

Hexion Annual Environmental Review 2016

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

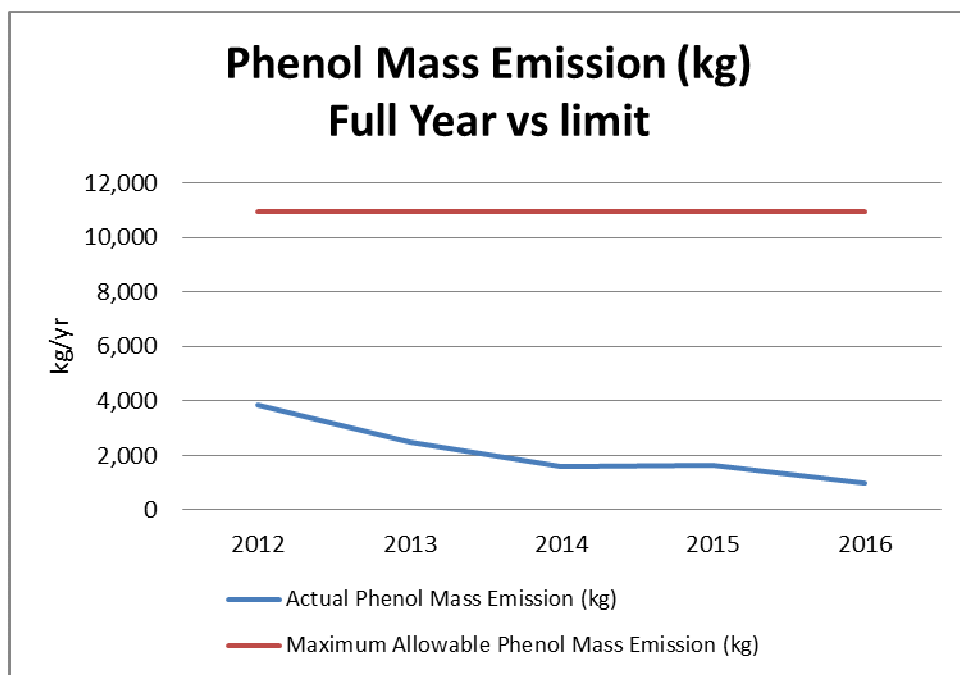
- (a) a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the assessment of the impact of the emissions submitted with the application;
- (b) where the operator's management system encompasses 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: 2016 was a challenging year due to the loss of the interconnected Zeon site. Therefore the environmental targets set were nominal as it was known that there would be uplifts in the normal environmental indicators. This was particularly seen in water and gas use. Electrical use was fairly flat. There was one permit exceedance from Boiler 2 which is explained below. Particular attention was paid to the operation of the effluent treatment plant and all samples were within permit limits.

(a) Monitoring and Assessment: Monitoring of waterborne emissions consists of weekly composite samples from the effluent treatment plant (ETP). All the results were within the permitted limits. The effect of the loss of Zeon clean effluent, which made up approx. 50% of the flow through the Clean Lagoon, would have been increased concentrations. The ETP was carefully managed to ensure that no permit exceedances occurred. At times this involved the use of non-potable water to act as a diluent which resulted in an increase in consumption of Biglis water which can be seen in Table 1 (+31600m³). Overall the volume of effluent pumped to the Estuary decreased by a third (15800m³). This amount is also influenced by rainfall although this is not a figure currently monitored. Additionally the number of distillate loads sent for waste disposal treatment increased as an alternative to the distillate being consumed by the ETP.

Continued good management of the ETP resulted in less mass of phenol being discharged which continues the general downward trend as indicated by the graph below. Formaldehyde and methanol mass emissions also decreased.

An enhancement to the ETP was made in December by the installation of a steam line. This will allow the ETP to continue to function normally in winter months by keeping the biomass warm enough to ensure it does not go dormant. An additional advantage is that using steam in this way will help with the boiler efficiency although it will obviously consume more steam. The environmental positives offset the increased steam consumption.



Quarterly air monitoring on the scrubber gave results within the permit limits. The annual boiler monitoring gave a high carbon monoxide reading above the permit limit. This was reported to NRW. The reading was the result of a mechanical fault to the control system and was fixed by specialist contractors the following day and a formal retest took place to confirm the reading was back within the permit limits.

(b) Targets: A significant change impacting the environmental performance of the site took place in 2016 when the adjacent chemical site, Zeon, ceased production and shut down. This has had an effect on several environmental indicators and, in effect, a new baseline is being established for the site. This is demonstrated in Table 1 below. In particular the new operating regime of the boilers is inherently less efficient than previously due to the much lower amount of steam required solely by Hexion and also the way in which the steam is called for, it's on/off/on/off due to the batch process whereas Zeon would call for a large amount of steam for extended periods.

The amount of Towns water being metered to site was noted to be in excess of what was being used. This resulted in investigative work to check for leaks, however none could be found. The water company were requested to change out the water meter in June. This was completed in November and only recently installed a data logger to allow comparisons to be made. This work will continue in 2017.

(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 2016

Performance Management: Environmental performance is managed in a number of ways. The Support Engineer monitors utility use on a weekly basis. This is reviewed 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.

Table 1: Comparison 2014 to 2015 and 2015 to 2016

	2014	2015	2016	% Change 14 to 15	% Change 15 to 16
Production (t)	33319	35295	35174	+5.9	0
Electricity (MWh)	5370	5329	5450	-0.8	+2
Gas (MWh)	9033	9968	11940	+10	+20
Biglis (m³)	52203	95425	127000	+83	+33
Towns (m³)	11268	18550	25622	+65	+38
Total Sealine effluent (m³)	521151	482976	325224	-8	-33
Phenol (kg)	1614	1653	1220	+2	-26
Methanol (kg)	2940	5824	3350	+98	-42
Formaldehyde (kg)	210	291	121	+39	-58
ACN (kg)	581	0	0	-100	0