

CONSENT NO.	CG0377701
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ASiantaeth YR  
AMGYLCHEDD  
ENVIRONMENT  
AGENCY

WATER RESOURCES ACT 1991

SECTION 88 - SCHEDULE 10

(AS AMENDED BY THE ENVIRONMENT ACT 1995)

CONSENT TO DISCHARGE

TO: Environment Quality Scientist  
Dŵr Cymru Cyfyngedig  
Plas y Ffynnon  
Cambrian Way  
Brecon. LD3 7HP

The ENVIRONMENT AGENCY ("The Agency") in pursuance of its powers under the Water Resources Act 1991 **HEREBY CONSENTS** to the making of a discharge OF **SEWAGE EFFLUENT**, as follows:

Preliminary Treated Storm Sewage

**FROM:** Ganol Waste Water Treatment Works ("the works")

**AT:** Glan Conwy Corner, Colwyn Bay, Conwy, LL28 5PS

**TO:** Coastal Waters of Penrhyn Bay

**SUBJECT TO** the conditions set out in the following schedule(s):

Preliminary Treated Storm Sewage

Schedule No CG0377701 01

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 consent without the agreement in writing of the consent holder; during a period of 4 years from the date this consent takes effect.

This consent is issued and takes effect on the 19th day of November 1998

Signed .....  .....  
Water Quality consents Team Leader

Asiantaeth yr Amgylchedd  
Ffordd Caer, Bwcle, Sir Fflint CH7 3AJ Ffon 01244 550124 Ffacs 01244 550144

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Chester Road, Buckley, Flintshire CH7 3AJ Tel 01244 550124 Fax 01244 550144



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<b>DATE ISSUED</b>	<b>19<sup>th</sup> Nov. 1998</b>

## CONDITIONS OF CONSENT TO DISCHARGE

**Preliminary Treated Storm Sewage ("the Discharge")**

**FROM: Ganol Waste Water Treatment Works**

### NATURE

- 1 (a) The Discharge shall consist solely of preliminary treated storm sewage effluent which during the periods specified in condition 1(b) of this consent has been disinfected by means of ultra violet (UV) irradiation. Prior to disinfection the storm sewage effluent may be diluted with biologically treated and disinfected sewage effluent.

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 disinfection of the effluent by means of UV irradiation is required throughout each year commencing on 1st July 1999 or the end of the commissioning of the process, whichever is sooner.

Until the 1st July 1999 or the end of the commissioning of the disinfection process, whichever is sooner, the Discharge may consist of preliminary treated sewage effluent which has not received the required UV dose in accordance with conditions 1(c) of this consent.

- (c) The discharge shall be disinfected by means of a broad spectrum, medium pressure, artificial UV source (at least 85% of the energy emitted in the wavelength range 200-300nm). Assuming an effluent transmittivity of  $27\% \text{cm}^{-1}$  and a combined flow of storm sewage effluent and biologically treated sewage effluent flow of 850l/s an applied UV dose of  $24 \text{mWs/cm}^2$  (at 254 nm) must be exceeded at all times specified in condition 1(b) of this consent.

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## LOCATION

- 2 The Discharge shall be made in the manner and at the place specified as:
- (a) discharging via a 900 millimetre diameter pipe terminating with two risers, each consisting of four ports per riser, located at 1710 metres and 1725 metres from the sea wall;
  - (b) discharging to the coastal waters of Penrhyn Bay;
  - (c) at National Grid Reference SH 8366 8302;
  - (d) shown marked 'Discharge Point' on Plan CG0377701 attached as Annex 2.

## SAMPLE POINT

- 3 An appropriately labelled sample point shall be provided and maintained at National Grid Reference SH 8061 7731 as shown marked 'Sampling Point' on Plan CG0377701 so that a representative sample of the Discharge may be obtained. The consent holder shall ensure that all constituents of the Discharge pass through the said sampling point ~~at all times~~ and in any legal proceedings it shall, for the purposes of Section 10 of the Rivers (Prevention of Pollution) Act 1961, be presumed, until the contrary is shown that any sample of the Discharge taken at the said sampling point is a sample of what was discharging into controlled waters.

## VOLUME

- 4 The Discharge shall occur when and only for as long as the rate of flow at the inlet sewer is in excess of 500 litres per second due to rainfall and/or snow melt.
- 5 The volume of the Discharge shall not exceed 30240 cubic metres per day.
- 6 (a) Flow measurement structure(s) shall be provided and maintained to enable the daily volume and instantaneous flow rate of the Discharge to be measured or determined as required.

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- (b) In addition to the basic measurement structure, a continuous flow recorder, to an agreed specification, shall be provided and maintained to enable the daily volume and instantaneous flow of the Discharge to be recorded.
- (c) Copies of the readings shall be maintained by the consent holder and kept available for inspection by the Agency.
- (d) The recorder shall be calibrated and maintained on a regular basis to ensure that it is reading to an agreed standard. The consent holder shall keep a record of the calibration results available for inspection by the Agency.

#### **COMPOSITION**

- 7 (a) The Discharge shall not contain a significant quantity of solid matter having a size greater than 6 millimetres in more than one dimension.
- (b) The Discharge shall not be comminuted or macerated to achieve the standard in (a) above.

#### **MAINTENANCE**

- 8 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 the Agency informed of the failure, as soon as practicable after the failure;
  - (b) following a failure all equipment shall be returned to normal operation as soon as practicable;
- 9 (a) The consent holder shall maintain the outfall pipe and diffusers 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 diffusers and outfall pipe.

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- (b) On request the consent holder shall supply the Agency with a written report on the maintenance and all non-routine actions undertaken.

## RECORDING AND REPORTING

- 10 (a) The consent holder shall establish and operate a documented maintenance programme and record all non-routine actions undertaken that may have adversely affected effluent quality. Copies of the programme shall be made available for inspection by the Agency's officers at all reasonable times.
- (b) 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.
- 11 The consent holder shall notify the Agency in writing if any known introduction or material change, in respect of discharges from trade premises to the sewerage system, occurs that may increase or introduce into the effluent any "dangerous substance" included on Lists I, II or Red List (set out in Annex 1 to this notice 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.

## UV DOSE MEASUREMENT

- 12 (a) Continuous recorders shall be provided and maintained by the consent holder enabling:
- (i) the instantaneous flow rate at the inlet to each UV irradiation channel to be recorded at hourly or more frequent intervals;
  - (ii) the proportions of storm sewage effluent and biologically treated sewage effluent entering each UV irradiation channel to be recorded at hourly, or more frequent, intervals.
  - (iii) the applied UV dose to be measured and recorded at hourly, or more frequent, intervals.
- (b) Copies of the records shall be maintained by the consent holder for a minimum

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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, on a monthly basis, records of the inlet flow rates to the UV channels, the applied UV dose, and the parameters used in calculating the dose, in a format to be agreed with the Agency.

### **ANNUAL REPORT TO THE AGENCY**

- (d) The consent holder shall supply to the Agency, in November each year, a written report, detailing all occurrences where, at any time during the preceding disinfection period as specified in condition 1(b) of this consent:-
  - (e) the external power supply to the UV disinfection system was interrupted;
  - (f) there were any failures of any measurement system used to control the UV dosing system;
  - (g) a discharge of sewage effluent was made which had not been subjected to the required UV dose as specified in conditions 1© of this consent.

The report shall detail the reasons why the situation occurred, the actions taken by the consent holder and the volume/duration of any discharges made as described in © above. The report shall include an assessment of what measures can be adopted in the future to minimise such occurrences.

### **TELEMETRY**

- (h) 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:
  - (i) the external power supply to the UV disinfection system has been interrupted;
  - (j) failure of any measurement system used to control the UV dosing system has occurred;
  - (k) a discharge of sewage effluent has occurred which has not been subjected to the required UV dose as specified in conditions 1© of this consent.

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### **EMERGENCY NOTIFICATION**

- 15 The consent holder shall notify the Agency in the event of a Discharge of sewage effluent which has not been subjected to the required UV dose as specified in conditions 1(c) of this consent. Such notification must be made as soon as practicable and no later than 24 hours after the event.

### **POWER**

- 16 A permanent stand-by power generator shall be provided and maintained in good working order.

### **OTHER**

- 17 (a) In order to maximise the use of the storage available in the first flush storm tanks and sewerage network to minimise the frequency of discharges to coastal and estuarial waters, the works shall be operated in accordance with the "Dwr Cymru Welsh Water, Ganol Sewerage Scheme, Operation and Control Philosophy Report" attached as Annex 4 to this consent.
- (b) The "Dwr Cymru Welsh Water, Ganol Sewerage Scheme, Operation and Control Philosophy Report" attached as Annex 3 to this consent may be varied from time to time by written agreement between the consent holder and the Agency,

### **START DATE**

- 18 (a) There shall be no discharge under the terms of this consent until the 1st July 1999 or the end of commissioning of the works whichever is the sooner. The consent holder shall give the Agency at least 28 days written notice of the end of the commissioning of the works.

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ANNEX 1

SUBSTANCE

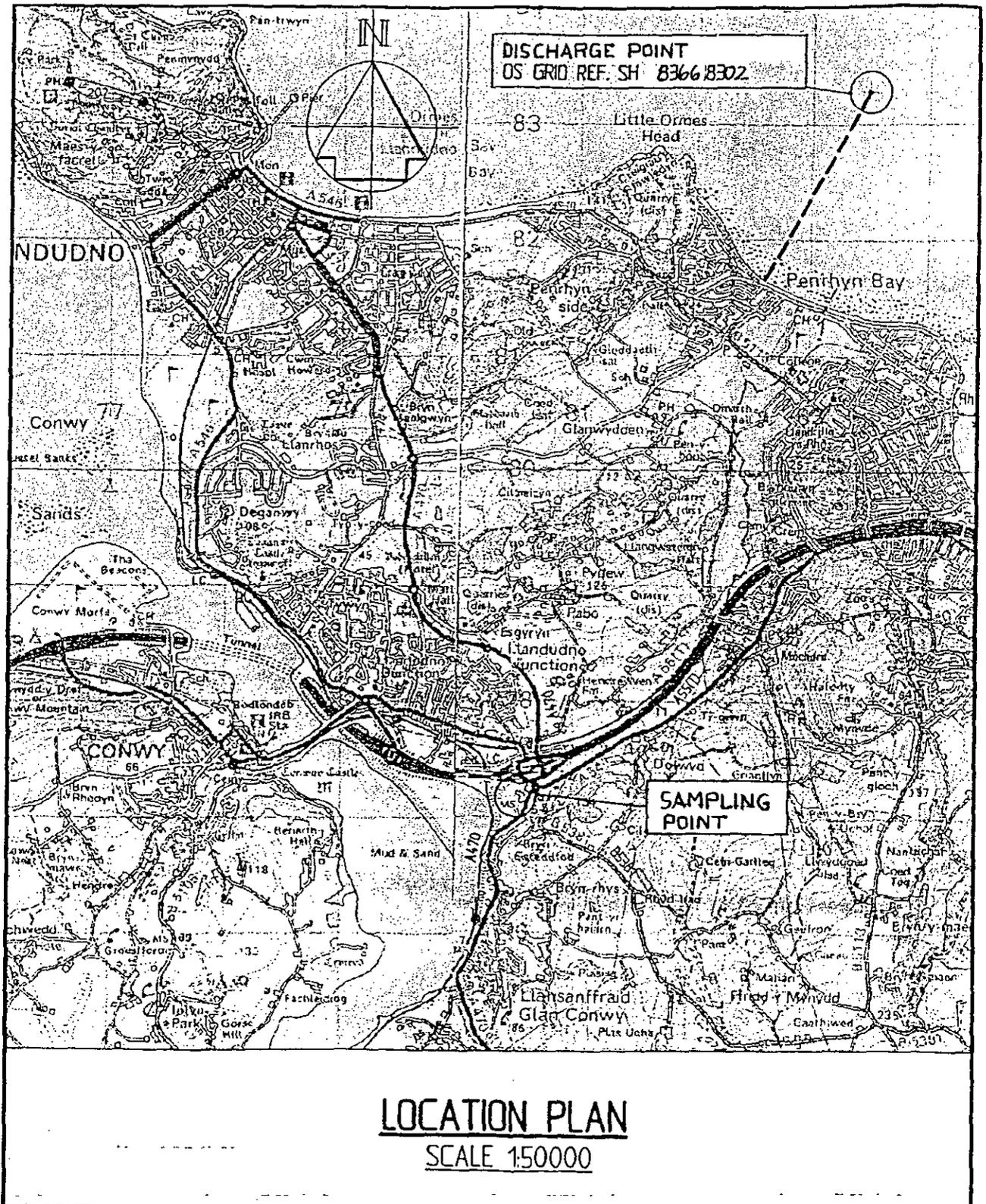
Mercury	pH
Cadmium	Boron
g-Hexachlorocyclohexane	Vanadium
DDT	PCSDs
Pentachlorophenol	Cyfluthrin
Hexachlorobenzene	Sulcofuron
Hexachlorobutadiene	Permethrin
Aldrin	Cyanide
Dieldrin	Azinphos - ethyl
Endrin	Fenthion
Polychlorinated Biphenyls	Parathion
Dichlorvos	Parathion-methyl
1,2 Dichloroethane	Trichloroethane
Trichlorobenzene	Dioxins
Altrazine	Isodrin
Simazine	
Tributyltin Compounds	
Triphenyltin Compounds	
Trifluralin	
Fenitrothion	
Azinphos-methyl	
Malathion	
Endosulphan	
Carbon Tetrachloride	
Chloroform	
Lead	
Chromium	
Zinc	
Copper	
Nickel	
Arsenic	
Iron	

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**ANNEX 2**

**PLAN CG0377701**

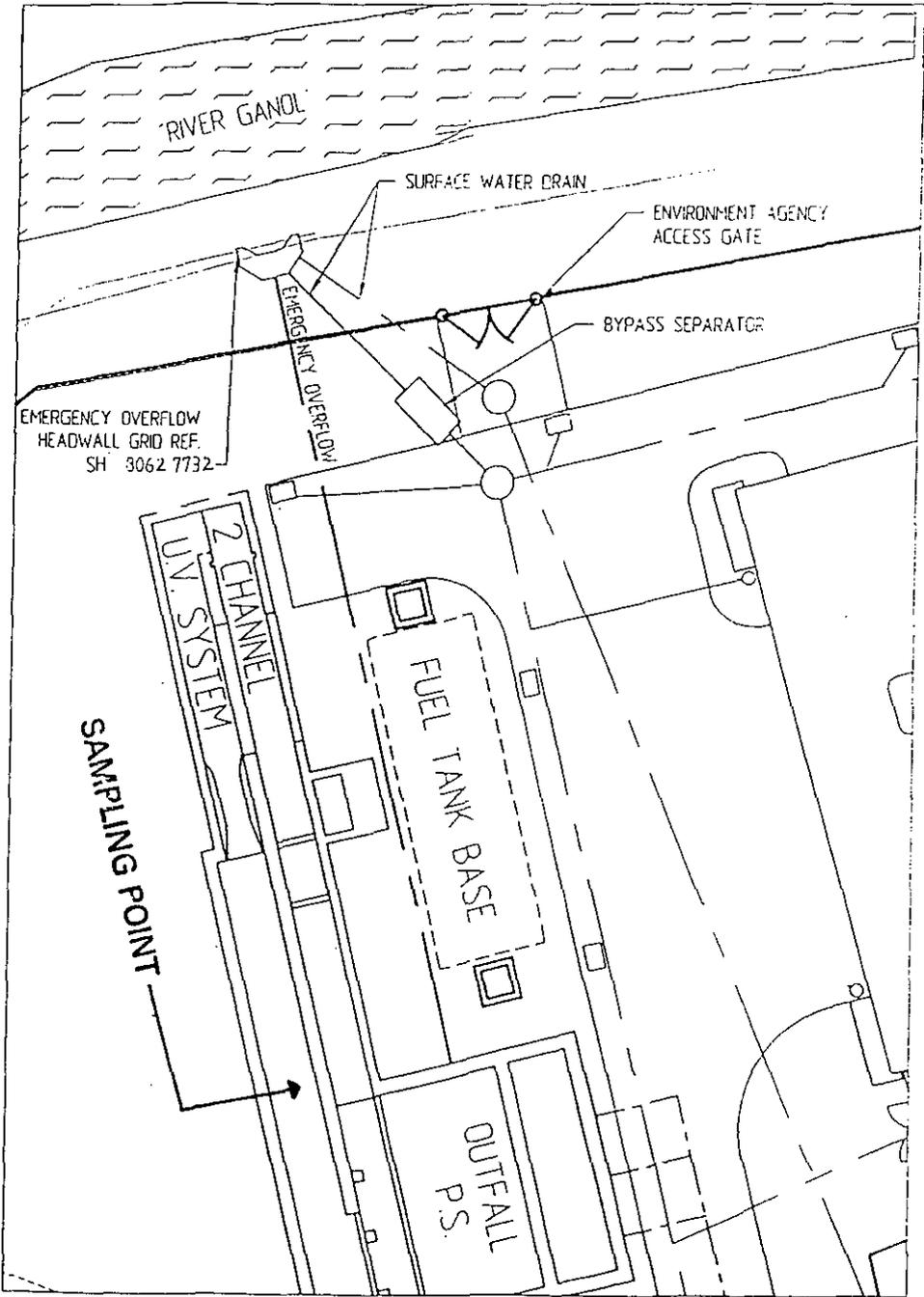
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**PLAN CG0377701**

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**ANNEX 3**

**OPERATING STATEMENT**

**DWR CYMRU WELSH WATER,  
GANOL SEWERAGE SCHEME,  
OPERATION AND CONTROL PHILOSOPHY REPORT**

The attached operating statement referred to as the "Dwr Cymru Welsh Water, Ganol Sewerage Scheme, Operation and control Philosophy Report" and attached "Schedule of Consent" may be varied from time to time by written agreement between the consent holder and the Agency. Any such variation to the operating statement will automatically apply to all valid consents listed on the attached schedule.

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**SCHEDULE OF CONSENTS**

CG0377601	Ganol Sewage Treatment Works	Secondary Treated Sewage Effluent
CG0377602	Ganol Sewage Treatment Works	Secondary Treated Sewage Effluent in an Emergency
CG0377701	Ganol Sewage Treatment Works	Preliminary Treated Storm Sewage
CG0377701	Ganol Sewage Treatment Works	Preliminary Treated Storm Sewage in an Emergency
CG0379201	Llandudno Junction Pumping Station	Storm Sewage and Sewage in an Emergency
CG0379301	Conwy Road Pumping Station	Storm Sewage and Sewage in an Emergency
CG0379401	Tywyn Pumping Station	Storm Sewage and Sewage in an Emergency
CG0366401	Church Road Pumping Station	Storm Sewage and Sewage in an Emergency
CG0379501	Deganwy Pumping Station	Storm Sewage and Sewage in an Emergency
CG0094401	Gyffin Pumping Station	Storm Sewage and Sewage in an Emergency
CG0315801	Quay Pumping Station	Storm Sewage and

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		Sewage in an Emergency
CG0152501	Dale Road Pumping Station	Storm Sewage and Sewage in an Emergency
CG0141601	Penrhyn Bay Pumping Station	Storm Sewage and Sewage in an Emergency
CG0141201	Glan Conwy Pumping Station	Storm Sewage and Sewage in an Emergency
CG0190901	Marl drive CSO	Storm Sewage
CG0141901	Morfa Pumping Station	Storm Sewage and Sewage in an Emergency
CG0142301	West Shore Pumping Station	Storm Sewage and Sewage in an Emergency
CG0000000	Beach Road CSO	Storm Sewage
CG0000000	Marine Road CSO	Storm Sewage
CG0000000	Rhoslan Pumping Station	Storm Sewage and Sewage in an Emergency

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## APPENDIX

### CALCULATION OF UV DOSE

The consent holder shall provide a dose measurement system that allows a relationship between received dose and microbicidal 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 channel.

REACTOR VOLUME is the volume of wastewater at any given time passing through the banks of UV lamps.

ADJUSTED RETENTION TIME is the reactor volume divided by the measured rate of flow into the UV channel.

THEORETICAL UV INTENSITY is the predicted average UV intensity across the reactor volumes, at an assumed UV transmittance for the effluent (at 254nm) of 27% (or such higher value as is agreed with the Agency in writing) predicted from the rated output (mW) of the UV lamps which are energised.

MEASURED UV INTENSITY is the predicted average UV intensity ( $\text{mW}/\text{cm}^2$ ) for the effluent (or such assumed UV transmittance value as is agreed with the Agency in writing) and the UV intensity at 254 nm measured (at positions within the reactors agreed with the Agency in writing) for each operating bank of UV lamps.

#### Calculations

1. APPLIED UV DOSE = THEORETICAL UV INTENSITY \* ADJUSTED RETENTION TIME
2. RECEIVED UV DOSE = MEASURED UV INTENSITY \* ADJUSTED RETENTION TIME

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### UV CODE OF PRACTICE

1. 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 conditions 1(c) of the consent as appropriate.
2. The UV disinfection system 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 conditions 1(c) of this consent).
3. The applied and received UV dose (as defined in the Appendix) shall be determined from (i) the flow rate of effluent through the UV disinfection system (l/s), (ii) the reactor volume, (iii) a UV transmittance for the effluent (at 254nm) of 27% (or such a higher value as is agreed with the Agency in writing), and (iv) in the case of the received dose, the measured UV intensity or in the case of the applied dose, the rated output (mW), at 254nm, of the UV lamps which are energised.

If the UV transmittance drops below 27% then the Agency will consider immediate introduction of additional conditions to ensure that the effluent is of adequate quality for effective disinfection.

4.
  - (a) A maintenance programme, including the method and frequency of cleaning and replacement of the UV lamps/ UV radiation monitors, shall be undertaken by the consent holder as agreed in writing with the Agency.
  - (b) Any failure to meet the requirements of the agreed 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) and shall include the measured UV intensity readings immediately before and immediately after each UV lamp/ UV monitor cleaning or replacement. Copies of these records shall be maintained by the consent holder and kept conveniently available for inspection by the Agency's officers at all reasonable times.
  - (d) The consent holder shall supply to the Agency, on a monthly basis, records of the maintenance undertaken and the measured UV intensity readings (as specified in paragraph 4(c) above), in a format to be agreed with the Agency.

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The method of measuring/estimating UV intensity at this site must be clearly defined. In the absence of on-line measurement of UV transmittance (254nm) the UV transmittance to UV intensity ratio is assumed to be constant at this site.