

Hexion Annual Environmental Review 2018

Introduction: Permit condition 4.2.1 requires an annual report covering the previous year to include:

- (a) a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the assessment of the impact of the emissions submitted with the application;
- (b) where the operator's management system encompasses annual improvement targets, a summary report of the previous year's progress against such targets;
- (c) the annual production /treatment data set out in schedule 5 table S5.2;
- (d) the performance parameters set out in schedule 5 table S5.3 using the forms specified in table S5.4 of that schedule; and
- (e) details of any contamination or decontamination of the site which has occurred.

Overview:

2018 continues the trend for increased production. In 2017 total production was up by ~27% and in 2018 production increased again by ~ 10%. This equates to a near 40% increase from the 2016 production figures.

From an environmental perspective, increased production requires increased usage of utilities and an increase in waste products. As long as the increases are managed well, there are economies of scale, accepting that the recipe mix also drives the figures.

This is demonstrated by the usage per tonne of utilities and the production of effluent. 2018 showed a slight increase of effluent but it is still below the pro-rata rate from 2016. The Bio-plant performed well throughout the year. Energy use per tonne of production is also improved from last year.

All emission limits on the site IPPC permit were met, although there was a short period when the continuous monitoring of effluent pH had to be done manually due to the spare probe being damaged on installation.

2018 saw a significant weather event – a Red warning for snow at the end of February. This required actions to shut down the site and minimise the effects of extreme cold weather. The experiences from this have been used to revise our adverse weather response procedure. Work has been continuing on flood planning by use of the HAZOP technique.

The number of spills reported increased, although that is partly due to a campaign encouraging the reporting of every spill, no matter what size – 'Report It Today, Prevent It Tomorrow'.

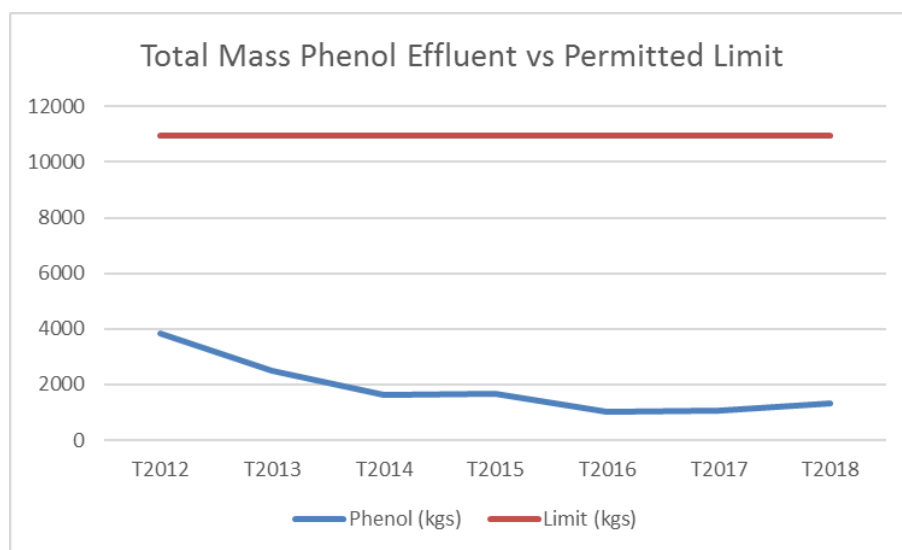
The site successfully obtained accreditation to the ISO14001:2015 standard and will continue to receive regular audits from BSI.

(a) Monitoring and Assessment:

Monitoring of waterborne emissions consists of weekly composite samples from the effluent treatment plant (ETP). 2018 showed a slight increase in the mass of phenol but it is still below the pro-rata rate from 2016. The Bio-plant performed well throughout the year and all the results were within the permitted limits. The steam main to the Bio-plant performed well and allowed the bio-mass to keep up their efficiency in the cold weather.

The graph below shows that the mass of phenol discharged from the phenol plant in 2018 is approx. 12% of the maximum allowed.

The amount of diluent water used in the Clean Lagoon, used to make up for the loss of clean effluent from the old Zeon site, is now measured. This will be continued in 2019.



Quarterly air monitoring on the scrubber and annual monitoring on the boilers gave results within the permit limits.

(b) Targets:

The 2018 Environmental Targets were set in more detail than previous years. As a result of this planning the majority were achieved. Even in the two targets that were not met there was good progress.

2018 Environmental Objectives and Targets

Date: Year End 2018

Description	YTD Progress
1 - Fugitive emissions monitoring – carry out measurement every month	13 x measurements carried out
2 - Six sigma project to reduce distillate disposal from an average of 51 T/ month to 10 T / month	Project complete – now monitoring results
3 - Zero permit exceedances	0
4 - On-time measurement and reporting (2017 annual / 2018 quarterly / CIA / Pollution Inventory / Packaging Waste / Scrubber quarterly / Boiler Annual)	2017 annual returns, packaging waste, Pollution Inventory, CIA Indicators of Performance, Q1 scrubber, Q1, Q2 and Q3 returns – 9/9
5 - Internal audits – complete 2018 audit cycle	12/12 – Emergency Preparedness, Env Policy, PHA process, Maintenance process, Legal Compliance, OMA Actions, Verification, PT Bio-plant testing, Waste, Incident Investigation effectiveness, revised MCERTS, MCERTS
6 - External and internal audit actions – on time closure	38 due – 28 closed (11 were late), 10 overdue
7 - Utility Monitoring – see print out from Plant Monthly Report	Reviewed in Monthly Management meetings – Very good figures for the year – below budget
8 – Increase concentration of formalin	Expected at year-end. Q3 update – project stopped as new supplier cannot supply to higher concentration – N/A
9 – Environmental competence	51/72
10 – Process control of Bio-plant (tracking of Bioplant dilution water)	65724m ³
11 – Environmentally critical preventative maintenance overdue	List generated – monthly metrics on Plant Report

The amount of water consumed per tonne of resin produced reduced from 3.9 m³/tonne in 2017 to 3.09 m³/tonne. Total gas and electricity consumed also fell from 0.45 MWh/tonne to 0.40 MWh/tonne. The main reasons for this is the continued monitoring of utilities on a weekly basis to be able to spot any increases in use and economies of scale.

(c) and (d) are covered by submission of the annual returns to NRW

(e) Contamination / De-contamination: No contamination or decontamination has taken place on site in 2018

Performance Management: Environmental performance is managed in a number of ways. The Support Engineer monitors utility use on a weekly basis. This is reviewed with the site Management Team every month. On a monthly basis numerous utility meters around the site are read and the readings are transferred to a spread sheet which is formatted to clearly show usage in different site areas.

A Plant Report is distributed by the Site Leader every month which summarises key utility and waste figures. This allows on-going management of utilities, waste and efficiency.

Environmental Management is a standard induction topic with on-going refresher training.