Notice of variation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

United Utilities Water Limited

Davyhulme Wastewater Treatment Works - Sludge Treatment Facility
Rivers Lane
Urmston
Manchester
M41 7JB

Variation application number

EPR/HP3931LJ/V010

Permit number

EPR/HP3931LJ

Davyhulme Wastewater Treatment Works
Sludge Treatment Facility
Permit number EPR/HP3931LJ

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.

This variation authorises the transfer of surplus activated sludge (SAS) from Davyhulme WwtW to the sludge treatment installation. The SAS will be thickened in drum thickeners prior to being blended with other sludge imports and biologically treated within the sludge treatment installation. The filtrate from the drum thickening process will be returned back to the activated sludge process tanks at Davyhulme WwtW.

The main changes to the permit are as follows:

- The new drum thickeners replace redundant technology and are housed within an existing building. The associated SAS buffer tank and polymer dosing plant are situated adjacent to the building. These changes are reflected in table S1.1 as revised limits of activities.
- The operating techniques associated with the permit have been updated to add details of new pollution prevention infrastructure and reference to a previous odour management plan has been removed.
- An improvement programme has been added to table S1.3 to require a new odour management plan to be developed and incorporated into the sites operating techniques, and a report on the performance of the new odour control unit.
- Total storage capacity and annual throughput of waste have been increased to reflect the increased efficiency and treatment capacity of the drum thickeners. These changes are shown in tables S3.2 and S3.3.
- A new odour control unit comprising of a SULPHUS biofilter system and 11m high stack replaces the temporary odour control unit. The temporary emission point has been replaced with a permanent emission point with an amended emission point location and hydrogen sulphide monitoring (as shown in table S4.1).
- The off-site transfers of sludge emission points have been updated in table S4.3.
- New drainage pipelines are introduced from the SAS plant to direct surface drainage and filtrate to Davyhulme WwtW to full flow treatment via a new splitter chamber for process flow control. The site boundary is revised to incorporate this new drainage pipeline route in schedule 4 to this variation notice.

The upgraded technology is considered to be the best available techniques. The new odour control unit will abate the majority of odours leaving only an insignificant amount of residual odour. It is considered that there will unlikely be any increased odour effect on the surrounding environment.

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**
Application SP3931LL (EPR/SP3931LJ/A001)	Duly made 30/06/06	
Request for further information	23/08/06 – 04/09/07	22/09/06 – 15/10/07
Additional information received	09/02/07 – 24/10/07	
Permit HP3931LJ determined (EPR/HP3931LJ)	24/10/07	
Application for Variation LP3839GF	Duly made 19/11/08	
Additional information received	Notice served 03/12/08	29/12/08
Variation EPR/HP3931LJ/V002	Issued 26/02/09	
Application for variation EPR/HP3931LJ/V003	Duly made 11/03/09	
Request for further information via e-mail	12/05/09	21/05/09, 25/08/09
Variation notice EPR/HP3931LJ/V003	Issued 15/10/09	
Variation application EPR/HP3931LJ/V004	31/12/09	
Additional information	29/04/10	28/05/10
Variation notice EPR/HP3931LJ/V004	Issued 02/07/10	
Further information Schedule 5	17/02/11	25/03/11
Additional information received	01/12/11	Document No 16666-51-A-00000-22 166661-88-A-00002-20 166661-51-A-00000-29
Variation notice EPR/HP3931LJ/V005	Issued 01/03/12	
Variation Application EPR/HP3931LJ/V006	Duly made 12/07/12	
Variation notice EPR/HP3931LJ/V006	Issued 08/08/12	
Agency variation determined EPR/HP3931LJ/V007	19/06/13	Agency variation to implement the changes introduced by IED.
Notified of change of company name	10/11/14	Name changed to United Utilities Water Limited.
Variation issued EPR/HP3931LJ/V008	13/01/15	Varied permit issued to United Utilities Water Limited.
Variation application EPR/HP3931LJ/V009	Duly made 02/10/15	Variation to add a biogas upgrading plant.
Variation determined EPR/HP3931LJ	15/01/16	Varied permit issued.

Status log of the permit		
Description	**Date**	**Comments**
Variation application EPR/HP3931LJ/V010	Duly made 26/01/17	Application to add new treatment process with new odour control unit, remove obsolete technologies, increase annual throughput and storage quantities and extend the permit boundary to include new drainage pipelines.
Response to schedule 5 notice dated 09/05/17	23/05/17	Effect of increased annual throughput. Odour control unit details
	30/05/17	Point Source Emissions Plan.
Further information received	21/06/17	Further odour control unit details.
	04/07/17	
Variation determined EPR/HP3931LJ Billing ref: XP3130YT	27/07/17	Varied permit issued.

Other Part A installation permits relating to this installation		
Operator	**Permit number**	**Date of issue**
United Utilities Water Limited	XP3533HX	04/10/10

End of introductory note

Notice of variation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

Permit number

EPR/HP3931LJ

Issued to

United Utilities Water Limited ("the operator")

whose registered office is

Haweswater House
Lingley Mere Business Park
Lingley Green Avenue
Great Sankey
Warrington
WA5 3LP

company registration number **02366678**

to operate a regulated facility at

Davyhulme Wastewater Treatment Works - Sludge Treatment Facility
Rivers Lane
Urmston
Manchester
M41 7JB

to the extent set out in the schedules.

The notice shall take effect from 27/07/2017.

Name	Date
Mike Jenkins	**27/07/2017**

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:

Table S1.1, as referenced in conditions 2.1.1 and 2.3.3 is amended to reflect the new sludge treatment method and odour control unit as follows:

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity and WFD Annex I and II operations**	**Limits of specified activity and waste types**
A1	Section 5.4 Part A(1) a) (ii) Disposal of non-hazardous waste in a facility with a capacity of more than 50 tonnes per day involving physico-chemical treatment	D9: Physical and chemical treatment of sludge for the purpose of disposal	From receipt of the waste to the transfer to storage including treatment of the waste which is limited to the following plant:- 5 Sludge Strain Presses; SAS thickening process including SAS buffer tank, 4 drum thickeners and Polymer dosing system; 3 Sludge Screening; 6 Sludge Dewatering (centrifuges); DAF Plant Thermal Hydrolysis (4 no. pulper vessels, 20 no. reactor vessels, 4 no. flash tanks)
A2	Section 5.4 Part A(1) a) (i) Disposal of non-hazardous waste in a facility with a capacity of more than 50 tonnes per day involving biological treatment.	D8: Biological treatment (anaerobic digestion) of sludge for the purpose of disposal	From receipt of the waste to the transfer to storage, including the digestion of the waste which is limited to the following plant:- 8 Primary digesters; 12 Secondary digesters Waste types and quantities as specified in Table S3.3
Directly Associated Activities			
A3	Gas Combustion	The combustion of fuel (biogas) for the purpose of generating electricity and heat for use within the installation	From the receipt and storage of Biogas to the delivery of heat to the digesters and electricity to the Wastewater Treatment Works and National Grid. The combustion units are limited to 5 CHP engines and 3 dual fuel boilers with a combined thermal input (gross) of approximately 45MW. The combined number of engines/boilers running at any one time are limited to the assessment scenario of 4 gas engines and one boiler (or equivalent thereof) and therefore cannot produce more than 4.815grams/second NO_2 (ref Table 2.4 Air Modelling Report November 2011)

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity and WFD Annex I and II operations**	**Limits of specified activity and waste types**
A4	Siloxane unit	Siloxane removal system	Filtration of siloxane compounds from biogas and associated filter regeneration
A5	Storage of Waste	Cake import and export handling facility	Storage of cake before and after treatment prior to dispatch off site.
A6	Degassing Tank	Degassing	Remove excess CO2 and minimise residual anaerobic activity in downstream pipes.
A7	Combustion of standby gas oil	Burning of gas oil (standby fuel) for use in the 3 dual fuel boilers	From receipt of gas oil, to combustion of fuel and delivery of heat to the digesters. Gas oil is only to be used where there is either: • Insufficient biogas available for use • Poor quality biogas being produced; or • Operational malfunction which prevents biogas usage
A8	Gas Flares (3 in number)	Flaring of bio-gas	From receipt of gas at flare, to combustion of gas and discharge of combustion products. Biogas only to be flared where it is unable to be used for the production of heat and energy.
A9	Odour abatement plants (4 in number)	Abatement of odour emissions to air	From receipt of odours from drum thickeners and sludge storage and processing equipment and biogas upgrading plant, to emissions to air.
A10	Biogas upgrading plant	Upgrading of biogas to biomethane (including the removal of moisture and other substances such as carbon dioxide, hydrogen sulphide, volatile organic compounds) for injection into the National Grid.	From the receipt of biogas produced at the on-site anaerobic digestion process to injection into the National Grid. This includes return of off-specification biogas for combustion to the on-site CHP engines and/or standby flare.

Table S1.2, as referenced in conditions 2.3.1, 3.4.2 and 3.4.3 is amended as follows:

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	The response to section 2.1, excluding 2.1.3 and 2.1.5, and 2.2 in the Application but excluding 2.1.2, 2.1.18, 2.2.10, 2.2.12, 2.2.13-2.2.15, 2.2.24, 2.2.27-2.2.37, 2.10.22 and 2.10.28	30/06/06
Letter from Amanda Molyneux of United Utilities Water PLC dated 22/09/06. RE: Agency letter dated 23/08/06	Answers 1,2, 3, 5, 6, 10, 11 and 12	26/09/06
Letter from Amanda	Answers 7, 8, 13 and Davyhulme answers 1, 2, 3 and 4	26/09/06

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Molyneux of United Utilities Water PLC dated 22/09/06. RE: Agency letter dated 08/09/06		
Letter from Amanda Molyneux of United Utilities Water PLC dated 29 September 2006	Answers for Davyhulme only 1, 2, 3, 4, 5 and 6	29/09/06
Email from Amanda Molyneux dated 29/09/09	Response for Davyhulme only	29/09/09
Letter from Amanda Molyneux of United Utilities Water PLC dated 28 September 2006	Answers to Davyhulme only	26/10/06
Letter from Amanda Molyneux of United Utilities Water PLC dated 16 October 2006	Answers 1 and 3 only	16/10/06
Letter from Amanda Molyneux of United Utilities Water PLC dated 25 October 2006	Responses to parts 1-8 and the response to Davyhulme only	25/10/06
Email from Amanda Molyneux of United Utilities Water PLC dated 26 October 2006	All	26/10/06
Letter from Amanda Molyneux of United Utilities Water PLC dated 24 November 2006	All	24/11/06
Letter from Amanda Molyneux of United Utilities Water PLC dated 6 December 2006	Actions 1-3, 5 and 7 for Davyhulme only	06/12/06
Email from Amanda Molyneux of United Utilities Water PLC dated 11 December 2006	Answers for Davyhulme only	11/12/06
Email from Amanda Molyneux of United Utilities Water PLC dated 02 January 2007	Answers relating to Davyhulme only	02/01/07
Variation Application	All of section B2 in variation application – techniques	17/11/08
Response to notice requesting further information dated 23.12.08	All parts	29/12/08
Response to e mail 13.1.09	All parts	29/01/09

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Variation application EPR/HP3931LJ/v003	All of Part C variation application	11/03/09
Request for additional information – email to Lynda Fellows on the 12/05/09	All	21/05/09 & 25/08/09
Variation application EPR/HP3931LJ/V004	All of Part C variation application	31/12/09
Additional information Requested 29/4/2010	All	28/05/10
Application	Sections 3, 3a, and 3b of the application document in response to section 3 – operating techniques , Part C of the application form	30/06/10
Response to Schedule 5 Notice dated 17/02/11	All Parts	25/03/11
Application for variation EPR/HP3931LJ/V006	Parts C2 and C3 (and the supplementary information supplied with these parts), and the responses to requests for further information (dated 19/06/12 and 02/07/12).	28/05/12 19/06/12, and 12/07/12
Variation application EPR/HP3931LJ/V009	Parts C2 and C3 (and the supplementary information supplied with these parts - Environmental Permit Application Final Report 15384i1).	04/08/15
Variation application EPR/HP3931LJ/V010	Application Support Document: - Section 5 – Variation Technical Description and Operations. - Section 6 – Odour Control System.	26/01/17
Response to schedule 5 notice dated 09/05/17	Response to question 7, 8 and 9 with regard to the Odour Control Unit.	23/05/17
	Response to question 2 - Figure 4, Point Source Emissions Plan, revision PO1, dated 25/05/17	30/05/17

Table S1.3, as referenced in condition 2.5.1 is amended as follows:

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IP1 – IP16	Improvement conditions IP1-IP16 from the original permit EPR/HP3931LJ are completed.	Completed
IP1 – IP5	Improvement conditions IP1-IP5 from the variation EPR/HP3931LJ/V005 are completed.	Completed
IP1	The operator shall carry out a monitoring study to verify the assumptions made in the application in relation to the releases of pollutants to air. The study shall include the monitoring of point source releases to air from the biogas upgrading plant emission point A59 during normal operation, having regard to the Environment Agency technical guidance M2 and to MCERTS standards. As a minimum, two separate monitoring campaigns in a year shall be completed (one monitoring survey six months following commencement of the upgrading plant). The pollutants to be monitored shall include: • total volatile organic compounds; and • hydrogen sulphide	30/06/17 or as otherwise agreed with the Environment Agency

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IP2	Following the completion of IP1, the operator shall undertake an environmental impact assessment of point source releases to air from the biogas upgrading plant, using the information obtained through the emissions monitoring. The environmental impact assessment report and all associated monitoring reports and assessments shall be submitted in writing to the Environment Agency for review. The environmental impact assessment shall include: • reports showing details of the monitoring undertaken and the results obtained; • results of the assessment of long and short term impacts from the emissions in accordance with Environment Agency Guidance Note H1, Annex F – Air emissions • a completed H1 assessment software tool If the H1 assessment shows potential long or short term impacts from the emissions, the operator shall propose an action plan to reduce the impacts of the substances identified.	31/07/17 or as otherwise agreed with the Environment Agency
IP3	The Operator shall submit a written Odour Management Plan to the Environment Agency for approval. The plan shall comply with our guidance 'H4 Odour Management'. The plan shall be implemented as approved, and from the date stipulated by the Environment Agency.	3 months from permit issue
IP4	The Operator shall submit a written report to the Environment Agency on the performance of the odour control unit (OCU) post commissioning. The report shall contain: • a review of the measurements from olfactometric odour monitoring to demonstrate the performance of the OCU and odour removal rates; • details of the average and observed H_2S levels at the outlet of the filter. If the report shows that the performance of the OCU is not in line with the details provided in application EPR/HP3931LJ/V010, the operator shall propose an action plan to reduce the impacts of the substances identified.	6 months from commissioning of the OCU

Table S3.2, as referenced in condition 2.3.3 is amended as follows:

Table S3.2 Permitted waste types and quantities for storage	
Maximum quantity	No more than 185,589 tonnes at any one time
Waste code	**Description**
19	**Wastes from Waste Management Facilities, Off Site Waste Water Treatment Plants and the Preparation of Water Intended for Human Consumption and Water for Industrial Use**
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 05	Sludge from treatment of waste water
19 02 03	Pre-mixed wastes composed only of non-hazardous waste

Table S3.3, as referenced in condition 2.3.3 is amended as follows:

Table S3.3 Permitted waste types and quantities for treatment	
Maximum quantity	No more than 10,032,025 tonnes per year
Waste code	**Description**
19	**Wastes from Waste Management Facilities, Off Site Waste Water Treatment Plants and the Preparation of Water Intended for Human Consumption and Water for Industrial Use**
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 05	Sludge from treatment of waste water
19 02 03	Pre-mixed wastes composed only of non-hazardous waste

Table S4.1, as referenced in conditions 3.1.1, 3.6.1 and 3.6.4 is amended as follows:

Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [Note 3]	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method (see Note 1)**
A2 CHP Engine exhaust stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Bio-gas engine	650mg/m³	4 Hourly average*	Quarterly	BS EN 14792
A2 CHP Engine exhaust stack	CO	Bio-gas engine	1,500mg/m³	Hourly average	Annually	BS EN 15058
A2 CHP Engine exhaust stack	Total VOC's	Bio-gas engine	1,750mg/m³	Hourly average	Annually	BS EN 12619 or BS EN 13526 dependent upon concentration
A2 CHP Engine exhaust stack	NMVOC	Bio-gas engine	150mg/m³	Hourly average	Annually	BS EN 13649:2002
A3 CHP Engine exhaust stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Bio-gas engine	650mg/m³	4 Hourly average*	Quarterly	BS EN 14792
A3 CHP Engine exhaust stack	CO	Bio-gas engine	1,500mg/m³	Hourly average	Annually	BS EN 15058
A3 CHP Engine exhaust stack	Total VOC's	Bio-gas engine	1,750mg/m³	Hourly average	Annually	BS EN 12619 or BS EN 13526 dependent upon concentration
A3 CHP Engine exhaust stack	NMVOC	Bio-gas engine	150mg/m³	Hourly average	Annually	BS EN 13649:2002

Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [Note 3]	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method (see Note 1)**
A4 CHP Engine exhaust stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Bio-gas engine	650mg/m³	4 Hourly average*	Quarterly	BS EN 14792
A4 CHP Engine exhaust stack	CO	Bio-gas engine	1,500mg/m³	Hourly average	Annually	BS EN 15058
A4 CHP Engine exhaust stack	Total VOC's	Bio-gas engine	1,750mg/m³	Hourly average	Annually	BS EN 12619 or BS EN 13526 dependent upon concentration
A4 CHP Engine exhaust stack	NMVOC	Bio-gas engine	150mg/m³	Hourly average	Annually	BS EN 13649:2002
A21 CHP Engine exhaust stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Bio-gas engine	500mg/m³	4 Hourly average*	Quarterly	BS EN 14792
A21 CHP Engine exhaust stack	CO	Bio-gas engine	1,400mg/m³	Hourly average	Annually	BS EN 15058
A21 CHP Engine exhaust stack	Total VOC's	Bio-gas engine	1,000mg/m³	Hourly average	Annually	BS EN 12619 or BS EN 13526 dependent upon concentration
A21 CHP Engine exhaust stack	NMVOC	Bio-gas engine	75mg/m³	Hourly average	Annually	BS EN 13649:2002
A22 CHP Engine exhaust stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Bio-gas engine	500mg/m³	4 Hourly average*	Quarterly	BS EN 14792
A22 CHP Engine exhaust stack	CO	Bio-gas engine	1,400mg/m³	Hourly average	Annually	BS EN 15058
A22 CHP Engine exhaust stack	Total VOC's	Bio-gas engine	1,000mg/m³	Hourly average	Annually	BS EN 12619 or BS EN 13526 dependent upon concentration
A22 CHP Engine exhaust stack	NMVOC	Bio-gas engine	75mg/m³	Hourly average	Annually	BS EN 13649:2002

Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [Note 3]	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method (see Note 1)**
A23 Composite Boiler Exhaust Stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Dual Fuel Boiler	No limit	Hourly average	Annually	BS EN 14792
A23 Composite Boiler Exhaust Stack	CO	Dual Fuel Boiler	No limit	Hourly average	Annually	BS EN 15058
A23 Composite Boiler Exhaust Stack	Total VOC	Dual Fuel Boiler	No limit	Hourly average	Annually	BS EN 12619 or BS EN 13526 dependent upon concentration
A23 Composite Boiler Exhaust Stack	NMVOC	Dual Fuel Boiler	No limit	Hourly average	Annually	BS EN 13649:2002
A24 Composite Boiler Exhaust Stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Dual Fuel Boiler	No limit	Hourly average	Annually	BS EN 14792
A24 Composite Boiler Exhaust Stack	CO	Dual Fuel Boiler	No limit	Hourly average	Annually	BS EN 15058
A24 Composite Boiler Exhaust Stack	Total VOC	Dual Fuel Boiler	No limit	Hourly average	Annually	BS EN 12619 or BS EN 13526 dependent upon concentration
A24 Composite Boiler Exhaust Stack	NMVOC	Dual Fuel Boiler	No limit	Hourly average	Annually	BS EN 13649:2002
A25 Composite Boiler Exhaust Stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Dual Fuel Boiler	No limit	Hourly average	Annually	BS EN 14792
A25 Composite Boiler Exhaust Stack	CO	Dual Fuel Boiler	No limit	Hourly average	Annually	BS EN 15058
A25 Composite Boiler Exhaust Stack	Total VOC	Dual Fuel Boiler	No limit	Hourly average	Annually	BS EN 12619 or BS EN 13526 dependent upon concentration

Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [Note 3]	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method (see Note 1)**
A25 Composite Boiler Exhaust Stack	NMVOC	Dual Fuel Boiler	No limit	Hourly average	Annually	BS EN 13649:2002
A26 Siloxane Removal System Vent Air Burner Exhaust Stack	H_2S	Siloxane unit	To be agreed with Agency	To be agreed with Agency	To be agreed with Agency	To be agreed with Agency
A26 Siloxane Removal System Vent Air Burner Exhaust Stack	NMVOC	Siloxane unit	To be agreed with Agency	To be agreed with Agency	To be agreed with Agency	To be agreed with Agency
A26 Siloxane Removal System Vent Air Burner Exhaust Stack	Total VOC	Siloxane unit	To be agreed with Agency	To be agreed with Agency	To be agreed with Agency	To be agreed with Agency
A27 Flare Stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		No limit	-	-	-
A27 Flare Stack	CO		No limit	-	-	-
A27 Flare Stack	SO_2		No limit	-	-	-
A27 Flare Stack	NMVOC		No limit	-	-	-
A27 Flare Stack	Total VOC		No limit	-	-	-
A27B Flare Stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		No limit	-	-	-
A27B Flare Stack	CO		No limit	-	-	-
A27B Flare Stack	SO_2		No limit	-	-	-
A27B Flare Stack	NMVOC		No limit	-	-	-
A27B Flare Stack	Total VOC		No limit	-	-	-
A28 Gasholder	No parameters set	PRV	No limit	-	-	-
A29 Gasholder	No parameters set	PRV	No limit	-	-	-

Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [Note 3]	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method (see Note 1)**
A30-A57 Thermal Hydrolysis vessel	No parameters set	PRV's	No limit	-	-	-
A58 Biogas upgrading plant	Oxides of Nitrogen (NO and NO_2 expressed as NO_2) CO Total VOCs	Flare	No limit set	-	[note1]	-
A59 Biogas upgrading plant	No parameter set	Odour control unit stack	No limit set	-	[note 2]	-
O1	No parameters set	General odour control unit (wet scrubber)	No limit set	-	-	-
O2	No parameters set	General odour control unit (dry scrubber)	No limit set	-	-	-
O3	No parameters set	Odour control unit (SULPHUS Biofilter system)	No limit set	-	-	-

Note 1 - Monitoring to be undertaken 12 months after commissioning of the standby flare. Following commissioning, monitoring to be undertaken in the event the standby flare has been operational for more than 10 per cent of a year (876 hours).

Note 2 – see improvement conditions 1 and 2

Note 3 – Emission points and locations as detailed on the plan contained in Figure 4, Point Source Emissions Plan 2017, revision PO1, dated 25/05/17

Table S4.3, as referenced in conditions 3.1.1, 3.6.1 and 3.6.4 is amended as follows:

Table S4.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
PDS 1-29 (locations as indicated on Figure 12B, issue B submitted on 15/10/07)	--	Condensate knockout pots, boiler blowdown and surface water run-off	--	--	--	--
OCU PDS (as indicated on Figure 12, issue B submitted as part of the application)	--	Liquor from odour control units	--	--	--	--
Odour Abatement Plant Liquor Discharge to ASP2 (as indicated on Figure 12, issue B submitted as part of the application)	--	Liquor from odour control units	--	--	--	--
PDS30 (locations as indicated Figure 12B, submitted as part of the variation application)	--	Biogas Treatment Plant	--	--	--	--
D1 Flow Splitter Chamber– as detailed on the plan contained in Figure 4, Point Source Emissions Plan 2017, revision PO1, dated 25/05/17	--	Sludge liquor returns from SAS Thickening Process	No limit set	--	--	--

Schedule 3 – conditions to be added

None.

Schedule 4 – amended plan

Amended plan attached