

**Permit Reference Number:** BR97151B

**Operator:** Solutia UK Ltd

**Installation:** Newport Chemical Complex

**Form Number:** A1

**Reporting of Emissions to Air for the period from: 01/01/2015 to 31/12/2015**

| Emission Point    | Substance / Parameter         | Emission Limit Value  | Result                             | Test Method        | Sample Date and Times  | Accreditation / Certification | Uncertainty |
|-------------------|-------------------------------|-----------------------|------------------------------------|--------------------|------------------------|-------------------------------|-------------|
| A1                | By-pass hours operated        | -                     | 2                                  | ---                | ---                    | ---                           | ---         |
| A2                | Oxides of Nitrogen (Gas)      | 150 mg/m <sup>3</sup> | 160 <sup>[1]</sup>                 | BS EN 14792 : 2005 | 17/12/15 12:30 – 14:30 | MCerts                        | 12.2        |
|                   | Oxides of Nitrogen (Kerosene) | 300 mg/m <sup>3</sup> | ---                                | ---                | ---                    | ---                           | ---         |
| A3                | Oxides of Nitrogen            | 450 mg/m <sup>3</sup> | N/A - Boiler 15 dismantled in 2013 |                    |                        |                               |             |
| A4 <sup>[2]</sup> | Oxides of Nitrogen            | 75 mg/m <sup>3</sup>  | 200                                | BS EN 14792 : 2005 | 28/05/15 11:40 – 13:40 | MCerts                        | 12.8        |
|                   |                               | 75 mg/m <sup>3</sup>  | 229                                | BS EN 14792 : 2005 | 27/11/15 12:38 – 14:38 | MCerts                        | 17.0        |
|                   | Carbon Monoxide               | 100 mg/m <sup>3</sup> | 165                                | BS EN 15058 : 2006 | 28/05/15 11:40 – 13:40 | MCerts                        | 10.4        |
|                   |                               | 100 mg/m <sup>3</sup> | 28.3                               | BS EN 15058 : 2006 | 27/11/15 12:38 – 14:38 | MCerts                        | 2.3         |
| A6                | HCl                           | 10 mg/m <sup>3</sup>  | <1                                 | 2106               | 22/05/15 09:45 – 13:40 | ---                           | 0.02        |
|                   | Chloromethane                 | ---                   | 2116                               | 3200               | 04/03/15 08:15 – 14:30 | ---                           | 200         |
|                   |                               | ---                   | 2971                               | 3200               | 22/05/15 09:45 – 13:40 | ---                           | 300         |
|                   |                               | ---                   | 4882                               | 3200               | 01/09/15 10:20 – 13:15 | ---                           | 500         |
|                   |                               | ---                   | 3071                               | 3200               | 14/10/15 08:50 – 12:40 | ---                           | 300         |
| A12               | Phenol                        | 5 g/hr                | 0.95                               | 3406               | 21/01/15 13:48 – 14:17 | ---                           | 0.07        |
|                   |                               |                       | 0.07                               | 3406               | 05/05/15 08:57 – 09:26 | ---                           | 0.01        |
|                   |                               |                       | 0.07                               | 3406               | 18/08/15 09:12 – 09:41 | ---                           | 0.01        |
|                   |                               |                       | 0.05                               | 3406               | 22/10/15 09:51 – 10:20 | ---                           | 0.01        |
|                   | Iso Decanol                   | 50 g/hr               | 3.44                               | 3406               | 13/03/15 07:49 – 08:18 | ---                           | 0.29        |
|                   |                               |                       | 5.52                               | 3406               | 19/05/15 09:09 – 09:38 | ---                           | 0.47        |
|                   |                               |                       | 4.99                               | 3406               | 18/08/15 09:12 – 09:41 | ---                           | 0.42        |
|                   |                               |                       | 3.69                               | 3406               | 22/10/15 09:51 – 10:20 | ---                           | 0.31        |
|                   | Iso Octanol                   | 50 g/hr               | 1.80                               | 3406               | 21/01/15 13:48 – 14:14 | ---                           | 0.15        |
|                   |                               |                       | 1.01                               | 3406               | 05/05/15 08:57 – 09:26 | ---                           | 0.08        |
|                   |                               |                       | 23.83                              | 3406               | 07/08/15 09:00 – 09:29 | ---                           | 1.98        |
|                   |                               |                       | 4.48                               | 3406               | 05/11/15 09:45 – 10:14 | ---                           | 0.37        |
| A15/A30           | Benzene                       | 20 g/hr               | 2.16                               | 7023               | 31/12/15 - Calculation | ---                           | NA          |
| A16               | Benzene                       | 100 g/hr              | 54.3                               | 3104               | 08/12/15 10:15 – 14:15 | ---                           | 4.34        |

\* Other Emission Points to feature upon commissioning of TH3, and CWx Plants

<sup>[1]</sup> Discussed, and considered an 'Approach to Limit' i.e. within uncertainty range

<sup>[2]</sup> Limits apply to GT operation, but non-operational post 03/15

**Signed \*:**



**Date:** 26/01/2016

( \* authorised to sign as representative of the Operator)

**Date of Form:** 31/03/11

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**Operator:** Solutia UK Ltd

**Installation:** Newport Chemical Complex

**Form Number:** A2

**Reporting of Annual Emissions to Air for the year: 2015**

| <b>Emission Point</b> | <b>Substance / Parameter</b> | <b>Annual Limit Kgs</b> | <b>Result</b> |
|-----------------------|------------------------------|-------------------------|---------------|
| A2-A4                 | Oxides of Nitrogen           | 20000                   | 9577          |
| A2-A4*                | Oxides of Sulphur            | 6000                    | ---           |
| A6**                  | Chloromethane                | 42000                   | 17236         |
| A12                   | Phenol                       | 50                      | <1            |
| A15-17                | Benzene                      | 800                     | 449           |

\* Effectively zero since final burning of HFO in 2012

\*\* Does not include an additional small measured amount of 503 kg from 2 Effluent Collection Tanks

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**Installation:** Newport Chemical Complex

**Form Number:** R1

**Reporting of Waste Disposal and Recovery for the year: 2015**

| Waste Description              | Disposal       |                 |                     | Recovery       |                         |
|--------------------------------|----------------|-----------------|---------------------|----------------|-------------------------|
|                                | Landfill<br>D1 | Treatment<br>D9 | Incineration<br>D10 | Cemfuel®<br>R1 | Material<br>R2,R3,R4,R5 |
| <b>1) Hazardous Wastes</b>     |                |                 |                     |                |                         |
| Named haz. Waste               | 0              | 0               | 0.8                 | 969.9          | 0                       |
| Other hazardous wastes         | 0              | 0               | 42.6                | 100.7          | 1.5                     |
| Total hazardous waste          | 0              | 0               | 43.4                | 1068.7         | 1.5                     |
| <b>2) Non-Hazardous Wastes</b> |                |                 |                     |                |                         |
| Named non-haz. Waste           | 879.3          | 0               | 0                   | 0              | 0                       |
| Other non-hazardous wastes     | 804.9          | 0               | 7.8                 | 0              | 213.3                   |
| Total non-hazardous waste      | 1684.2         | 0               | 7.8                 | 0              | 213.3                   |
| <b>TOTAL WASTE</b>             | 1684.2         | 0               | 51.2                | 1068.7         | 214.8                   |

| Trends in Waste Disposal and Recovery |                |                |                       |
|---------------------------------------|----------------|----------------|-----------------------|
| Year                                  | Parameter      |                |                       |
|                                       | Named<br>Waste | Total<br>Waste | Waste per unit output |
| 2010                                  | 778            | 1171           | 0.014                 |
| 2011                                  | 1033           | 2104           | 0.022                 |
| 2012                                  | 1122           | 2488           | 0.029                 |
| 2013                                  | 1546           | 2662           | 0.035                 |
| 2014                                  | 1106           | 2418           | 0.029                 |
| 2015                                  | 1850           | 3019           | 0.034                 |
|                                       |                |                |                       |
|                                       |                |                |                       |
|                                       |                |                |                       |

**Operator's comments:**

- Waste tonnage for the 2015 period includes approximately 800t of spoil arising from construction project(s)

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**Installation:** Newport Chemical Complex

**Form Number:** WU1

**Reporting of Water Usage for the year: 2015**

| Water Source             | Usage<br>(m <sup>3</sup> ) | Specific Usage<br>(m <sup>3</sup> /t) |
|--------------------------|----------------------------|---------------------------------------|
| Mains water              | 943807                     | 10.71                                 |
| Potable / Non-Potable    | ---                        | ---                                   |
| <b>TOTAL WATER USAGE</b> | 943807                     | 10.71                                 |

| Trends in Water Usage |                   |
|-----------------------|-------------------|
| Year                  | Total Water Usage |
| <b>2010</b>           | 1173469           |
| <b>2011</b>           | 1166776           |
| <b>2012</b>           | 988596            |
| <b>2013</b>           | 1000672           |
| <b>2014</b>           | 1032333           |
| <b>2015</b>           | 943807            |

**Operator's comments:**

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**Installation:** Newport Chemical Complex

**Form Number:** E1

**Reporting of Energy Usage for the year: 2015**

| Energy Source                      | Energy Usage            |                         | CO <sub>2</sub><br>Produced<br>(tonnes) |
|------------------------------------|-------------------------|-------------------------|-----------------------------------------|
|                                    | Delivered Energy<br>MWh | Primary Energy<br>(MWh) |                                         |
| Electricity Imported <sup>1</sup>  | 8556                    | 22220                   | 3694                                    |
| Site Generated by CHP <sup>4</sup> | 1221                    | ---                     | ---                                     |
| Site Generated by Wind Turbine     | 9595                    | 9595                    | ---                                     |
| Gas <sup>2</sup>                   | 185840                  | 185840                  | 35300                                   |
| Oil <sup>3</sup>                   | 14.2                    | 14.2                    | 3.7                                     |
| <b>TOTAL<sup>5</sup></b>           | 204005                  | 217669                  | 38998                                   |

| Trends in Energy Usage |                         |                             |                                             |
|------------------------|-------------------------|-----------------------------|---------------------------------------------|
| Year                   | Parameter               |                             |                                             |
|                        | Primary Energy<br>usage | CO <sub>2</sub><br>produced | CO <sub>2</sub> per tonne<br>product output |
| <b>2010</b>            | 197,261                 | 35,666                      | 0.41                                        |
| <b>2011</b>            | 212,473                 | 41,674                      | 0.42                                        |
| <b>2012</b>            | 249,192                 | 45,375                      | 0.53                                        |
| <b>2013</b>            | 238,099                 | 43,267                      | 0.56                                        |
| <b>2014</b>            | 225,798                 | 41,161                      | 0.49                                        |
| <b>2015</b>            | 217669                  | 38998                       | 0.44                                        |

\* Conversion factor for m<sup>3</sup> Gas used = 10.904

**Operator's comments :**

1. Conversion factor for delivered electricity to primary energy = 2.597
2. Is all gas used on site including that used in the CHP plant
3. 'Oil' is Kerosene, emission factor 43.9 GJ/t
4. Electricity Site Generated by CHP is only that fraction of CHP generated that was used on site, the remainder being exported from site
5. The amount of CHP generated electricity used on site is excluded from the total because the gas used to generate it has been included
6. Wind Turbine power used (i.e. Generated minus consumed minus any export)

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### Reporting of Performance Indicators for the year: 2015

#### Environmental Performance Indicators

| Parameter                         | Annual Emission | Units | Trends in Environmental Performance |           |                 |           |            |            |               |                  |
|-----------------------------------|-----------------|-------|-------------------------------------|-----------|-----------------|-----------|------------|------------|---------------|------------------|
|                                   |                 |       | Year                                | Parameter |                 |           |            |            |               |                  |
|                                   |                 |       |                                     | COD kg/t  | DTA (mean NOEC) | VOCs kg/t | POCP Score | Bypass hrs | Auxiliary hrs | Efficiency CHP % |
| Effluent COD                      | 831407          | kg    | 2010                                | 8.9       | 19.8            | <0.1      | 58         | n.a.       | n.a           |                  |
| VOCs <sup>[1]</sup>               | 7235            | kg    | 2011                                | 10.2      | 11.8            | <0.1      | 74         | 114        | 177           |                  |
| Ozone Creation (POCP)             | 61.9            | t     | 2012                                | 9.1       | 15.8            | <0.1      | 61         | 7          | 161           |                  |
| CHP by-pass stack usage           | 2               | hrs   | 2013                                | 10.5      | 16.1            | <0.1      | 62         | 7          | 460           |                  |
| Boiler 16 aux mode <sup>[2]</sup> | 6688            | hrs   | 2014                                | 9.0       | 25.9            | <0.1      | 63         | 9.75       | 1608          |                  |
| CHP thermal efficiency            | <sup>[3]</sup>  | %     | 2015                                | 9.4       | <sup>[4]</sup>  | 0.08      | 62         | 2          | 6688          |                  |

**Operator's comments:**

1. Expressed as C
2. 'Fresh air Mode' (i.e Gas Turbine not running) [GT was shut down on 01/04/2015]
3. To be reported under CHP QA
4. End of monitoring campaign in 2014

**Total production for permitted installation (tonnes):** 88119

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