it is caused by a change in some other characteristic of the Discharge.

d For the purposes of this condition, "trade effluent" means:

i any discharge by the sewerage undertaker other than surface water run-off or domestic sewage from premises connected directly or indirectly to the works,

ii any discharge by a third party which is authorised under Chapter III of Part IV of the Water Industry Act 1991 or which is only accepted as a result of a contract with the sewerage undertaker.

1.17 Operational Surveillance Condition

1.17.1 The Consent Holder shall devise and implement documented procedures for the purpose and effect of maintaining awareness of the presence of dangerous substances in;

i trade effluent into the collecting / sewerage system served by the works, and;

ii matter received directly at the works from trade premises;

and shall make and maintain records of the application of such procedures, which shall be open to inspection by the Agency on reasonable notice.

1.18 The Dangerous Substance List II Condition

1.18.1 The Discharge shall not contain a concentration of any List II Substance (as defined in the Dangerous Substances Directive 76/464/EEC) such as to cause any of the relevant Environmental Quality Standards set out in DoE Circular 007/89, SI 1997 No2560 and SI 1998 No389, to be exceeded in the receiving water.

1.19 Investigate and Monitor Condition

1.19.1 If the Agency has reasonable grounds to believe that concentrations of any dangerous substance (as defined in the Dangerous Substances Directive 76/464/EEC) in the discharge have increased, or may increase, such that there is a risk of causing pollution in the receiving water then on the written request of the Agency, the Consent Holder shall as soon as practicable investigate and provide a written assessment of the source and the concentration or quantity within the discharge of the specified substance(s).

1.20 Unauthorised discharges

1.20.1

a A discharge made from the works shall not contain any poisonous, noxious or polluting matter or solid waste matter which is attributable to any unauthorised discharge into the works.

b A discharge into the works is unauthorised if it is made by a third party and either there is no obligation to receive it or conditions subject to which there is an obligation to receive it are not observed.

c Nothing in this, or any other, condition of this consent prevents anyone from relying on any defence available to them under section 87 of the Water Resources Act 1991.

1.21 Urban Waste Water Treatment Regulations

1.21.1

a The Consent Holder shall comply with the Urban Waste Water Treatment (England and Wales) Regulations 1994 ('the Regulations').

b For the purpose of conditions 1.21.2 and 1.21.3 below, interpretations and references to a numbered regulation or Schedule shall have the meaning as in the Regulations, unless otherwise indicated.

1.21.2

a The Discharge derives from an agglomeration with a population equivalent of less than 2,000 discharging to an estuary.

b The Consent Holder shall inform the Agency in writing of any change, or proposed change, to the population equivalent such as would make a material change to the application of the Regulations and shall, on request, inform the Agency in writing of the actual population equivalent.

1.21.3

a The Consent Holder shall provide apparatus for the purpose of:

i measuring and recording the volume, rate of flow, nature, composition and temperature, and

ii collecting samples of any waste water,

as is necessary to ensure compliance with paragraph **b** below.

b The Consent Holder shall monitor the Discharge to verify compliance with the requirements of paragraph 1.21.2 above in accordance with control procedures as set out in Part II of Schedule 3.

c The Consent Holder shall provide to the Agency any information collected in complying with paragraph **b** above in a manner agreed with the Agency.

1.22 Operator Self Monitoring (OSM) conditions

OSM Monitoring programme

1.22.1

a The Consent Holder shall, unless otherwise agreed in writing by the Agency, undertake a monitoring programme for the parameters specified by this consent which control the effluent quality by numeric limits, at not less than the frequencies set out in the 'Opra Tier 2 Sampling Frequency table' attached to this consent.

This does not include List 1 substances included within a consent in the General Standards Table.

b The Consent Holder shall undertake a microbiological efficacy monitoring programme as set out in the 'Disinfection Efficacy Monitoring' tables attached to this consent, or as otherwise notified in writing by the Agency, at frequencies not less than the frequencies set out in the 'OPRA 3 Sampling Frequency table' attached to this consent.

1.22.2 The monitoring programme referred to in condition 1.23.1 shall:

a cover a calendar year, and

b be recorded and referred to in a Quality Management System before the commencement of a calendar year sample period.

QMS and MCERTS

1.22.3 The Consent Holder shall have an appropriate Quality Management System covering Operator Self Monitoring.

1.22.4 The Consent Holder shall ensure that appropriate actions and activities carried out to fulfil the requirements of condition 1.23.1 are recorded.

1.22.5 Any sampling or analysis carried out to fulfil the requirements of condition 1.23.1 shall be managed and operated by the Consent Holder or its appointed organisation or organisations in accordance with ISO 17025 for the MCERTS Performance Standard for Organisations Undertaking Sampling and Chemical Testing of Water (Part1) to the reasonable satisfaction of the Agency.

1.22.6

a For the period up to 1July 2010, any organisation undertaking sampling and analysis to fulfil the requirements of condition 1.23.1 shall have applied for accreditation to ISO 17025 for the MCERTS Performance Standard for Organisations Undertaking Sampling and Chemical Testing of Water (Part1), unless otherwise agreed in writing by the Agency, and

b From 1July 2010, any organisation undertaking sampling and analysis to fulfil the requirements of condition 1.23.1 shall have gained accreditation to ISO 17025 for the MCERTS Performance Standard for Organisations Undertaking Sampling and Chemical Testing of Water (Part1), unless otherwise agreed in writing by the Agency.

1.22.7 The Consent Holder shall ensure that all required records of compliance and accreditation with ISO 17025 for the MCERTS Performance Standard for Organisations Undertaking Sampling and Chemical Testing of Water (Part 1) are maintained.

Records

1.22.8 All records required to be made by this consent shall:

a be legible, and

b be made as soon as reasonably practicable, and

c if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval and

d be retained, unless otherwise agreed in writing by the Agency, for at least 6 years from the date when the records were made, and

e where the records have been requested in writing by the Agency, copies shall be supplied to the Agency within 14 days, unless otherwise agreed in writing by the Agency.

Reporting routine analysis

1.22.9

a The analytical results from the monitoring programme required by condition 1.23.1a must be supplied to the Agency in an electronic format defined by the Agency, as soon as is reasonably practical for each result, and at least on a quarterly basis.

b The results of the disinfection efficacy monitoring programme required by condition 1.23.1b must be supplied to the Agency in a format specified by the Agency, on a three monthly basis, no more than 2 months in arrears.

Reporting exceedances

1.22.10 When the Consent Holder becomes aware that a sample result has exceeded a numeric water quality limit specified within this Consent, (including those covered by the Look-up Table) the Consent Holder shall, unless prior agreement has been given in writing by the Agency, notify the Agency as soon as is reasonably practicable by a reporting system and format specified by the Agency.

1.22.11 When the Consent Holder becomes aware that the Discharge is not compliant with the Look-up Table (attached to this consent) for a numeric water quality limit specified within this Consent, the Consent Holder shall, unless prior agreement has been given in writing by the Agency, notify the Agency as soon as is reasonably practicable by a reporting system and format specified by the Agency.

Reporting sample missed or lost

1.22.12 After becoming aware, or following notification that, a sample has not been taken on the Monitoring Programme pre-scheduled date, or is lost, or a result for that sample can not be reported, the Consent Holder shall record the details and reschedule the sample.

Annual monitoring summary compliance report

1.22.13 A summary report :

a of compliance with the monitoring programme referred to in condition 1.23.1 shall be made for each calendar year, and

b shall be submitted to the Agency within two months following the end of the year and shall have the data required by 1.23.1 a summarised and shall be in the format required by the Agency.

1.23 Further Requirements

1.23.1 Before 31st March 2012, the Consent Holder shall supply to the Agency, a 1:500 scale site layout plan with the following points and their N.G.R.s clearly labelled:

a The crude influent sampling point

b The pre-UV sampling point

c The post- UV final sampling point

1.24 Start Date

1.24.1 Until discharge is permitted under the terms of this consent, the quality of the effluent from Denbigh Sewage Treatment Works shall be controlled under the terms of the modification of consent served on 26 June 2009. There shall be no discharge under the terms of this consent until the 31st March 2012 or the start of commissioning of the works which ever is the sooner. The Consent Holder shall give the Environment Agency at least 28 days written notice before making the discharge.

1 Look up table

Look-up table	
Number of samples taken in any period of 12 months	**Maximum number of samples permitted to exceed limit for given determinand**
4–7	1
8–16	2
17–28	3
29–40	4
41–53	5
54–67	6
68–81	7
82–95	8
96–110	9
111–125	10
126–140	11
141–155	12
156–171	13
172–187	14
188–203	15
204–219	16
220–235	17
236–251	18
252–268	19
269–284	20
285–300	21
301–317	22
318–334	23
335–350	24
351–365	25

2 List of dangerous substances

Mercury and its compounds	Cadmium and its compounds	Hexachlorocyclohexane (lindane and related compounds)
Carbon tetrachloride	DDT (the isomers of 1,1,1-trichloro- 2,2 bis{p-chlorophenyl} ethane)	Pentachlorophenol (PCP)
Aldrin	Dieldrin	Endrin
Isodrin	Hexachlorobenzene (HCB)	Hexachlorobutadiene (HCBD)
Chloroform	Polychlorinated biphenyls	Dichlorvos
1,2-Dichloroethane	Trichlorobenzene	Atrazine
Simazine	Tributyltin compounds	Triphenyltin compounds
Trifluralin	Fenitrothion	Azinphos-methyl
Malathion	Endosulfan	Lead
Chromium	Zinc	Copper
Nickel	Arsenic	*Iron
*pH outside range 5.5 to 9.0	*Boron	Vanadium
PCSD'S	Cyfluthrin	Sulcofuron
Flucofuron	Permethrin	4-Chloro-3-methyl-phenol
2-Chlorophenol	2,4-Dichlorophenol	2,4-D (ester)
2,4-D (non ester)	1,1,1-Trichloroethane	1,1,2-Trichloroethane
Bentazone	Benzene	Biphenyl
Chloronitrotoluenes	Demeton	Dimethoate
Linuron	MCPA	Mecoprop
Mevinphos	Napthalene	Omethoate
Toluene	Triazophos	Xylene
Cyanide	Azinphos-ethyl	Fenthion
Parathion	Parathion-methyl	Trichloroethylene
Tetrachloroethylene	Dioxins	PAHs
Nonyl phenol	Nonyl phenyl ethoxylate	Di-ethylhexyl phthalate
Bisphenol-A	Diazinon	Chlorfenvinphos
Chlorotoluron	Isoproturon	Diuron
Propetamphos	Flumethrin	Amitraz
High-Cis Cypermethrin	Cyromazine	Deltamethrin
Cypermethrin		

This list is applicable as at 1 December 1998 and will be updated as and when changes to the relevant legislative requirements occur.

*Notification to the Agency by the Consent Holder is only required in respect of changes to trade effluents likely to cause significant changes to the pH value, and/or iron or boron concentrations, of the crude sewage.

3 Opra Tier 2 Sampling Frequency

Tier 2 Category	Determinand	`Normal frequency` of samples per year	Reduced Sampling frequency after 12 consecutive months of numeric consent compliance, samples per year or pro rata over the remainder of a year	On consent failure return to Normal frequency as soon as reasonably practicable, samples per 12 months	Out of hours samples
>5 m3/d (but not in tier 3) with numeric limits for ammonia or nutrients or dangerous substances or UWWTD self monitoring	Sanitary	12	6	12	For 12 samples 1 out of hours sample per annum, for 6, 1 every 2 years on average
	Non sanitary	6	6	6	
>20 m3/d (but not in tier3) with numeric limits for one or more of biochemical oxygen demand or suspended solids or pH or temperature or oil and grease only.	Sanitary	12	4	12	For 12 samples 1 out of hours sample per annum, for 4, 1 every 3 years on average

Annex T2 OSM2 relates to spot samples which must be collected at approximately equal intervals during the year, but should include samples from different days of the week and different times. Approximately 10% of samples should be outside of the normal sampling window which is 9am - 3pm, Monday to Friday.

4 UV code of practice

The UV disinfection system shall be provided and maintained to ensure that its hydraulic characteristics and the path length of UV irradiation are such that, during the required period of disinfection, the effluent is subjected to the UV dose rate specified in the consent.

The UV disinfection system and stand-by power facilities shall be operated so as to minimise the frequency and duration of an emergency discharge of sewage effluent which has not been subjected to the required UV dose (as specified in the consent).

The measured applied UV dose (as defined in the Calculation of UV dose) shall be determined from:

a. the flow rate of effluent through the UV disinfection system (l/s),

b. the reactor volume,

c. the measured UV transmittance for the effluent (at 254nm)

d. the number of operational UV lamps

Maintenance

a. A maintenance programme, including the method and frequency of cleaning and replacement of the UV lamps/ UV transmittance monitors, shall be undertaken by the Consent Holder as agreed in writing with the Agency.

b. Any failure to meet the requirements of the maintenance programme shall be advised to the Agency as soon as practicable and a report providing an explanation of the circumstances provided to the Agency within 2 weeks.

c. The Consent Holder shall keep records of the maintenance undertaken (both programmed and un-programmed). Copies of these records shall be maintained by the Consent Holder and kept available for inspection by the Agency's officers at all reasonable times.

5 Calculation of UV dose

The Consent Holder shall provide a dose measurement system that allows a relationship between measured applied dose and microbial performance to be established.

Definitions

For each bank of UV lamps, UV dose is defined as the product of UV light intensity (impacting on wastewater passing through the bank) and the retention time (of wastewater passing through the bank).

For the purposes of consent, the following terms are defined for each UV irradiation bank:

"reactor volume"

is the volume of wastewater in the bank at any given time;

"adjusted retention time"

is the reactor volume divided by the measured rate of flow through the UV bank;

"UV intensity with measured UV Transmittance"

is the UV intensity across the reactor volumes, predicted from the rated output (mW) of the UV lamps at end of lamp life (cleaned) which are energised and the measured UV transmittance for the effluent (at 254nm), taking into account the lamp array configuration;

"theoretical UV intensity"

is the predicted average UV intensity across the reactor volumes, at the UV transmittance of 45% for the effluent (at 254nm - predicted from the rated output (mW) of the UV lamps at end of lamp life (cleaned) which are energised);

Calculations

i. Measured Applied UV Dose (mJ/cm^2) = UV intensity with measured UV transmittance (mW/cm^2) **X** Adjusted retention time (s) **X** $\frac{\text{Number of lamps in bank confirmed as operating}}{\text{Total number of lamps in bank}}$

ii. Applied UV Dose (mJ/cm^2) **=** Theoretical UV Intensity (mW/cm^2) **X** Adjusted Retention Time (s)

The UV dose ((Measured Applied or Applied) for each channel is the sum of the UV doses for each operational bank in the channel.

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