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Date: 30th January 2024

Subject: Solutia UK Ltd, Newport Chemical Complex – EPR Permit Number: BR9715IB
Permit Condition 4.2.2 – Annual Activity Performance Review

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to NRW by 31st January (or other date agreed in writing by NRW) each year. The report(s) shall include as a minimum:

- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;*
- (b) the annual production / treatment data set out in schedule 4 table S4.2;*
- (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule*

As such the following should serve as interpretive commentary on the annual Permit forms submitted for the preceding years performance

Table S4.1 - Reporting of Monitoring Data

Emissions to Air

Throughout 2023, Boiler 16 (main duty boiler) continued to operate predominantly in CHP configuration in conjunction with the Gas Turbine unit. Emission tests conducted on both; Boiler 16 and the Condensing Economiser (waste heat recovery unit) indicated compliance for NO_x emissions, however there were some instances whereby the emissions were out of compliance on occasion Vs the CO emission limit - with x2 Notifications being submitted during the period. This is considered as a result of reduced site steam demand (a reduced production throughput tonnage during the 2023 period) resulting in some unexpected challenges to balance; energy efficiency, emissions compliance, and export control, with efforts continuing to find optimal configuration

When the Dequest plant was in operation, chloromethane emissions were comparable to previous years, with the spot samples continuing to be somewhat variable. A mass balance approach was again conducted for the annual period (considered to be more representative), and this indicated a similar mass release value for the year. The higher of these values was reported in the annual permit returns. The HCl emissions test was also within specification as per previous years

Benzene is released from the Benzene storage via conservation vents. As vapour return is utilized when filling, releases of benzene to atmosphere are due to breathing losses i.e. when the temperature

fluctuates (day & night) a quantity of benzene vapour present in the tank headspace is released. The benzene emissions are comparable to previous years, and within the Permitted limit

The TH3 Therminol Pyrolysis Furnaces were subject to a Permit Improvement item the previous year due to elevated NOx emissions. Following project completion in 2022, the NOx emissions have since been within compliance throughout all of 2023. Benzene emissions from these furnaces was typically low (below LOD), and the smaller Biphenyl & Santowax furnaces on TH3 were similarly compliant with the NOx limits throughout the year. The TH2 Pyrolysis furnace was not running during the latter part of the year (and remains off in to 2024), and so was unavailable to monitor

Emissions to Water

Emissions to water were reported on a quarterly basis for the permit listed parameters. In terms of compliance Vs emission limit(s), there were x2 Notifications submitted for breaches of the Formaldehyde limit. One was in relation to an overflow of the Dequest 'Scrub Water Tank', and the other necessitated an investigation to identify likely cause. Aside from the specific SWT issue, the parameter has more recently been in compliance, and these items will shortly be followed-up by Part B Notification responses. All other parameters were within compliance for the annual period

x3 other Notifications related to effluent did feature in 2023 – these comprising:

- pumping of effluent during the permit specified 'cease discharge' period. This was as a result of sustained heavy rainfall and was required to avoid localised site flooding (all discharge parameters in consent)
- A small leak on effluent re-circulation pipeline – subsequently replaced with a more resistant material, and;
- A Notification of a leak on the main site effluent pipeline which occurred externally to the main site and necessitated a coordinated response to; minimise loss to the meadowland area, and to effect repairs. The investigation findings have yet to be published & reported via Part B follow-up submission

Greater Crested Newts

This review is a prompt that the periodic GCN's (Greater Crested Newts) report is due. The reports are undertaken by a third party, and can be forwarded as soon as in receipt

Table S4.2 – Annual Production / Treatment

Production of Chemicals

Production tonnage was reported in the annual Permit Returns, and for 2023 amounted to 62985 tonnes. This was appreciably down compared to previous years, with some of the production units being non-operational for periods during the year. The site also underwent a full site shut-down for a period to undertake the aforementioned effluent pipeline repair

Table S4.3 – Performance Parameters

Effluent COD

The P1 Returns form shows ongoing COD emissions expressed as kg/t. This is in-line with previous year(s). As mentioned in previous reports, the observable step-change increase in 2017 corresponds to the mothballing of the Bio-Treatment Plant that year, corresponding with the cessation of the Santicizer operation

Effluent Toxicity

Effluent Toxicity (NOEC) has not been monitored or reported since 2015 following the end of an agreed toxicity monitoring campaign in 2014. This showed that with both; the Formose Plant, and the Bio-Treatment plant operating (treating formaldehyde & phenol respectively), the toxicity level was deemed insignificant

VOC

As with some of the other metrics, VOC kg/t is similarly tracked over time, and the results are comparable over the measurement period. An additional decimal place has been quoted since 2015, which gives a number for comparison rather than a <0.1 kg/t stated previously

PCOP

PCOP (Photochemical Ozone Creation Potential) shows a general longer term declining trend, but with more consistent values in recent years

Table S4.4 – Reporting Forms

Air

Refer to 'Table S4.1 – Reporting of Monitoring Data' 'Emissions to Air' section(s) above

Air (Annual Releases)

Oxides of Nitrogen are quoted using the established methodology and is within the annual emission limit. Refer also to the 'Emissions to Air' section above which outlines the issues relating to NO_x having been resolved following completion of recent upgrades on the Therminol Pyrolysis furnaces in the latter part of 2022 as per Permit Improvement Condition item IC35

Oxides of Sulphur are not reported, but justification is given on the A2 report form i.e. 'Effectively zero since final burning of HFO in 2012'. Kerosene (with < 0.1% Sulphur) has historically been retained on site as a back-up fuel, however the back-up boiler is no longer in service and as such kerosene is no longer required

Chloromethane is well within the annual limit and utilizes a rolling average of monitored concentrations. This approach has been applied to help accommodate; historical over-reporting prior to more recent MCertified methods being employed by external monitoring contractor, and also the wide variability in the spot test results. As mentioned in 'Emissions to Air' section above, an alternative mass balance method has also been conducted for; comparison, and possible adoption as a more representative value

The Benzene figure quoted comprises 'breathing' emissions from the bulk storage, and the total was within the annual limit. There was a Notification submitted relating to benzene loss during a water-draining operation, however this was fully captured in the dedicated benzene separator unit, and so no release to the environment

Water (Combined W1 + W2)

Refer to 'Table S4.1 – Reporting of Monitoring Data' 'Emissions to Water' section(s) above

Waste Return

The main waste arising from the site is Santotar, which continued to be dispatched off-site for subsequent use as Cemfuel®. There was an increase noted in the site t/t waste metric, and indeed the total quantity of waste sent for disposal. This is considered to be as a result of an annual site Improvement Plan item to minimize accumulation of waste inventory

Water Usage

All water to site is via a single metered supply. For 2023 there was a reduction of overall consumption compared to the previous year, but it must be noted that site production was also down compared to previous years, and so it wouldn't be entirely valid to compare these directly. Factors influencing water usage would remain consistent however e.g. hot weather is known to impact consumption, likewise, site shutdown(s) can similarly use appreciable volumes of water to refill the Cooling Water system prior to restarting production

Energy

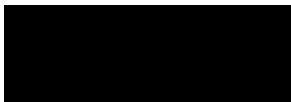
Despite a number of minor outages, the main site boiler continued to operate in Combined Heat & Power configuration throughout most of the year - as such all of the (Eastman) net electricity requirements were met via a combination of the on-site Gas & Wind Turbines. The Condensing Economizer waste heat recovery unit also operated throughout the year, for the purpose of capturing waste heat energy for use as boiler pre-heat. The on-site Energy Management Group continues to progress energy efficiency improvement projects which should further contribute to a betterment of the energy efficiency metrics in-line with corporate & site energy & CO2 targets

Although there was a reduction in total energy use for the period, the CO2 per tonne of product metric (and indeed energy per tonne) was higher than previous years due to the appreciable reduction in site production for the year and the associated baseload effects

Performance Indicators

All of the metrics listed on P1 have been detailed in the preceding sections. Thermal efficiency for the CHP has not been quoted as yet, as this is derived from the CHP QA scheme verified annual submission, which (at the time of this report) has yet to be completed for the preceding year

Signed:



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* A subsidiary of Eastman Chemical Company