

Permit: KP3734SH

Vopak Terminal Windmill Ltd

Annual Review of Fugitive Emission Testing.

Date: March 2016

Objective

To review the fugitive emission testing at the Windmill Site with regard to the application of Best Available Techniques. Permit Condition 4.1.4

Scope

All equipment utilised in the storage and handling of methanol on the Vopak Site, inclusive but not limited to: tank vents, pipelines, pumps, filters, flanges, seals and glands.

Exceptions

The ship unloading system is only full during ship off loading operations (less than 7%) and as such does not form part of every quarterly programmed fugitive test. Visual checks on the shipping pipelines and fitments are carried out at the commencement of every shipping operation and logged. The pipeline is fully welded from the site to the berths.

Test Methods Adopted

US EPA "Method 21" using a flame ionisation detector (Foxboro TVA 1000B)

Monitoring

- LDAR Evolve continued to carry out the quarterly monitoring in 2015.
- All valves, pumps, filters and flanges (398) tested each visit.
- The four methanol tanks tested at 16 circumferential vent positions to monitor the condition of the internal floating roof seals.

Conclusions

The methanol system continues to perform in a satisfactory condition. During the year only 4 points were identified as being above 500ppm, the self-imposed threshold for investigation. These points are repetitive but unfortunately not accessible for a detailed investigation due to plant availability. None of the points (flanges) are giving cause for concern but will continue to be monitored until the opportunity arises to change out the joints. The total calculated emissions for the year using all readings was 85 kgs.

In addition to the monitoring all Vopak methanol transfer and shipping pipelines were scanned using a long range ultrasonic testing technique. No issues were identified and pipelines remain in a good state of repair. Transfer pipelines were repainted and a plan for painting of the shipping pipeline to the berth has been timed for 2016. This would complete all the scheduled methanol pipeline repainting.

It is considered that the LDAR programme still remains the best effective means of monitoring for potential methanol leakage issues and as such will be continued to be carried out on a quarterly basis into the future.

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D Pratt