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Date: 29th March 2018

Subject: Solutia UK Ltd, Newport Chemical Complex – EPR Permit Number: BR9715IB
Permit Condition 4.1.4 – Annual Review of Fugitive Emissions

Introduction

This document is an annual submission to update on Permit condition 4.1.4 which relates to fugitive emissions from the site. Included in the following sections are fugitive emissions to both air & water, as well as findings of a monitoring exercise for fugitive benzene along the benzene transfer line(s). Some additional results are also available as part of an Industrial Hygiene programme which looks at potential exposure whilst carrying out various tasks on the respective plants. Whilst these are not meant for determining fugitive emissions specifically, they do serve to give an indication of fugitive emissions in-and-around the plant during a variety of activities

[1] Air Fugitive Emissions

In the 2017 calendar year, there were a few Notifiable events which relate to air emissions from non-point source locations. These comprised:

- 11/07/2017 – Following a number of process problems on one of the TH3 pyrolysis furnace, the plant was shut down. During the associated purge cycle, benzene & biphenyl back-flowed into the CO₂ purge system. Some was released via the CO₂ vent, and subsequently captured by dedicated interceptor unit
- 25/10/2017 – Also associated with the CO₂ purge system, but in this instance, the cause was due to passing valve(s). This was a much smaller release of benzene & biphenyl, and was via a small weep hole at the base of the CO₂ purge vent
- 28/10/2018 – Failure of flexible hose on the acetone transfer line. Initially thought to be over pressurization, but later identified as failure due to a range of mechanical effects. Estimate of approximately 100L to bund area

In each instance a Part A Notification was submitted, and followed-up by a Part B, detailing findings of the respective investigations. Where applicable also, the quantities released have been incorporated into the annual emissions reports

[2] Water Fugitive Emissions

All of the site; process waters, and surface waters are collected, and treated via a common system, meaning that it is not normally possible to differentiate between normal process effluent and fugitive discharges. During 2017 however, there were no Permit Notifications related to effluent

[3] Benzene Monitoring (TH3)

Annual benzene surveys are conducted to give confidence that control measures such as: double mechanical seals, gasketing, maintenance etc. are working as intended

As per surveys on previous occasions, the method involved monitoring along the length of the benzene transfer system (where accessible), which includes: pump seals, compressor seals, control valves & flanges, pre-heater 'End Caps', flowmeters etc.

The monitoring involved use of an 'BM GasAlertMicro 5' portable Photo Ionisation Detector (PID) calibrated directly for Benzene. The instrument can measure down to 1ppm, and was employed using the following method:

- Pumps / Compressors 2cm away from rotating seal, or as near as possible to guard
- Control Valves 2cm away from seal on top of valve packing
- Pre-heaters Average of 4 points off each side

Results

Aside from some very low (LOD level) measurement, no appreciable levels of benzene were detected at any location on the benzene transfer line or equipment. This included where low levels were detected previously on the pre-heater end caps. It is likely that a change to an alternative (and softer) gasket material in 2017 has contributed to this improvement

In addition to this survey, additional monitoring has recently been conducted on the Therminol plant as part of an Industrial Hygiene monitoring programme. All results passed the current expose limits of 1ppm, and STEL 5ppm - This gives good confidence that, there is minimal fugitive benzene, in the areas where benzene is being: processed, stored, and handled

Discussion

The results of the monitoring would indicate that the various components on the system are installed & operating as intended. The TH3 plant has a comprehensive inspection programme. The results of checks are recorded in SAP, the fugitive reports being separately maintained

Signed:



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