

## Schedule 6 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the PPC Regulations.

### Part A

Permit Number	EPR/DP3934EW (formerly ZP3331LP)
Name of operator	ENI UK Ltd. Liverpool Bay Asset
Location of Installation	Talacre Holywell Flintshire CH8 9RD
Time and date of the detection	14:03 03/11/2017

#### (a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution

To be notified within 24 hours of detection	
Date and time of the event	03/11/2017 14:03
Reference or description of the location of the event	POA Terminal - Thermal Oxidiser (TOX) CEMS
Description of where any release into the environment took place	Release is via TOX stack (Emission point reference – A1)
Substances(s) potentially released	Sulphur Dioxide (SO <sub>2</sub> ) Nitrogen Oxide (NO <sub>x</sub> )
Best estimate of the quantity or rate of release of substances	Hourly Average emission levels SO <sub>2</sub> – 1500 mg/nm <sup>3</sup> Hourly Average emission levels NO <sub>x</sub> – 45 mg/nm <sup>3</sup>
Measures taken, or intended to be taken, to stop any emission	Monitored SRU process parameters. CCR Operator monitoring plant operating conditions.
Description of the failure or accident.	Following start-up of the POA facilities after the pipeline span remediation, operating pressure in the Airbox of the Reaction Furnace has been increasing gradually. Source of the backpressure include significant contamination of the contact condenser in the Tail gas unit with solids and Sulphur blockages in the 2nd and 3rd condenser. Blockages in the contact condenser have worsened in the last 12 hours, increase in the backpressure from 0.4 barg to 0.6 barg has been observed. POA operations have backflushed the contact condenser several times to clear the blockage and minimize the operating pressure but the blockage hasn't been resolved. Samples of the fluid still suggest significant presence of solids in the sample.

	<p>If the Tail gas unit is taken offline, it will reduce the operating pressure in the Sulphur Recovery Unit and will help to flush the contact condenser from top to bottom in the Caustic sump. Multiple top to bottom flushes with steam condensate will help to resolve the current issues encountered with significant contamination of the fluids and provide higher reliability of Tail gas unit. Plan for resolving the contamination issues will be as follows;</p> <ul style="list-style-type: none"> <li>· TGU wet section from Contact condenser will be bypassed and the tail gas from the downstream of the Reducing Gas Generator will be diverted to the Thermal Oxidiser (TOX). RGG will remain online to allow a quicker turnaround of TGU.</li> <li>· Once the Caustic sump is emptied by Veolia Tanker this afternoon, Contact Condenser will be flushed from top to bottom. Strainers on the pump suction will be taken out for clearing. Sample will be collected to ascertain the level of contamination in the system.</li> <li>· Next flushing activity will be carried out on Monday i.e. when the tanker is available again to take away the Spent Caustic sump/fluids retrieved from the column.</li> <li>· Once the results of the sample taken after the flushing activity confirm that the contamination has reduced to acceptable levels, the wet section will be put back into service and the gases will be diverted again to the TOX via the TGU.</li> </ul> <p>The offline duration is expected to be a week considering the availability of the tankers, the flushing activity duration and the start-up of the TGU Amine section</p>
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<b>(b) Notification requirements for the breach of a limit</b>	
<b>To be notified within 24 hours of detection unless otherwise specified below</b>	
Emission point reference/ source	A1 Thermal oxidizer
Parameter(s)	SO <sub>2</sub> Hourly Average
Limit	190 mg/nm <sup>3</sup>
Measured value and uncertainty	1500 mg/nm <sup>3</sup> +/- 300 mg/nm <sup>3</sup>
Date and time of monitoring	Continuous Monitoring System
Measures taken, or intended to be taken, to stop the emission	Stabilize the Sulphur Recovery Unit and commence flushing operations on the Tail Gas Unit Contact Condenser

<b>Time periods for notification following detection of a breach of a limit</b>	
<b>Parameter</b>	<b>Notification period</b>
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-	

<b>(c) Notification requirements for the detection of any significant adverse environmental effect</b>	
<b>To be notified within 24 hours of detection</b>	
Description of where the effect on the environment was detected	-
Substances(s) detected	-
Concentrations of substances detected	-
Date of monitoring/sampling	-



## Part B - to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.

During this excursion event, SO<sub>2</sub> emissions measured by the TOX CEMS exceeded the DCS range and were therefore undetermined. These elevated SO<sub>2</sub> emissions also impacted the measurement of NO<sub>x</sub> emissions by the TOX CEMS, giving rise to artificial zero NO<sub>x</sub> readings.


Two causes of the increased TOX SO<sub>2</sub> emissions were identified, a blockage in the Sulphur Plant and contamination in the Tail Gas Unit Contact Condenser.

Due to the uncertainty of both SO<sub>2</sub> and NO<sub>x</sub> emissions data from the TOX CEMS, independent emissions monitoring was undertaken using mobile equipment at the TOX by Socotec Ltd., the results of which confirmed excessive SO<sub>2</sub> emissions, NRW were notified immediately by 'phone and gas production was stopped at 1741 on 10<sup>th</sup> November 2017 (plant put into recirculation mode to maintain plant temperature). This emissions monitoring also confirmed that NO<sub>x</sub> emissions were within the PPC permitted ELV.

The Sulphur Recovery Unit blockages were subsequently cleared and the Tail Gas Unit Contact Condenser flushed multiple times using expertise from both Sulphur Experts Ltd. (Canada) and Worley Parsons Engineering Services. Gas production restarted on 2149 on 14<sup>th</sup> November 2017 following which both the SO<sub>2</sub> and NO<sub>x</sub> emissions returned to within the PPC permitted ELVs.

Production restart was managed at an initially low rate, to enable an assessment to be made regarding the outcome of the remedial works and sulphur plant performance. During this phased process, further blockages in the Tail Gas Unit's Contact Condenser occurred, which could only be identified after it was brought online. Consequently the Tail Gas Unit was taken offline again at 0603 on 15<sup>th</sup> November 2017. Further flushing operations were then undertaken and the Tail Gas Unit was put back into service and stabilized at 1859 on 15<sup>th</sup> November 2017. During this 12 hour period of operation without the TGU online, TOX SO<sub>2</sub> emissions exceeded the permitted ELV, but remained within the DCS range without the TGU online (c. 1400 mg/m<sup>3</sup>).

	<p>Currently the TOX emissions continue to be closely monitored and remain stable, within permitted ELVs, with SO<sub>2</sub> emissions ranging between 55 and 70 mg/nm<sup>3</sup>.</p> <p>NRW (Beth Voice and Ian Oakes) fully engaged by telephone and email throughout this process.</p>
Measures taken, or intended to be taken, to prevent a recurrence of the incident	<p>Reassurance Plan developed to prevent reoccurrence and ensure that key equipment was functional/sulphur blockages fully cleared prior to restarting production.</p> <p>Daily monitoring of SRU and TGU operations remains ongoing, with particular focus on monitoring sulphur inventory.</p> <p>Daily flushing of the Contact Condenser also continues to be undertaken, to remove risk of contamination by residual SO<sub>2</sub> carryover that may remain within the vessel trays.</p> <p>A study has also been commissioned by Worley Parsons, the design firm that constructed the POA Gas Terminal, to identify further Sulphur Recovery Unit performance improvement opportunities.</p>
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	<p>Gas production halted on 10<sup>th</sup> November as soon as excessive SO<sub>2</sub> emissions were confirmed by the third party emissions monitoring. Routine odour monitoring at site boundary also conducted regularly throughout this period.</p>
The dates of any unauthorised emissions from the installation in the preceding 24 months.	<p>Previous unauthorized emissions were:</p> <p>a. 3<sup>rd</sup> November 2017 (148 minutes, SO<sub>2</sub> Peak 623 mg/nm<sup>3</sup>)</p> <p>b. 4<sup>th</sup> September 2017 (97 minutes, SO<sub>2</sub> Peak 692 mg/nm<sup>3</sup>)</p>

<b>Name*</b>	Dhillip Sankoomar
<b>Post</b>	Plant Manager
<b>Signature</b>	
<b>Date</b>	27/11/2017

\* authorised to sign on behalf of ENI UK Ltd. Liverpool Bay Asset