Notice of variation with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Northumbrian Water Limited

Bran Sands Effluent Treatment Works
Bran Sands
Tees Dock Road
Middlesbrough
TS6 6UE

Variation application number
254/1920/V002

Permit number
254/1920

Wastewater treatment works serving Bran Sands Effluent Treatment Works

Permit Number 254/1920

Introductory note

This introductory note does not form a part of the notice.

The following notice gives notice of the variation of an environmental permit.

The schedules specify the changes made to the original permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Permit issued 254/1920	28/03/2006	Effective 31/08/2006
Permit modified 254/1920	19/02/2007	Replaced and updated conditions relating to Urban Waste Water Treatment Regulations
Variation determined 254/1920/V002	01/09/2011	Replaced and updated conditions relating to Urban Waste Water Treatment Regulations

End of Introductory note

Notice of variation

The Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies

Permit number
254/1920

issued to:
Northumbrian Water Limited ("the operator")

whose registered office is

Northumbria House
Abbey Road
Pity Me
Durham
DH1 5FJ

company registration number **02366703**

to operate a regulated facility at

Bran Sands Effluent Treatment Works
Bran Sands
Tees Dock Road
Middlesbrough
TS6 6UE

to the extent set out in the schedules.

The notice shall take effect from 01/09/2011

Name	Date
Maria Gibbons	**01/09/2011**

Authorised on behalf of the Environment Agency

Schedule 1 – conditions to be deleted

None

Schedule 2 – conditions to be amended

The following conditions are amended as a result of the application made by the operator.

Condition 3.5a shall now read:

3.5a

Appropriately labelled sample points shall be provided and maintained at National Grid References NZ 5671 2403, NZ 5660 2417 and NZ 56668 23890, as shown marked "UWWTD Influent (Raw) Sample Point", "Phillips + Seal Sands Companies Flow Meter and combined sample point" and "Huntsman Effluent Inlet UWWTD Sample Point" on the site plans included in this Modification of Consent, or at any other point as agreed in writing with the Agency, so that representative samples of the influents may be obtained.

Condition 4 shall now read:

4 Calculation of Load Reduction

4.1 Inlet Flow Calculation

Bran Sands Effluent Treatment Works has five rising mains arriving from surrounding areas.

Three of these are sampled by the raw sample point on the distribution chamber to the primary tanks (Portrack, Cargo Fleet and Eston catchments). This point also receives liquors from the Regional Sludge Treatment Centre (RSTC) Phase 1. The combined flow is measured in accordance with Environment Agency policy requirements.

The fourth and fifth rising mains deliver flows from the Phillips plus other Seal Sands companies' industrial processes and Huntsman respectively, and have separate flow measurement.
(see Condition 4.7 – Other Requirements – below)

The following calculations are to allow proportional loads to be calculated, relating to the flow measurement carried out and the proportions for each inlet agreed between the Environment Agency and Northumbrian Water Ltd.

The total flow, $\mathbf{Q_{TOTAL}}$ is measured by the summation of the three UV flow meters.

$\mathbf{Q_R}$ is the raw (domestic) flow, calculated by subtracting from $\mathbf{Q_{TOTAL}}$ the flow $\mathbf{Q_p + Q_H}$ ($\mathbf{Q_p}$ is the flow from Phillips plus the individual Seal Sands companies delivering to Bran Sands and $\mathbf{Q_H}$ is the flow from Huntsman measured at their respective Train C flow meters). All these flows are relayed by telemetry within Bran Sands and are shown on the SCADA system.

The load will be calculated by using the results from the three inlet samplers (at the Raw sewage inlet, the Phillips plus the Seal Sands Companies inlet and the Huntsman inlet) and proportioning them.

The UWWTD calculations for Bran Sands ETW are as follows:

4.2 Domestic Raw Sewage Inlet

$$\mathbf{W_{CR} = (COD_R * Q_R)/10^3}$$

Where W_{CR} = *Weight of COD* (kg/d) *from the raw inlet sewer.*

COD_R = *Measured COD* (mg/l) *from raw inlet sampler*.

Q_R = *Domestic Raw inlet daily inflow* (m^3/d).

$$\mathbf{W_{BR} = (BOD_R * Q_R)/10^3}$$

Where W_{BR} = *Weight of BOD* (kg/d) *from the raw inlet sewer.*

BOD_R = *Measured BOD* (mg/l) *from raw inlet sampler.*

Q_R = *Domestic Raw inlet daily inflow* (m^3/d).

4.3 Phillips plus Seal Sands Companies Inlet and Huntsman Inlet

$$\mathbf{W_{CP} = (COD_P * Q_P + COD_H * Q_H)/10^3}$$

Where W_{CP} = *Weight of COD* (kg/d) *from the Phillips/Seal Sands inlet sewer.*

COD_P = *Measured COD* (mg/l) *from Phillips/Seal Sands inlet sampler.*

Q_P = *Phillips/Seal Sands inlet daily inflow* (m^3/d).

COD_H = *Measured COD* (mg/l) *from Huntsman inlet sampler.*

Q_H = *Huntsman inlet daily inflow* (m^3/d).

$$\mathbf{W_{BP} = (BOD_P * Q_P + BOD_H * Q_H)/10^3}$$

Where W_{BP} = *Weight of BOD* (kg/d) *from the Phillips/Seal Sands inlet sewer.*

BOD_P = *Measured BOD* (mg/l) *from Phillips/Seal Sands inlet sampler.*

Q_P = *Phillips/Seal Sands inlet daily inflow* (m^3/d).

BOD_H = *Measured BOD* (mg/l) *from Huntsman inlet sampler.*

Q_H = *Huntsman inlet daily inflow* (m^3/d).

4.4 Total Inlet Load

$$W_{CITOTAL} = W_{CR} + W_{CP}$$

Where $W_{CITOTAL}$ = *Total Weight of COD* (kg/d) *entering works.*

$$W_{BITOTAL} = W_{BR} + W_{BP}$$

Where $W_{BITOTAL}$ = *Total Weight of BOD* (kg/d) *entering works.*

4.5 Total Load in Final Effluent

$$W_{CFE} = (COD_{FE} * Q_{TOTAL})/10^3$$

Where W_{CFE} = *Weight of final effluent COD* (kg/d)

COD_{FE} = *Measured COD* (mg/l) *from final effluent sampler*

Q_{TOTAL} = *Total outlet daily inflow* (m^3/d).

And

$$W_{BFE} = (BOD_{FE} * Q_{TOTAL})/10^3$$

Where W_{BFE} = *Weight of final effluent BOD* (kg/d)

BOD_{FE} = *Measured BOD* (mg/l) *from final effluent sampler*

Q_{TOTAL} = *Total outlet daily inflow* (m^3/d).

Bran Sands Effluent Treatment Works

UWWTD Percentage Removal Calculations

4.6 PERCENTAGE REMOVAL

$$\text{COD \%age Removal} = 100 * (W_{CITOTAL} - W_{CFE}) / W_{CITOTAL}$$

$$\text{BOD \%age Removal} = 100 * (W_{BITOTAL} - W_{BFE}) / W_{BITOTAL}$$

4.7 OTHER REQUIREMENTS

4.7.1 The Consent Holder shall provide suitable flow recorders to measure and record the flows delivered via the rising mains from Phillips plus the other Seal Sands companies and Huntsman.

4.7.2 Alternative means of deriving the flows delivered via the rising mains from Phillips plus the other Seal Sands Companies and Huntsman may be used subject to agreement in writing with the Agency.

4.7.3 The Consent Holder shall, in addition to the analytical results and percentage removal figures required under the Urban Waste Water Treatment Directive Regulations supply the Agency with the full calculations made in accordance with the method set out in this annex, or as otherwise required by the Agency.

Schedule 3 – conditions to be added

None

Schedule 4 – amended plan

“Site Plan (d1)” is replaced by “Site Plan (d) UWWTR Sample Points”.