Variation notice with introductory note

Environmental Permitting (England & Wales) Regulations 2007

Ruabon Chemical Works

Solutia UK Ltd
Ruabon Works
Cefn Mawr
Wrexham
LL14 3SL

Variation notice number
EPR/NP3335GR/V002

Permit number
EPR/NP3335GR

Ruabon Chemical Works
Permit Number EPR/NP3335GR

Introductory note

This introductory note does not form a part of the permit

The following notice, which is issued pursuant to regulation 20 and Part 1 of Schedule 5 of the Environmental Permitting (England and Wales) Regulations S.I.2007 No. 3538 (the Regulations), gives notice of the variation of an environmental permit to operate a regulated facility.

The Solutia manufacturing operation is being closed (Sept 08 – Jan 09), however, operation of the waste water treatment plant (WWTP) and other support services will be retained by Solutia (to support DuPont AirProducts NanoMaterials who also have a permit to operate on the facility). This variation covers the a)closure of the Di-Phenyl Guanidine (DPG), Tri-Methyl Quinoline (TMQ) and Pre-Vulcanisation Inhibitor (PVI) manufacturing units b)closure of the Nitrogen generation facilities c)modification of the WWTP, Process Water Treatment Plant, Power House, Compressed Air Generation, Waste storage and arrangements for disposal of the DuPont effluent.

The most significant change is to the WWTP which takes the facility's effluent and discharges to the River Dee. Due to the reduced load on the Solutia WWTP (following closure of the its three organic chemicals plants) it will not be possible to operate the biotreactor –the WWTP becomes a physico-chemical operation only. The DuPont operation is an inorganic chemistry process, however, small quantities of organic chemicals are also used.

After closure of the Solutia operations the remaining effluent streams are: i)DuPont Main plant (containing inorganics + acetic acid discharged to the Dee as sodium acetate) ii)DuPont Formulations, Drumming Shed, Storage Drainage & Line/Vessel Flushings (containing inorganics + range of organics), iii)Process Water Treatment Plant back-wash, iv)Power house effluent v)Bore hole water (following carbon absorption treatment) vi)WWTP Centrifuge centrate vii)Surface Rainwater.

Subject to studies, all streams except ii) will discharge via the WWTP to the River Dee. Stream ii) will either be discharged to Cefn Mawr STW via the sewer or tankered off-site for treatment.

Schedule 1 of this notice lists any deleted conditions, Schedule 2 lists any amended conditions and Schedule 3 lists any conditions that have been added.

Status Log of the permit		
Detail	**Date**	**Comment**
Application BQ4173	Received 14/08/03	
Additional information	Received Nov.03-Jan.04	Further Site Report information
Additional information	Received 16/12/03	Releases to air
Additional information	Received 11/12/03, 09/01/04	Hertel Services lease & location
Additional information	Received 30/01/04	Units and minor operational changes
Additional information	Received 05/03/04	Impact of released copper from Syton ion-exchange unit
Additional information	Received 05/03/04	Site plan
Additional information	Received 23/03/04, 01/04/04	Cadmium and Mercury in effluent
Permit BQ4173 determined	13/04/04	
Variation DP3232MG	Received 11/12/06	
Additional information	Received 26/02/07, 26/02/07, 16/03/07	H2S abatement and limits
Additional information	Received 07/03/07	Waste Water Treatment Plant operation
Additional information	Received 14/05/07	Drg.88CO1027 (revB)
Variation DP3232MG determined	24/05/07	
Transfer EPR/NP3335GR/T001	Received 22/10/08	
Transfer EPR/NP3335GR/T001	Effective 23/12/08	
Variation EPR/NP3335GR/V002???	Received 29/11/08	
Additional information	Received 03/12/08	Abstractor meeting notes
Additional information	Received 08/12/08	Fish toxicity of organic chemicals
Additional information	Received 12/12/08	Effluent monitoring
Additional information	Received 17/12/08	Drg 88/C01/048
Additional information	Received 17/12/08	Taste & odour
Additional information	Received 22/12/08	Water testing & GCMS
Additional information	Received 12/01/09	Analytical methods BS numbering
Additional information	Received 12/01/09	Updated Part A form
Additional information	Received 14/01/09	Site organisation – Spring 2009
Variation EPR/NP3335GR/V002 determined	19/01/09	

Other Part A installation permits relating to this installation		
Operator	**Permit Number**	**Date of Issue**
DuPont AirProducts NanoMaterials Ltd	BV2689	13/04/04

End of Introductory Note

Notice of variation

Environmental Permitting
(England and Wales) Regulations 2007

Permit number
EPR/NP3335GR

The Environment Agency in exercise of its powers under Regulation 20 of the Environmental Permitting (England and Wales) Regulations 2007 (SI 2000 No 3538) varies the permit as set out below.

Solutia UK Ltd ("the operator"),

whose registered office is
Corporation Road
Newport
South Wales
NP19 4XF

company registration number **03295486**

holds a permit to operate part of a regulated facility at
Ruabon Chemical Works
Cefn Mawr
Wrexham
LL14 3SL

and that permit is varied to the extent set out in Schedules 1 to 3 of this notice.

The notice shall take effect from 19/01/09

Name	Date
A Weedy	19/01/09

Authorised on behalf of the Agency

Schedule 1 – conditions to be deleted

1. None

Schedule 2 – conditions to be amended

2. Condition 1.1.1 shall be amended to:

1.1.1 The Operator is authorised to carry out the activities and the associated activities specified in Table 1.1.1.

Table 1.1.1

Activity listed in Schedule 1 of the PPC Regulations / Associated Activity	Description of specified activity	Limits of specified activity
Associated Activity	Waste water treatment	Treatment of liquid effluent prior to discharge to controlled water (River Dee). Includes rain water, abstracted water and effluent from operations on site..
Associated Activity	Process water treatment	Provision of process and cooling water from extracted river water
Associated Activity	Power house	Steam generation from two package boilers (individual capacities <20MW). Gas oil combustion: limited to periods specified for use as a stand-by fuel, for periods of natural gas interruption and for test firing
Associated Activity	Compressed air generation	Provision of compressed air for the site's operations
Associated Activity	Waste storage	Provision of designated storage areas and segregation for generated waste

3. Condition 2.1.1 shall be amended to:

2.1.1 The Permitted Installation shall, subject to the conditions of this Permit, be operated using the techniques and in the manner described in the documentation specified in Table 2.1.1, or as otherwise agreed in writing by the Agency in accordance with conditions 1.5.1 and 1.5.2 of the Permit.

Table 2.1.1: Operating techniques		
Description	**Parts**	**Date Received**
Permit Application	The response to questions 2.1 and 2.2 given in pages 6 -98 of the application	14/08/03
Variation DP3232MG Application	The response to questions C2.1 and C2.2 given in page 1 of the application	11/12/06
Additional Information	All	26/02/07, 26/02/07, 16/03/07
Additional Information	All	07/03/07
Variation EPR/ NP3335GR/V002 Application	The response to question 2a given in DOC 3 (pages 1 – 6)of the application	29/11/08
Additional information	All	12/12/08
Additional information	All	14/01/09

4. Condition 2.2.1.2 shall be amended to:

2.2.1.2 Emissions to air from the emission points in Table 2.2.1 shall only arise from the sources specified in that Table.

Table 2.2.1 : Emission points to air		
Emission point reference or description	**Source**	**Location of emission point**
CAUSTIC STORAGE[1]		
A65/1	47% Caustic Storage Tank	Road 3
A65/2	25% Caustic Storage Tank	Road 3
UTILITIES[4]		
A51/3	No.11 Package Boiler	Building 207
A51/4	No.12 Package Boiler	Building 207
A51/5	Salt Saturator Tank	North of Building 207
A56/1	Poly Aluminium Chloride Storage Tank Vent	Process Water Treatment Plant
A56/2	Sodium Chlorite Storage Tank Vent	Process Water Treatment Plant
A56/3	Hydrochloric Acid Tank Vent	Process Water Treatment Plant
WASTE WATER TREATMENT PLANT (WWTP)[4]		
A71/1	Sludge Handling Odour Extraction System	North of Sludge Handling Tanks
A71/2	Sludge Centrifuge Odour Extraction System	South of Centrifuge Building
A71/3	Sulphuric Acid Storage Tank Vent	Chemical Storage Area
A71/4	Caustic Soda Storage Tank Vent	Chemical Storage Area

[1] Drg. 88C01023, [4] Drg. 88C01029

5. Condition 2.2.1.3 shall be amended to:

2.2.1.3 No condition applies

6. Conditions 2.2.2.4 & 2.2.2.5 shall be amended to:

2.2.2.4 The limits for the emissions to water for the parameters and emission points set out in Table 2.2.5 shall not be exceeded.

2.2.2.5 Where a substance is specified in Table 2.2.5 but no limit is set for it, the concentration of such substance in emissions to water from the relevant emission point shall be no greater than the background concentration

Emission point reference	Parameter	Limit (including Reference Period)	Monitoring frequency*	Monitoring method
W1, W2*				
	Maximum Flow Rate	92.5l/s	Continuous	On-line electromagnetic flow meter
	Maximum Discharge Volume	8000m³/day	Continuous	On-line electromagnetic flow meter
	pH	Min.6 Max.9	Continuous	On-line pH meter
	Biological Oxygen Demand (BOD) (5 day ATU @20° C)	30mg/l	Annual	BS EN 1899-1:1988 BS EN 1899-2:1988
	Chemical Oxygen Demand (COD) (2h)	250mg/l	Weekly	BS 6068-2.34:1988
	Suspended Solids (dried @ 105°C)	90mg/l	Daily	BS EN 872:2005
	Ammoniacal nitrogen (expressed as Nitrogen)	15mg/l	Daily	Ion Selective Electrode
	Free Cyanide	0.05mg/l	Weekly	ASTM D5542-94
	Total Zinc	0.5mg/l	Weekly	BS EN ISO 11885:1998 or BS EN ISO 17294-2:2006
	Total Iron	5.0mg/l	Weekly	BS EN ISO 11885:1998 or BS EN ISO 17294-2:2006
	Chloride (Cl^-)	25000kg/day	Sampling – Daily, Week-day samples are analysed, week-end samples retained until Monday's result determined.	ASTM D5542-94
	Total Phenol	0.2mg/l	Sampling and Analysis – as for chloride.	HPLC with electrochemical detector
	Total Tetrachloroethene	2.5µg/l (Note 1)	Sampling – Daily, Week-day samples are analysed, week-end samples retained until Monday's result determined.	Solvent extraction with analysis by GCMS
W3				
	Maximum Flow Rate	70.8l/s	Non-routine discharge	Manual control
	Maximum Discharge Volume	455m³/day		Manual control
	pH	Min.5 Max.10		Manual control
	Biological Oxygen Demand (BOD) (5 day ATU @ 20°C	20mg/l		BS EN 1899-1:1988 BS EN 1899-2:1988

Chemical Oxygen Demand (COD) (2h)	50mg/l	BS 6068-2.34:1988
Suspended Solids	30mg/l	BS EN 872:2005
Total Phenol	0.5mg/l	HPLC with electrochemical detector

* Monitoring frequencies do not apply to W2

Note 1: Annual average concentration.

7. Conditions 2.2.2.7 & 2.2.2.8 shall be amended to:

2.2.2.7 Emissions to sewer from the emission points specified in Table 2.2.6 shall only arise from the sources specified in that Table

2.2.2.8 Emissions to sewer from the emission point specified in Table 2.2.6 shall only be permitted when a trade effluent discharge agreement is in place with Welsh Water

Table 2.2.6: Emission point to sewer

Emission Point Reference or description	Source	Receiving Sewage Works
S1[1]	DuPont AirProducts NanoMaterials Ltd Formulation, Drumming Shed, Storage Drainage & Line/Vessel Flushings	Cefn Mawr

[1] Drg 88/C01/048

8. Condition 2.4.1.1 shall be amended to:

2.4.1.1 maintain those parts of the raw materials table or description submitted in response to Section 2e of the variation Application and Section 2.4 of the original permit Application that are relevant to the Process Water Treatment Plant, Waste Water Treatment Plant only. Consider on a periodic basis whether there are suitable alternative materials to reduce environmental impact;

9. Schedule 2 – Reporting of monitoring data shall be amended to:

Parameters for which reports shall be made, in accordance with conditions 4.1.2 and 4.1.3 of this Permit, are listed below.

Table S2: Reporting of monitoring data			
Parameter	**Emission point**	**Reporting period**	**Period begins**
Maximum Flow Rate l/s	W1	Quarterly	01/01/09
Maximum Discharge Volume m^3/day	W1	Quarterly	01/01/09
pH	W1	Quarterly	01/01/09
Biological Oxygen Demand (BOD) (5 day ATU @20° C) mg/l	W1	Annually	01/01/09
Chemical Oxygen Demand (COD) (2h) mg/l	W1	Quarterly	01/01/09
Suspended Solids (dried @ 105°C) mg/l	W1	Quarterly	01/01/09
Ammoniacal nitrogen (expressed as Nitrogen) mg/l	W1	Quarterly	01/01/09
Free Cyanide mg/l	W1	Quarterly	01/01/09
Total Zinc mg/l	W1	Quarterly	01/01/09
Total Iron mg/l	W1	Quarterly	01/01/09
Chloride (Cl^-) kg/day	W1	Quarterly	01/01/09
Total Phenol mg/l	W1, Pontcysllte Adit. Tref-y-nant Brook, Factory Boreholes (Middle, South), Brook Culvert Sump, Road Culvert Sump, Rhosymedre Quarry Leachate, Rhosymedre Quarry b/h B3	Quarterly	01/01/09
Total Tetrachloroethene µg/l	W1	Annually	01/01/09
TOC mg/l	Pontcysllte Adit. Tref-y-nant Brook, Factory Boreholes (Middle, South), Brook Culvert Sump, Road Culvert Sump, Rhosymedre Quarry Leachate, Rhosymedre Quarry b/h B3	Quarterly	01/01/09
Micro-pollutants	Pontcysllte Adit. Tref-y-nant Brook, Factory Boreholes (Middle, South), Brook Culvert Sump, Road Culvert Sump, Rhosymedre Quarry Leachate, Rhosymedre Quarry b/h B3, River Dee Upstream, River Dee Downstream	Quarterly	01/01/09
Water usage		Annually	01/01/09
Energy usage		Annually	01/01/09
Waste disposal		Annually	01/01/09

10. Schedule 3 – Forms to be used shall be amended to:

Table S3: Reporting Forms		
Media / parameter	**Form Number**	**Date of Form**
Water (excluding sewer)	W1	01/03/04
Energy	E1	01/03/04
Waste Return	R1	01/03/04
Water usage	WU1	01/03/04

11. Schedule 4 – Reporting of performance data shall be amended to:

Data required to be recorded and reported by Condition 4.1.3. The data should be assessed at the frequency given and reported annually to the Agency.

Table S4.1: Annual Production/Treatment	
Standard Unit Output[1]	

Table S4.2: Performance parameters		
Parameter	**Frequency of assessment**	**Performance indicator**
COD	Annually	COD/standard unit output
Ammoniacal nitrogen	Annually	Ammoniacal nitrogen/standard unit output

[1] Facility

Schedule 3 – conditions to be added

12. Conditions 2.1.4 to 2.1.9 shall be added:

2.1.4 The Operator shall, subject to the conditions of the permit, evaluate the effects of modifying the Waste Water Treatment Plant including the impact on the river Dee and the capability of Cefn Mawr STW to accept effluent (Table 2.2.6) from the facility for treatment. Studies should include, but not be limited to, DTA (Direct Toxicity Assessment) and analytical monitoring. The period of the studies shall be 3 months from the issue of this variation or an alternative period to be agreed in writing with the Environment Agency. On completion of the studies a full report on the outcomes of all the studies shall be sent to the Environment Agency.

2.1.5 The Operator shall carry out a programme of DTA monitoring that shall include sampling and testing (in accordance with the Environment Agency's Guidance on the use of Direct Toxicity Assessment in PPC Impact Assessments) on:

a)Cefn Mawr STW discharge prior to receiving effluent from the facility (base-case conditions).
b)Cefn Mawr STW discharge after a period of receiving effluent from the facility.
c)The Waste Water Treatment Plant discharge following segregation (Table 2.2.6) of the organic streams and cessation of biological treatment (to confirm the acceptable DTA results achieved on simulated effluent).

2.1.6 Following segregation of the organic streams the Operator shall carry out an analytical monitoring programme according to Table 2.1.2

Table 2.1.2: Effluent Monitoring Programme

Parameter	Sample Source	Monitoring frequency	Monitoring method	Objective
Sodium Acetate	W1 WWTP Final Effluent*	Daily except week-ends & bank holidays	Dionex Ion Chromatography	Confirmation of predicted concentrations of 11mg/l
TMAH	W1 WWTP Final Effluent*	Daily	Total Nitrogen Analysis using Dr Lange Tubes	Confirmation of the absence of TMAH (Tetramethylammonium hydroxide)
	S1 Trade Effluent Discharge	Daily on start-up then weekly		Confirmation of predicted concentrations of Nitrogen
DTPA	W1 WWTP Final Effluent*	Daily except week-ends & bank holidays	HPLC	Confirmation of the absence of DTPA (Diethylenetriaminepentaacetic acid)
	S1 Trade Effluent Discharge	Daily on start-up then weekly		Confirmation of predicted DTPA concentrations
Micro-pollutants in treated ground-water	Outlet of the 3 Carbon Filters	Weekly	GCMS	Confirmation of the effectiveness of the carbon against the limits: Hydroxy-Benzo-Thiazole = 20ppb Flectol A = 2ppb Others = 2 ppb
			Phenol	Phenol Monohydric = 0.2 mg/l
			Iron	Iron = 15 mg/l
				Monitor breakthrough

* During the initial transition phase (WWTP equipment re-configuration and final biological treatment of Solutia's organic liquor) sampling will be from the outlet of the Final Settler

2.1.7 The operator shall send weekly summary reports to the Environment Agency describing progress against the conditions 2.1.4 to 2.1.6. Once these conditions have been met a WWTP and effluent disposal summary performance reporting timetable shall be agreed in writing with the Environment Agency.

2.1.8 Before sending any effluent to Cefn Mawr STW the operator shall establish, to the satisfaction of the Environment Agency, systems and procedures to ensure that if the STW is unable to receive effluent from the facility due to storm conditions or sewer blockages the effluent will be diverted to storage either for subsequent treatment by the STW or for tankering off-site for disposal outside of the Dee catchment area.

2.1.9 If, at any time, it is demonstrated that discharge of the effluent to Cefn Mawr STW is not a suitable method of disposal then the effluent shall be tankered off-site for disposal outside of the Dee catchment area and not sent to Cefn Mawr STW.