



Annual Performance and Monitoring review

EPR Permit BR9685IX

Dow Silicones UK Ltd

This report is to fulfil ERP permit BR9685IX condition 4.2.2

4.2.2 - For the following activities referenced in schedule 1, table S1.1 (A1 to A18) A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31 January (or other date agreed in writing by Natural Resources Wales) 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

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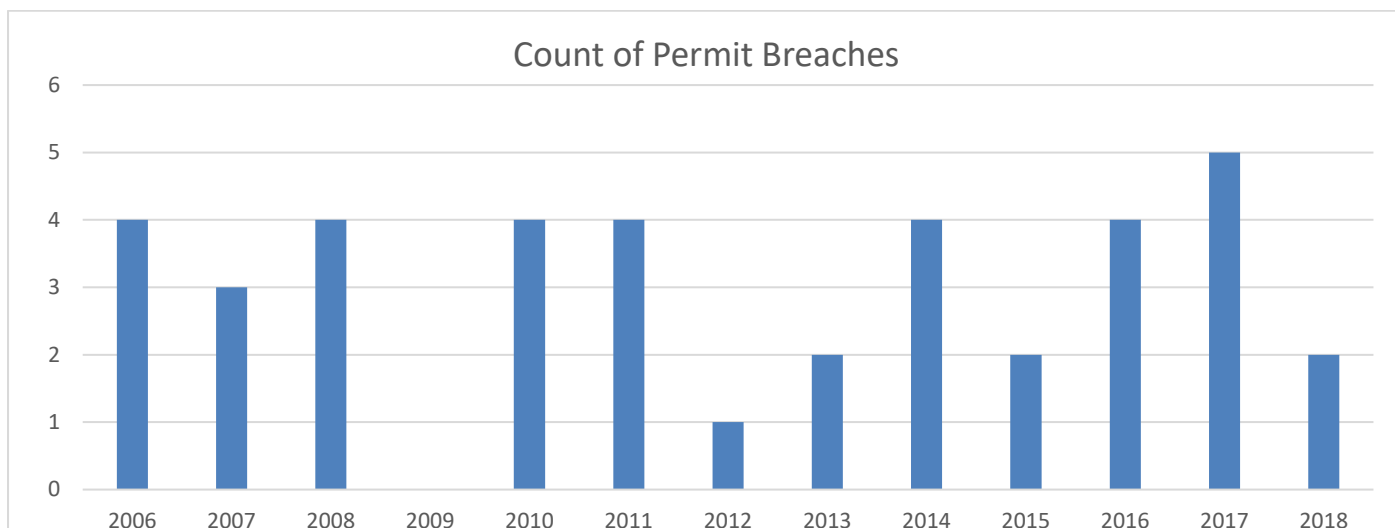
Summary

The report includes details of our performance during 2018 . SPC charts have been used for all analytical monitoring we carry out for releases to air and water.

Points of interest for 2018 :

- Further reduction in incineration due to one of the outlets struggling to process our materials.
- Methyl chloride venting to atmosphere from A12 was less than last year, but still at an increased level from previous years. This has been agreed and enables Dow Silicones to increase the on line time of one of the Recovery processes, thus reducing the quantity of solid hazardous waste produced. This waste is shipped to Europe for recovery, so reducing at source has an environmental benefit. The vented quantity is still well within the annual permitted limit.
- The annual ERU sample failed Dioxins and furans, another RCI was carried out and actions identified and either completed or in progress. Further sampling have showed the actions have been successful and the vent was well below the permit limit. Work to understand this issue are still in progress.
- The Beast from the East caused an impact on site, as it took down the CHP plant and hence the site was shut down. This caused a small methanol release in the effluent to river, due to the extremely low temperatures and loss of activity to consume methanol.
- Reclassification of calcium filter cake during the year due to the improvement of the Ca sludge water removal process.

Incidents



There were 2 permit breaches reported in 2018:

W1 – Final effluent Methanol excursion

As a direct result of the Beast from the East all the processes across the site were shutdown, mainly caused by the Combined Heat and Power plant shutting down. During this time various items of equipment around the waste water treatment process did not operate as they normally. The temperature in the biological plant became low. Based on analyser readings extra methanol was automatically dosed to the system to keep the biological plant steady. The analyser had in fact frozen and the biomass had also started to lose activity due to the cold. This meant the methanol levels in the final effluent were elevated for a short period of time. As soon as the composite sample identified this the situation was rectified.

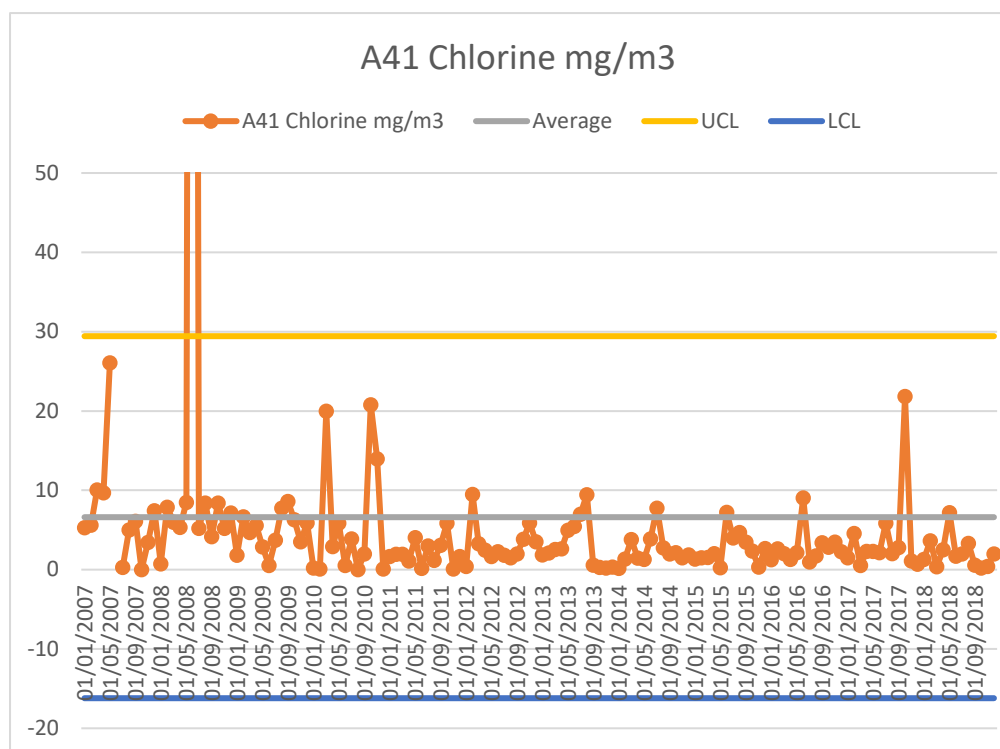
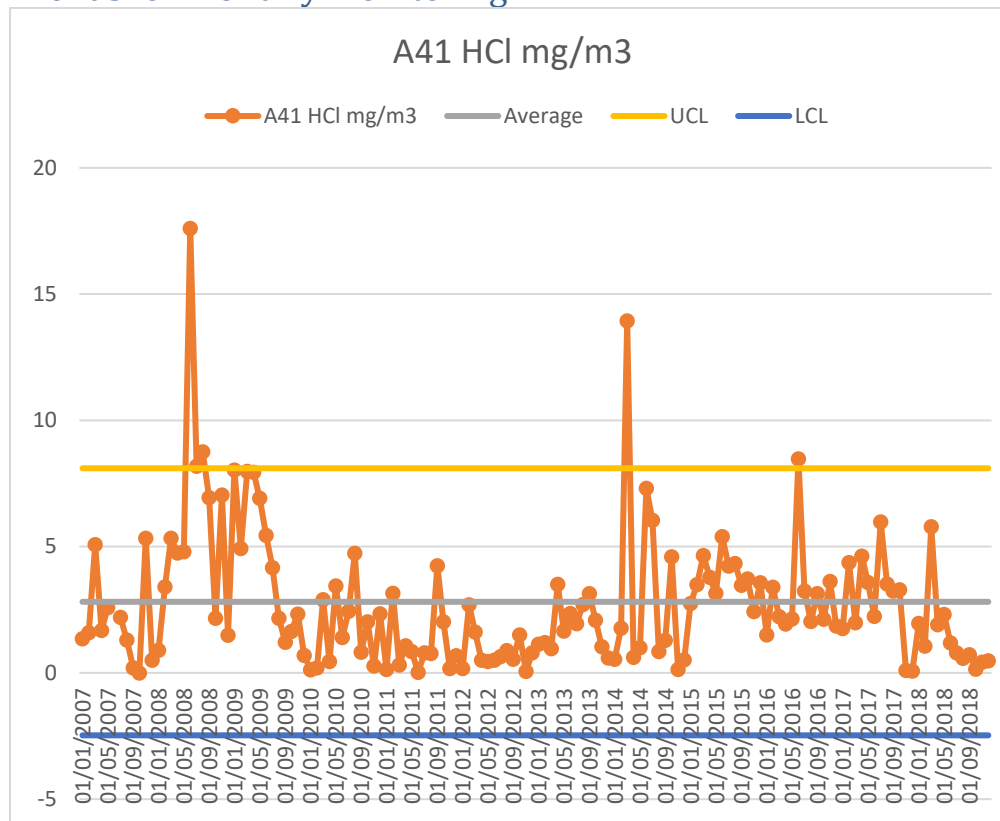
A41 (W949 ERU) – Dioxins and furans

Sample taken in April 2018 indicated that the Dioxins and furans were above the permit level. Another sample was immediately taken which also show elevated levels.

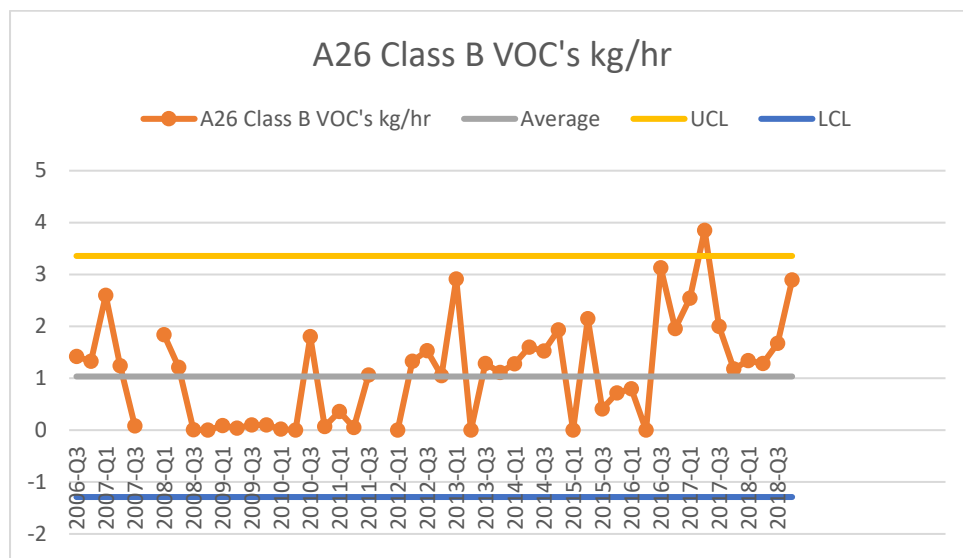
The ERU was shut down and much of the equipment was cleaned. The packing in the columns was removed and replaced with fresh. After start up the Dioxins and furans levels were sampled again monthly and have been well below the permitted level of dioxins and furans. Further investigation is ongoing and has included a full technology review.

Air monitoring

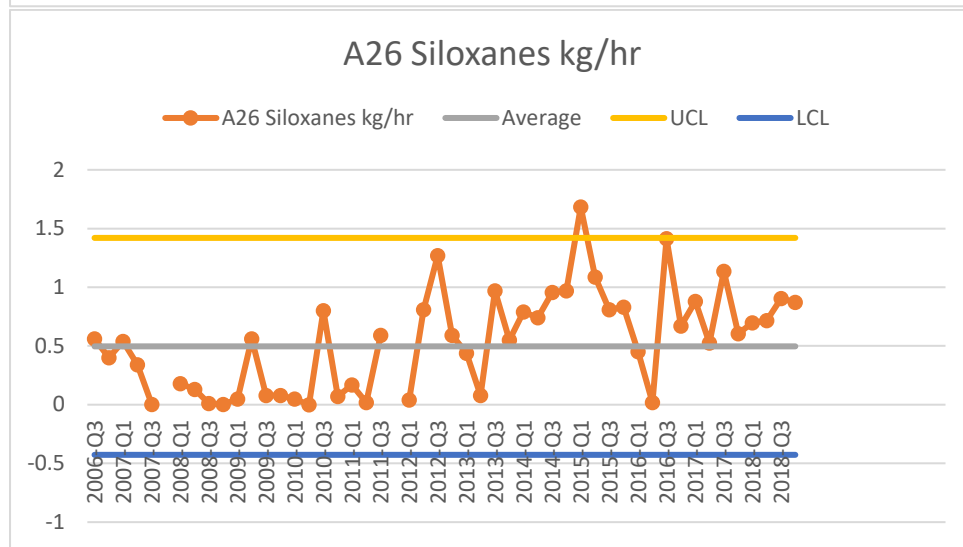
Trends for Monthly monitoring



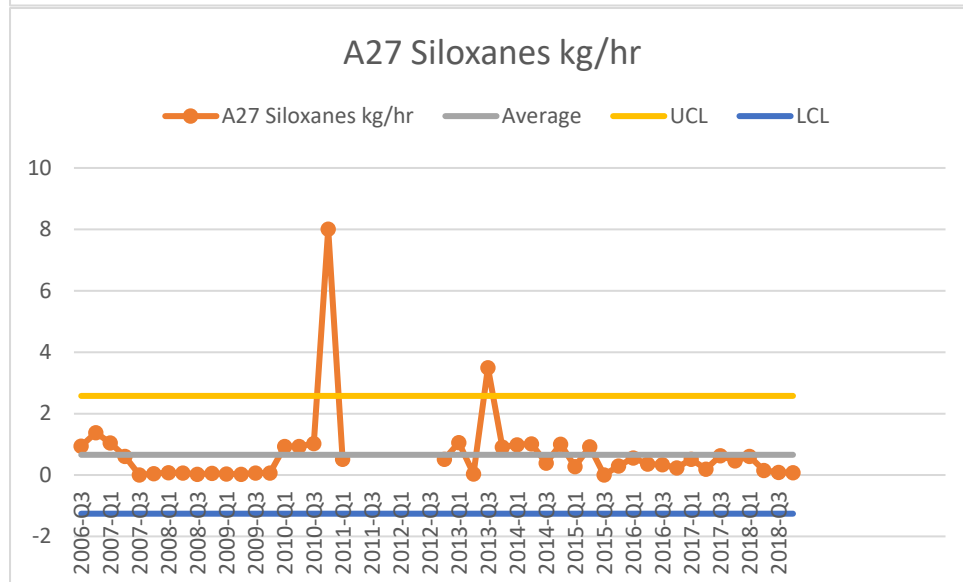
Trends for Quarterly monitoring:



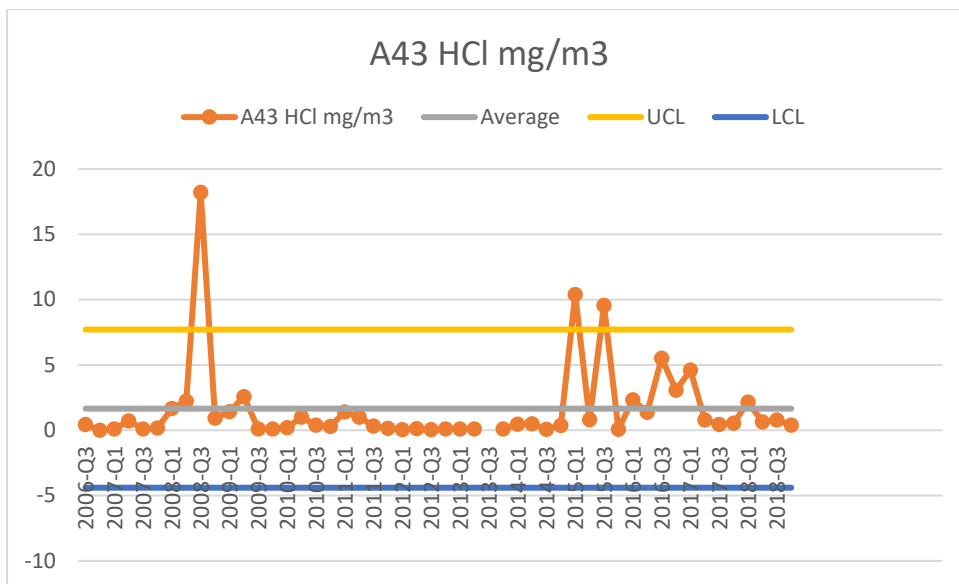
Results in control.



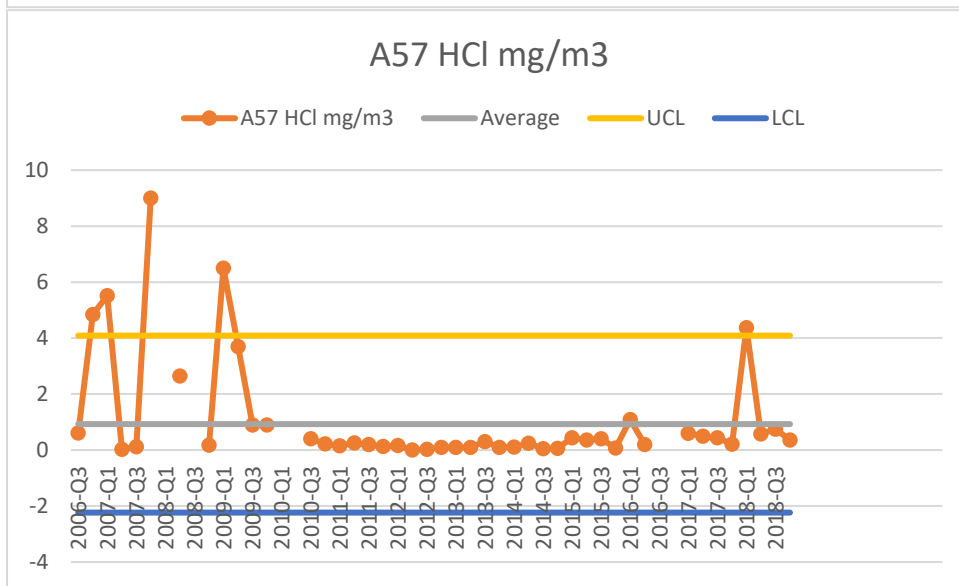
Results in control.



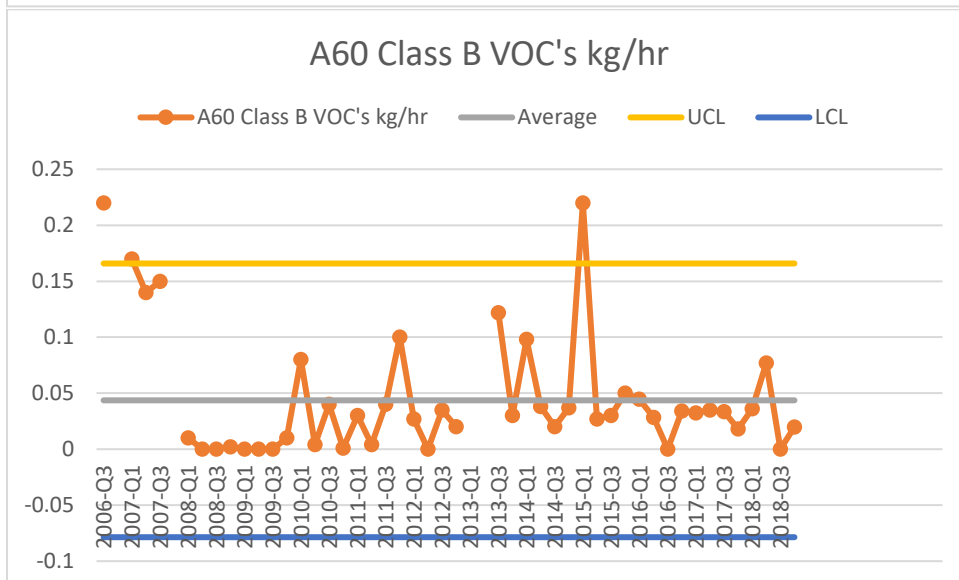
Results in control.



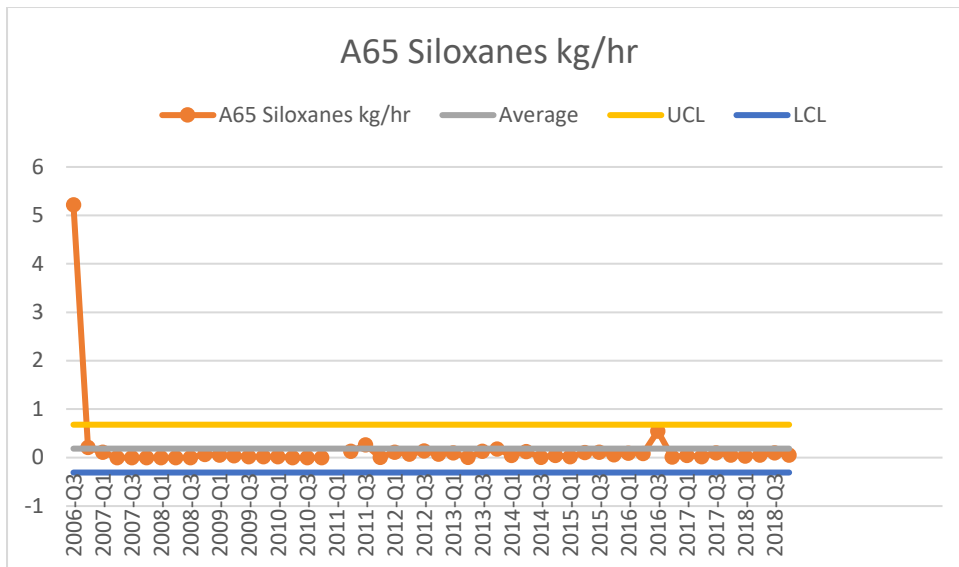
Results in control and within permit limit (10mg/m3).



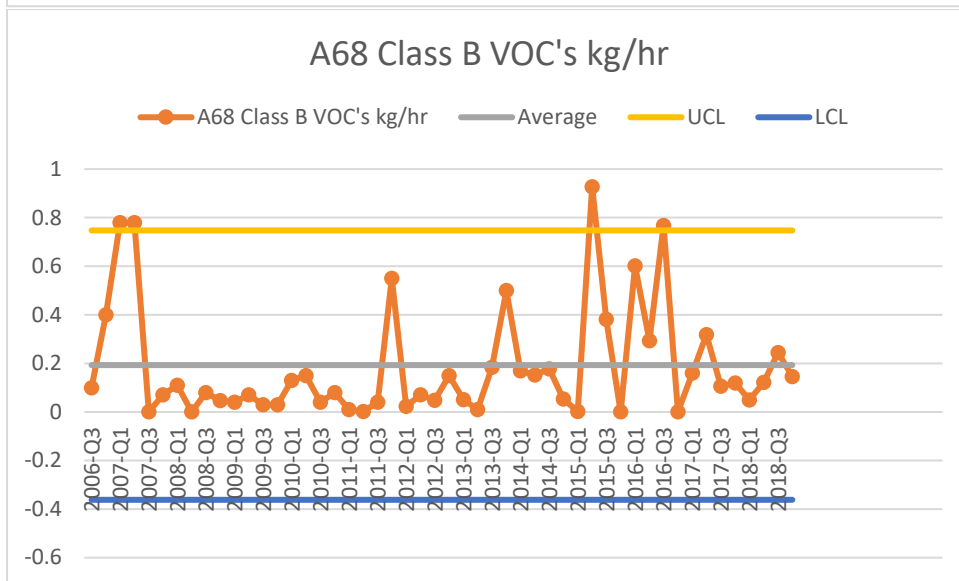
Results in control and within permit limit (10mg/m3).



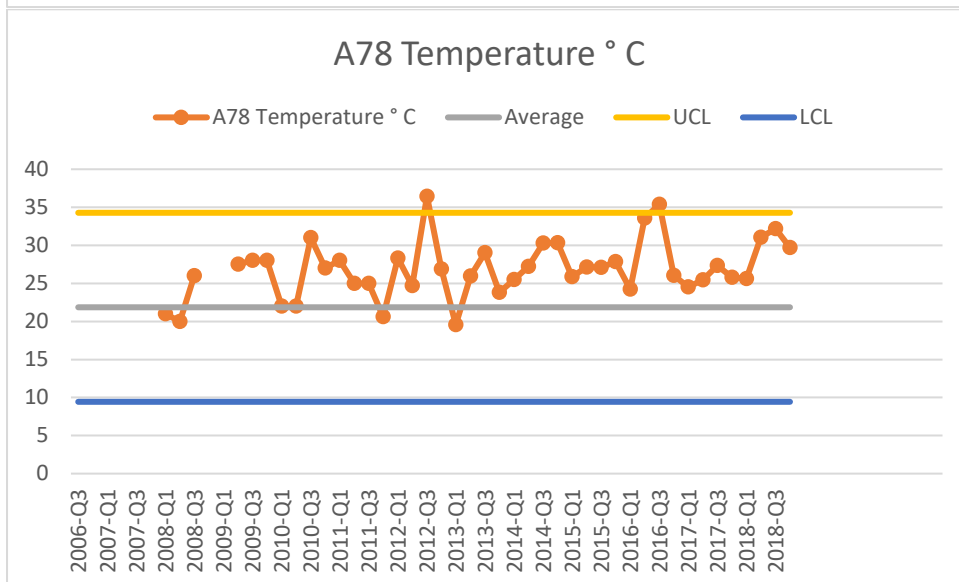
Results in control.



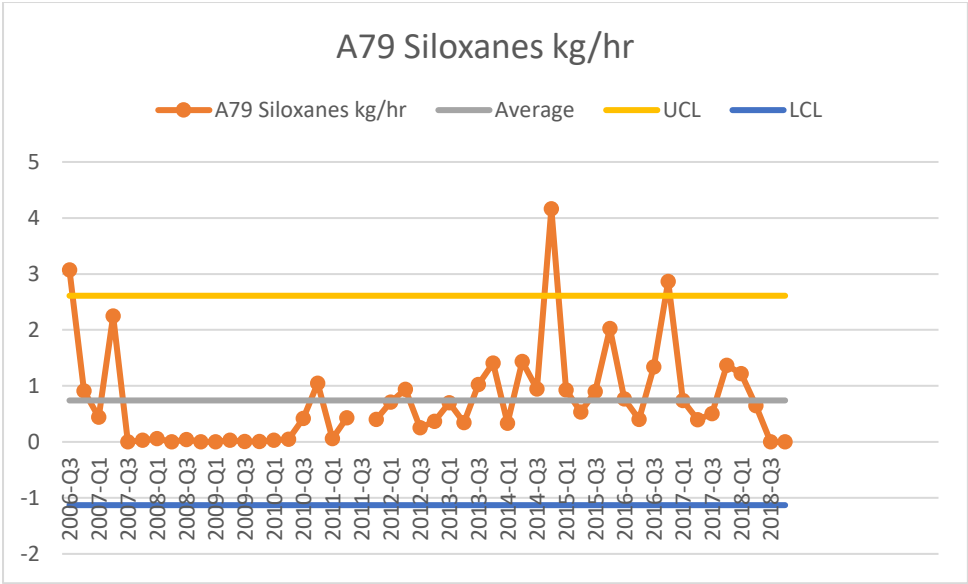
Results in control.



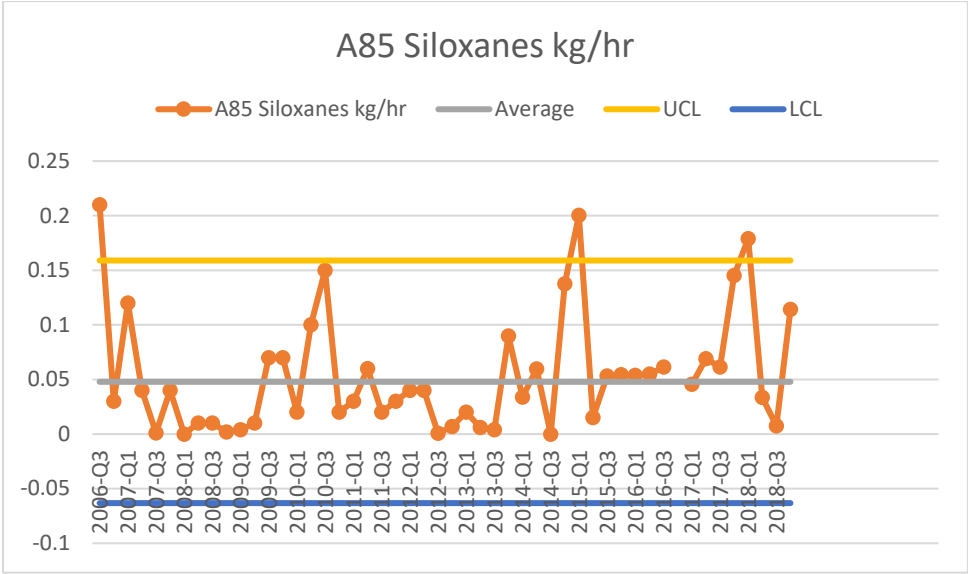
Results in control.



Results in control.

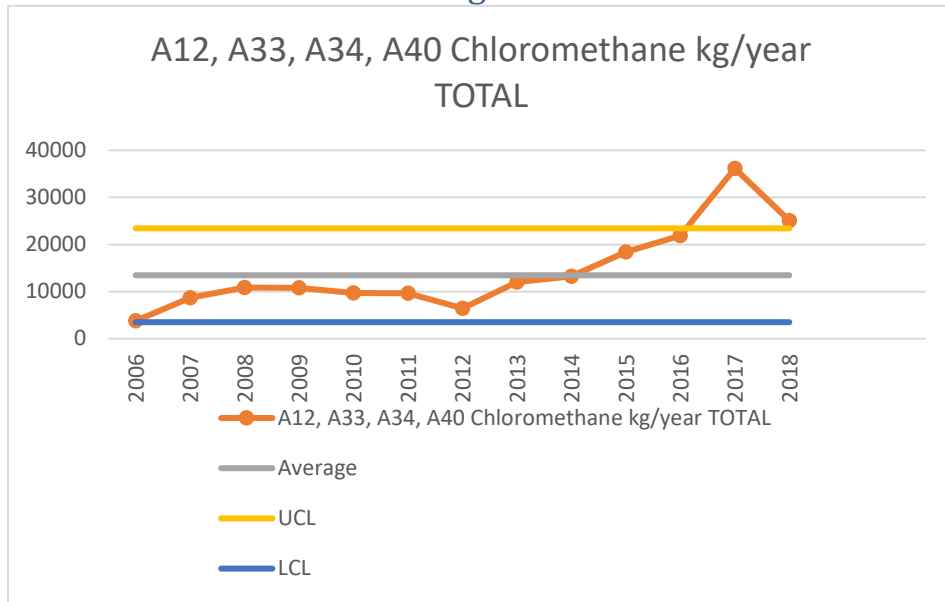


Results in control.



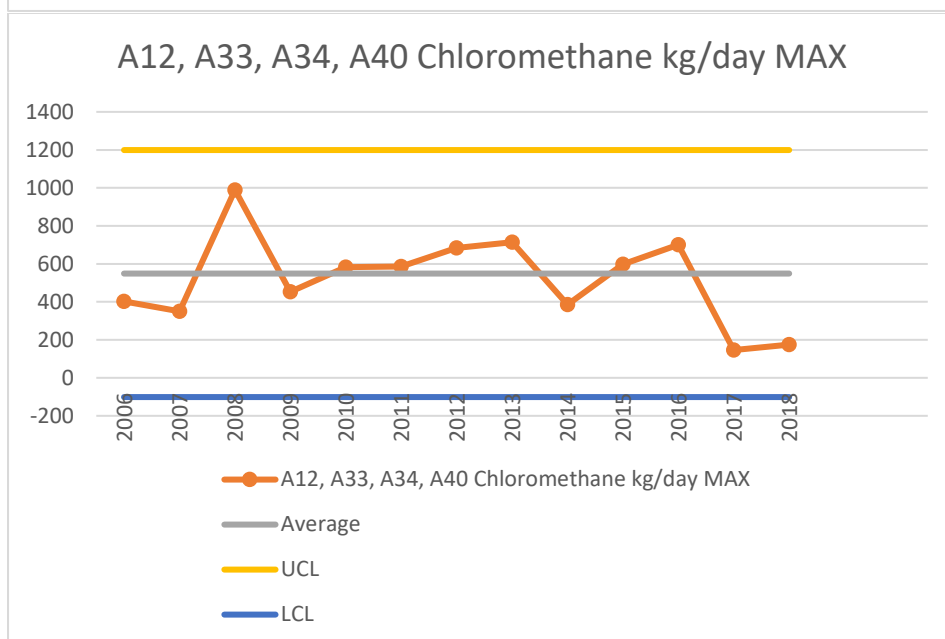
Very variable results from this vent during 2018. This will continue to be monitored.

Trends for Annual monitoring:

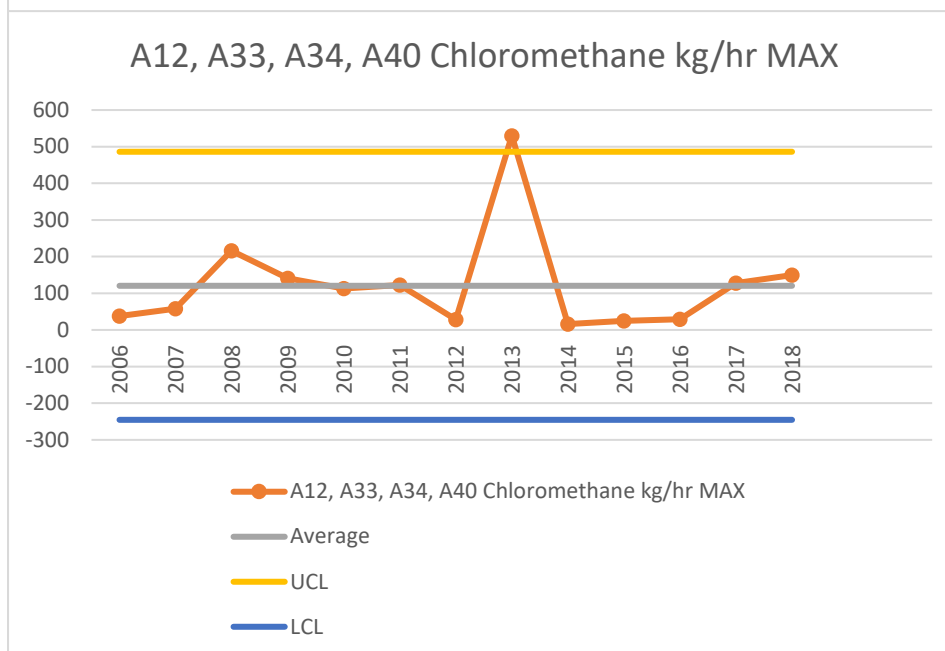


Results out of control high for a second year running – but less than 2017 but within permit limit (60,000 kg/year).

This agreed increase allows Dow Silicones to increase the online time of one of the Recovery processes, thus reducing the quantity of solid hazardous waste produced.

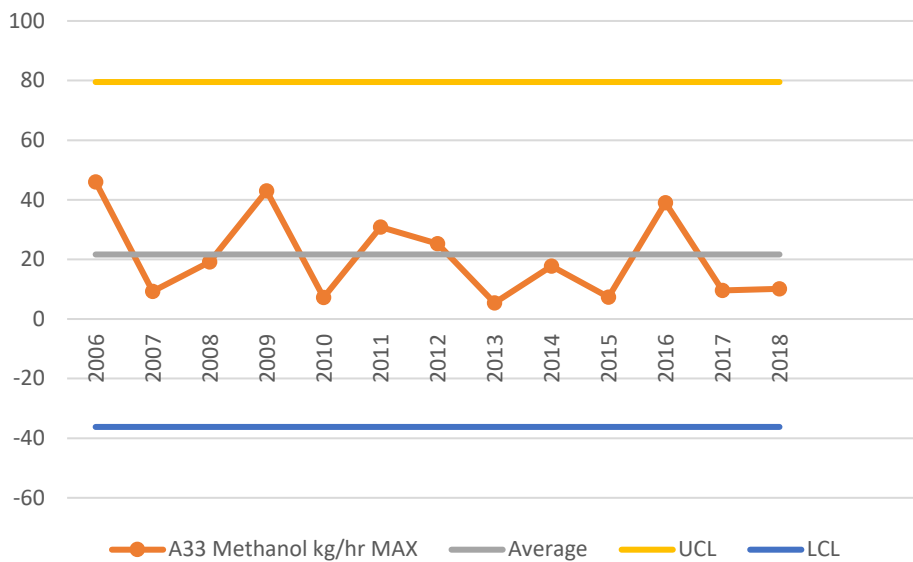


Results in control and within permit limit (1000 kg/day).



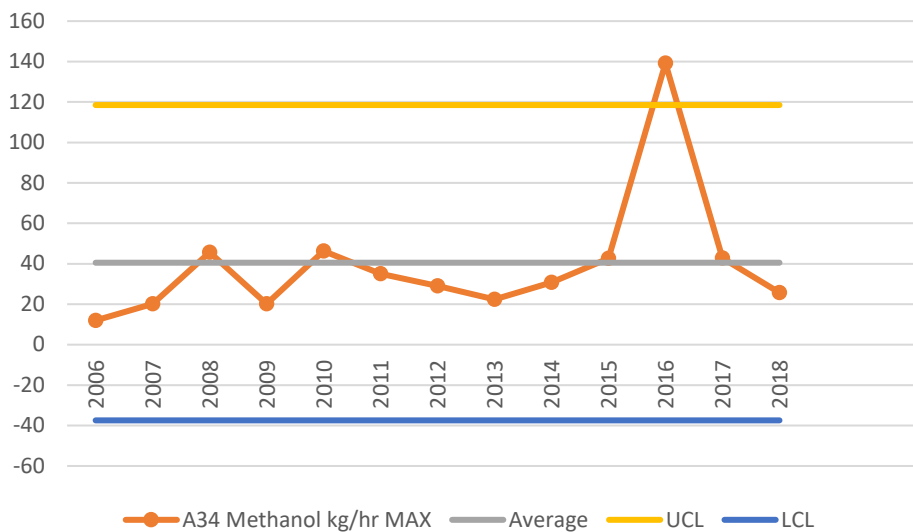
Results in control and within permit limit (250 kg/hr).

A33 Methanol kg/hr MAX



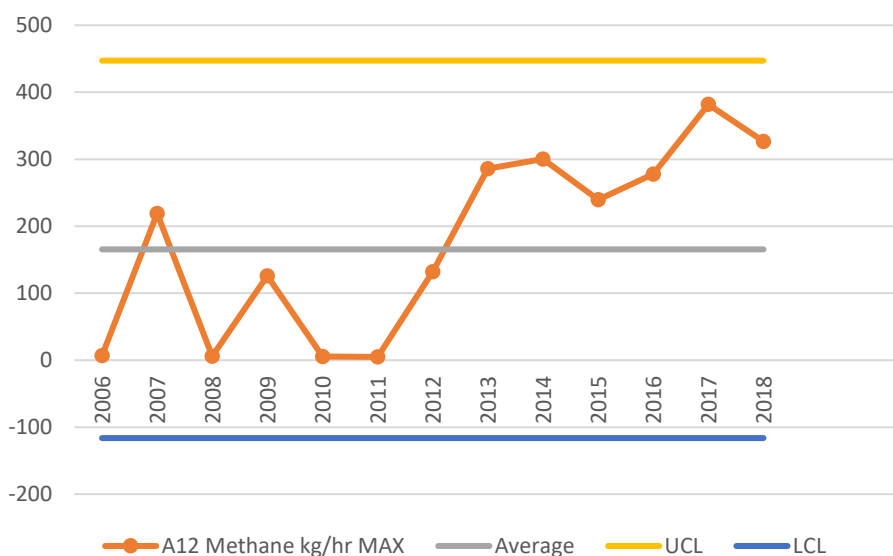
Results in control and within permit limit (max flow of 60kg/hr).

A34 Methanol kg/hr MAX



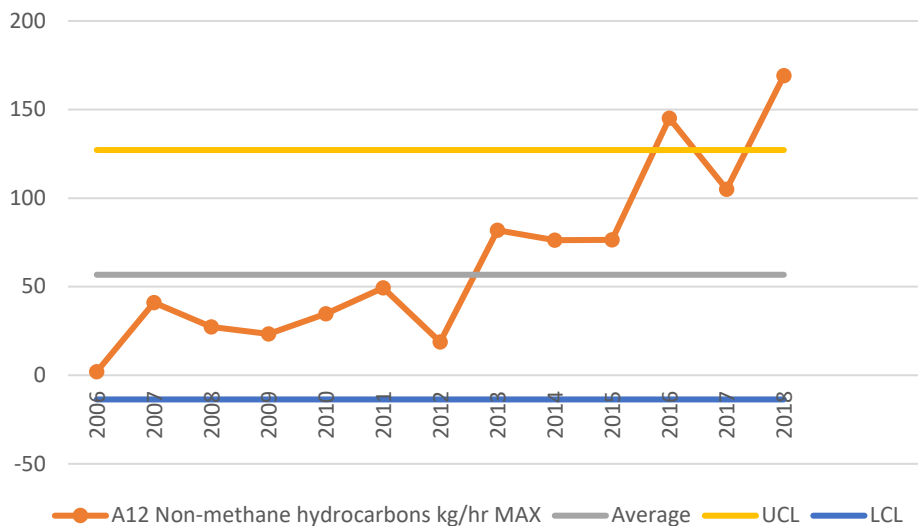
Results in control.

A12 Methane kg/hr MAX



Results in control.

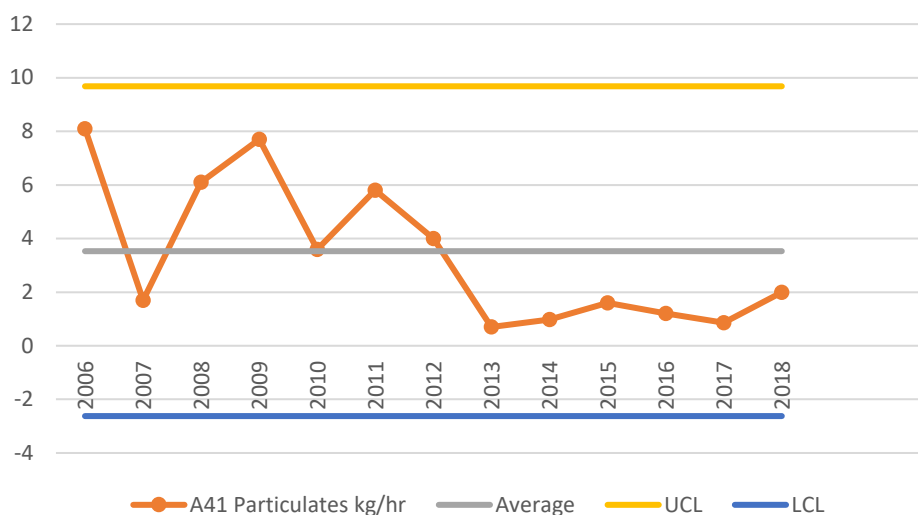
A12 Non-methane hydrocarbons kg/hr MAX



Results out of control high. Higher results have been investigated and are during specific conditions. Further investigation will be carried out.

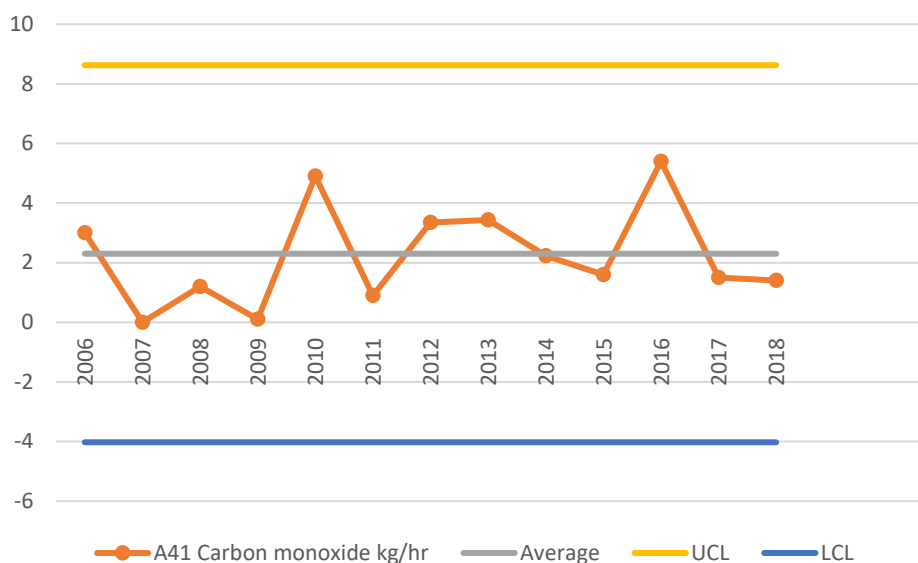
Average whilst venting during the year was 12.96kg/hr.

A41 Particulates kg/hr



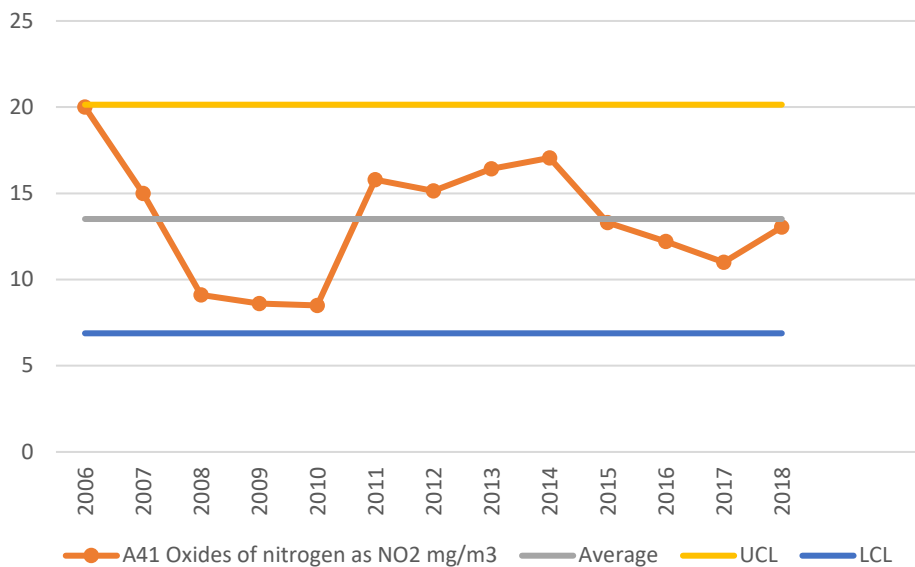
Results in control and within permit limit (10 mg/m³).

A41 Carbon monoxide kg/hr



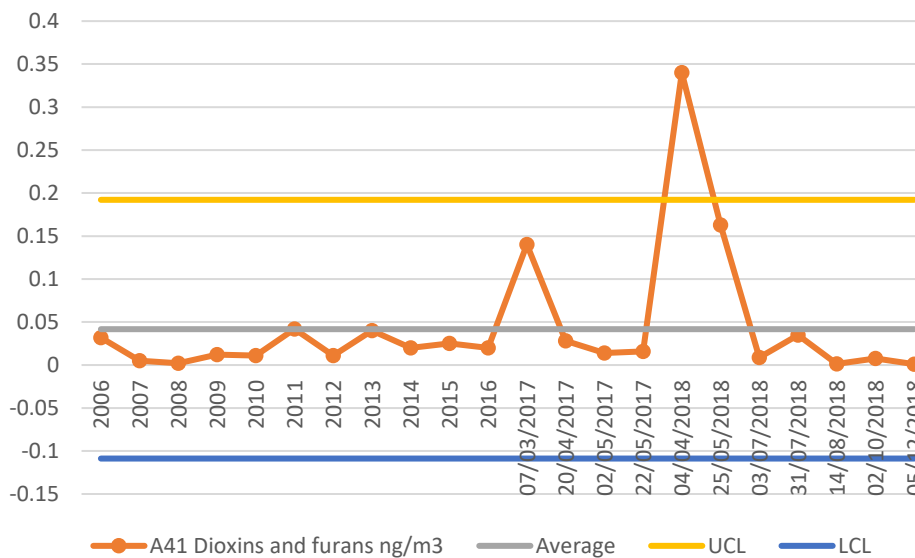
Results in control and within permit limit (50mg/m³).

A41 Oxides of nitrogen as NO2 mg/m3



Results in control and within permit limit (100mg/m3).

A41 Dioxins and furans ng/m3

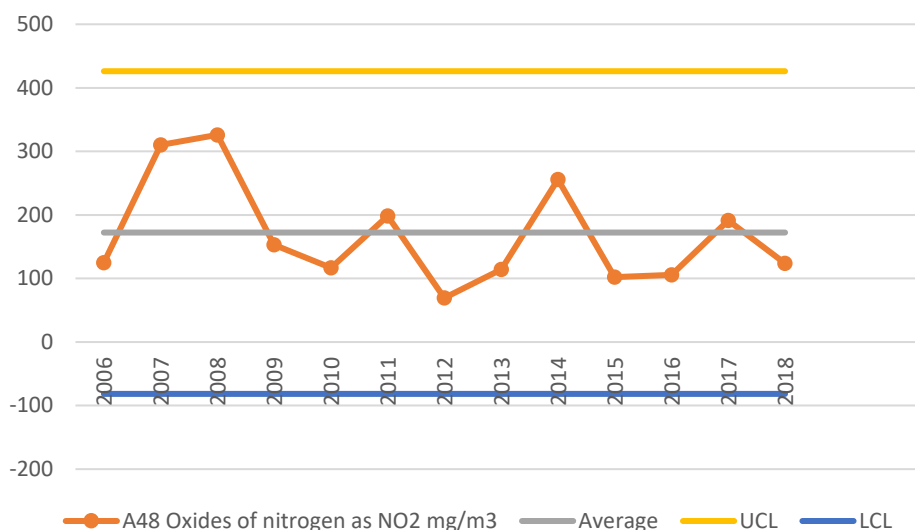


Annual result obtained in April out of control high and permit exceedance, follow up sample also over permit limit.

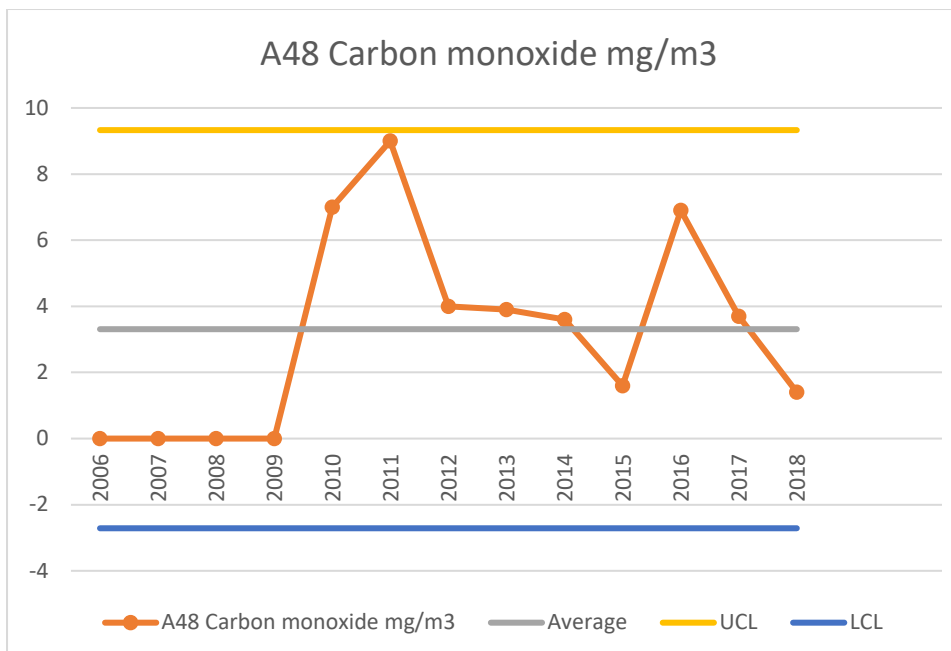
Further samples taken. Results in control and within permit limit (0.1ng/m3).

Further sampling, investigation and technology review still ongoing.

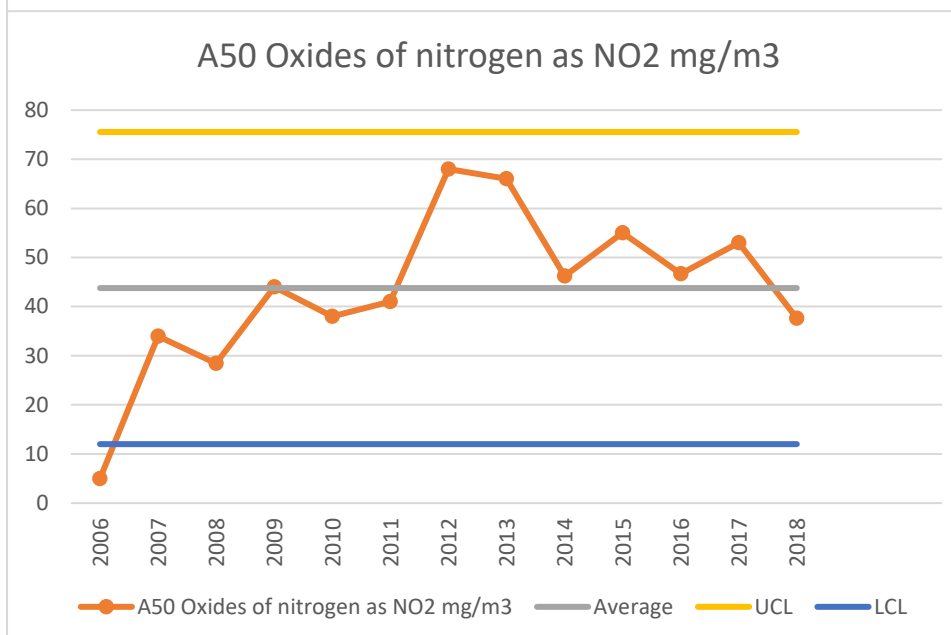
A48 Oxides of nitrogen as NO2 mg/m3



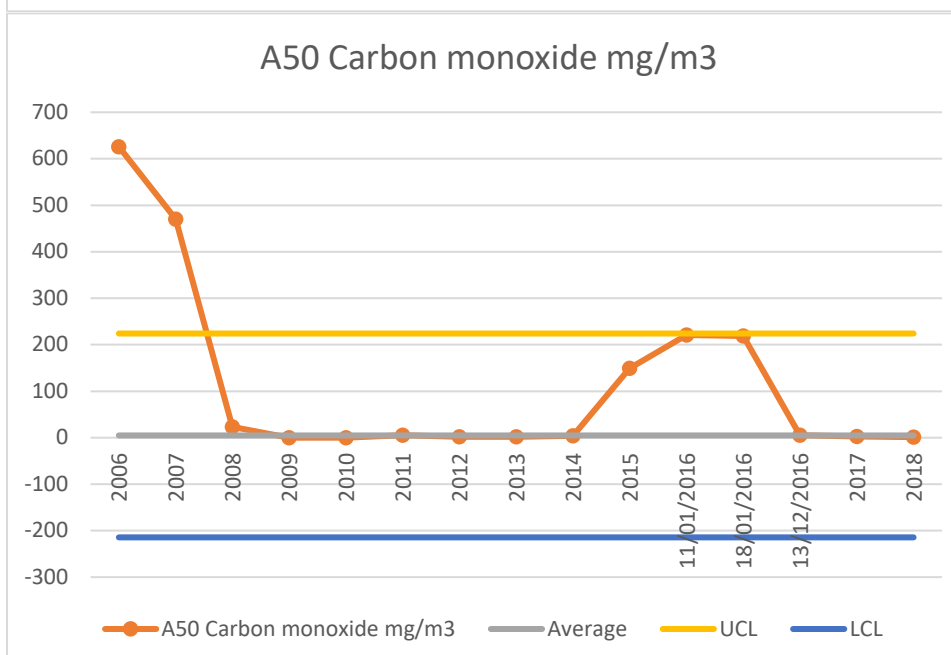
Results in control.



Results in control.

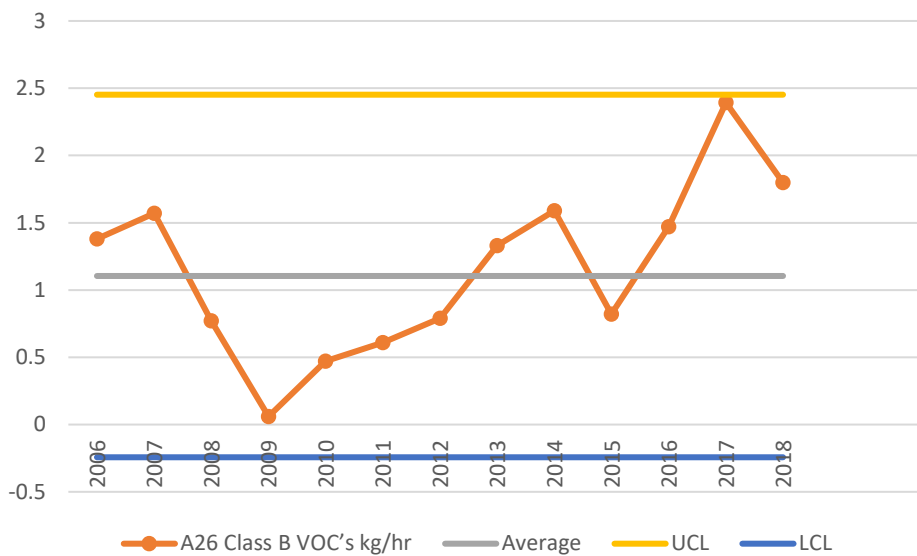


Results in control and within permit limit (200mg/m3).



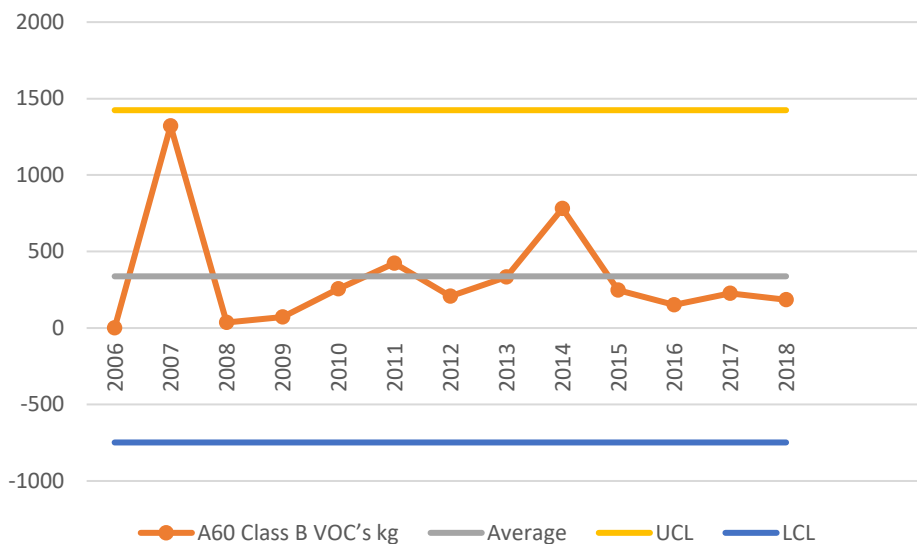
Results in control and within permit limit (200mg/m3).

A26 Class B VOC's kg/hr



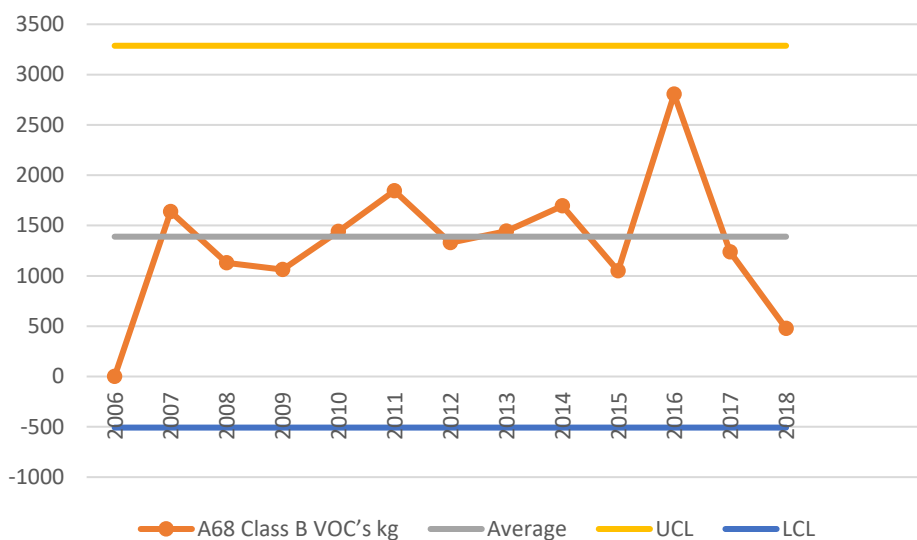
Results in control.

A60 Class B VOC's kg



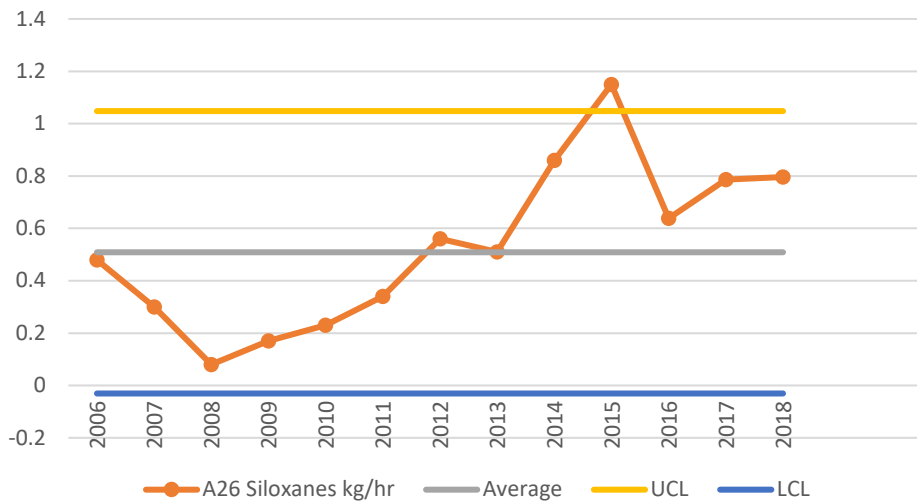
Results in control and within permit limit (5,000 kg/yr).

A68 Class B VOC's kg



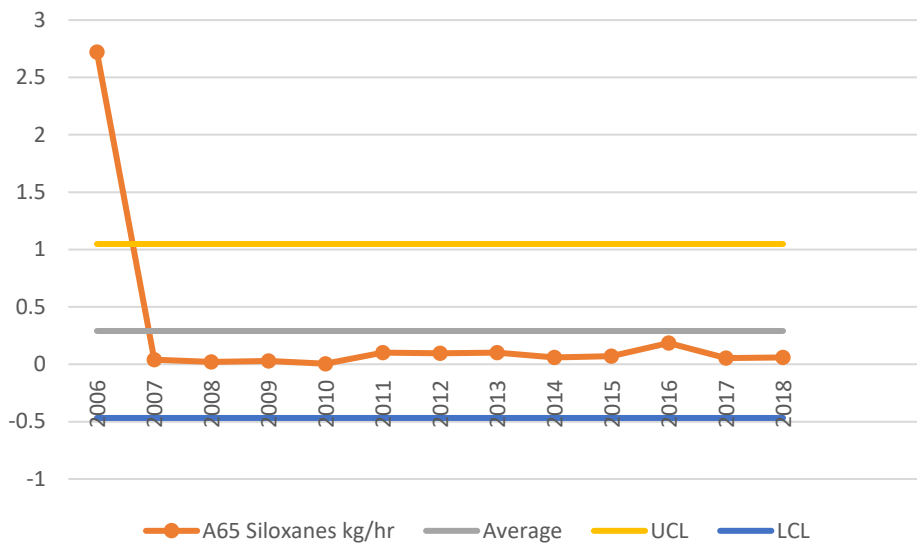
Results in control and within permit limit (5,000 kg/yr).

A26 Siloxanes kg/hr



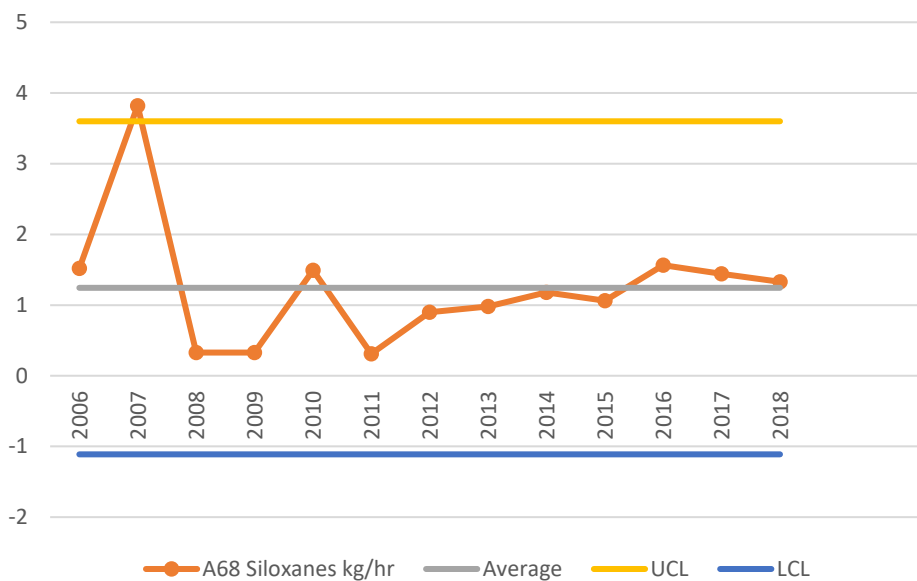
Results in control

A65 Siloxanes kg/hr

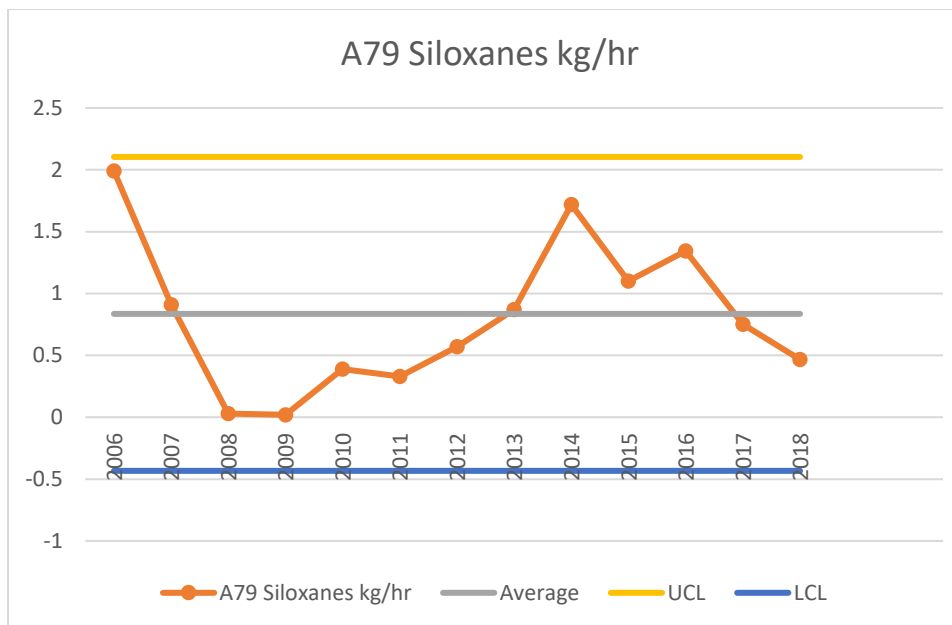


Results in control

A68 Siloxanes kg/hr

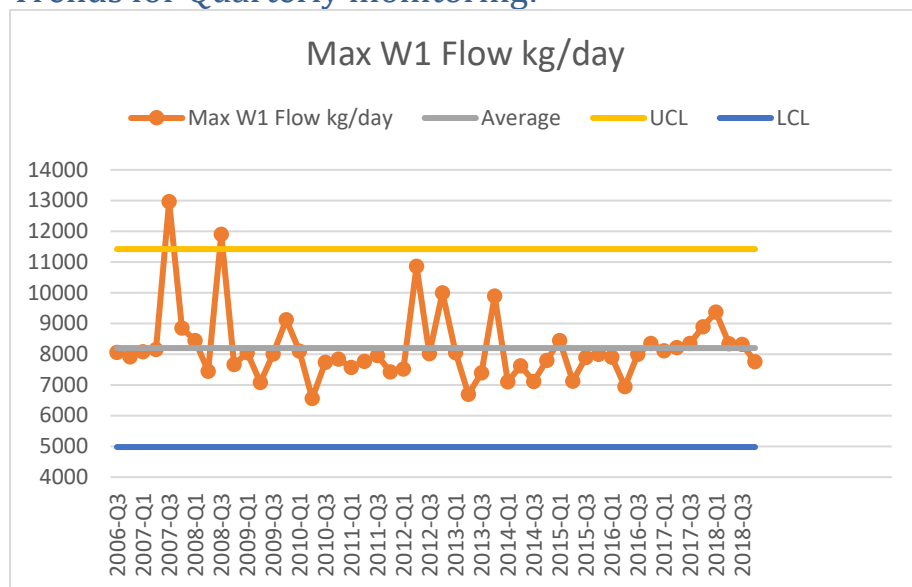


Results in control

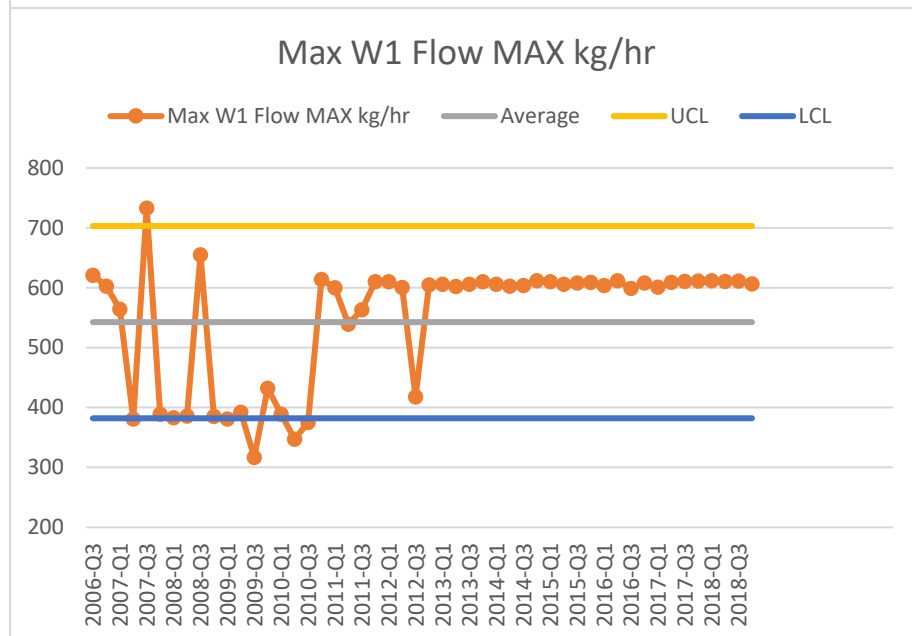


Water monitoring

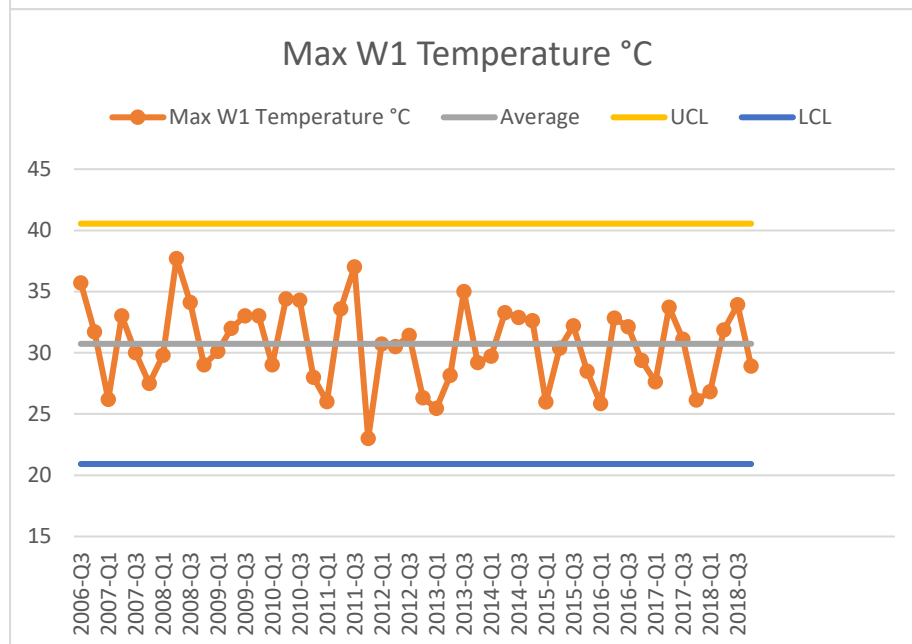
Trends for Quarterly monitoring:



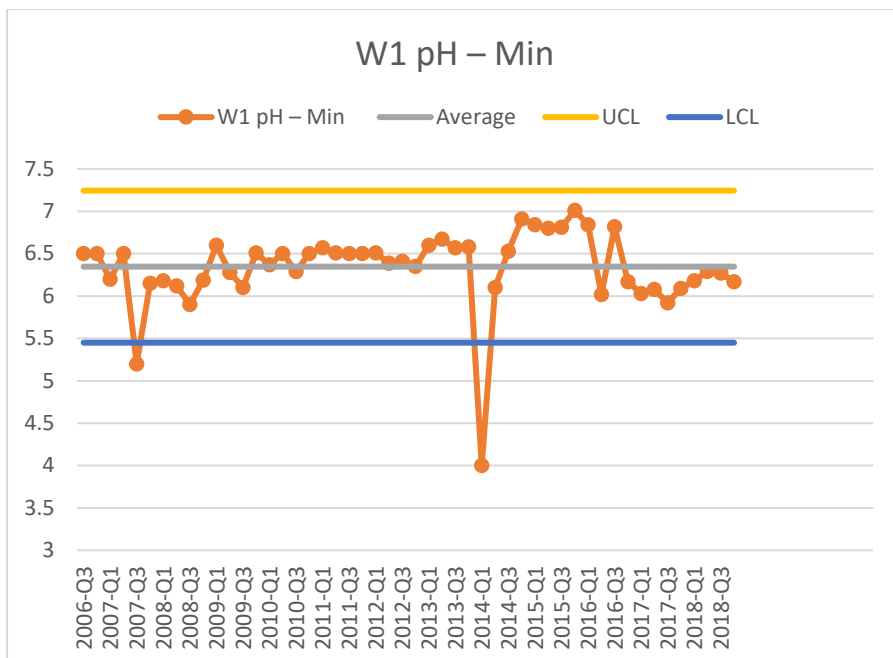
Results in control and within permit limit (11,000 m³/day)



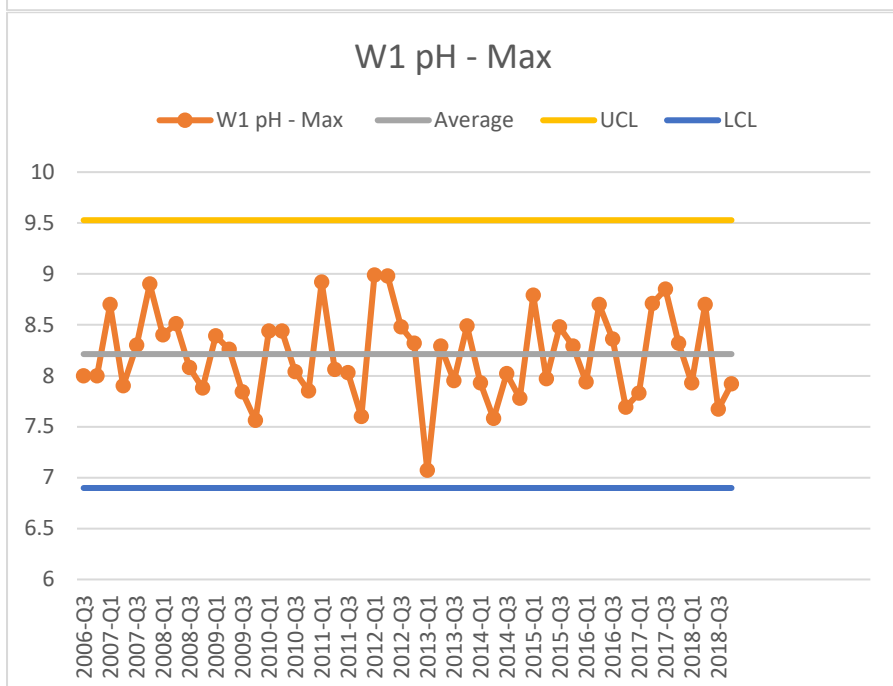
Results in control and within permit limit (625 m³/hr)



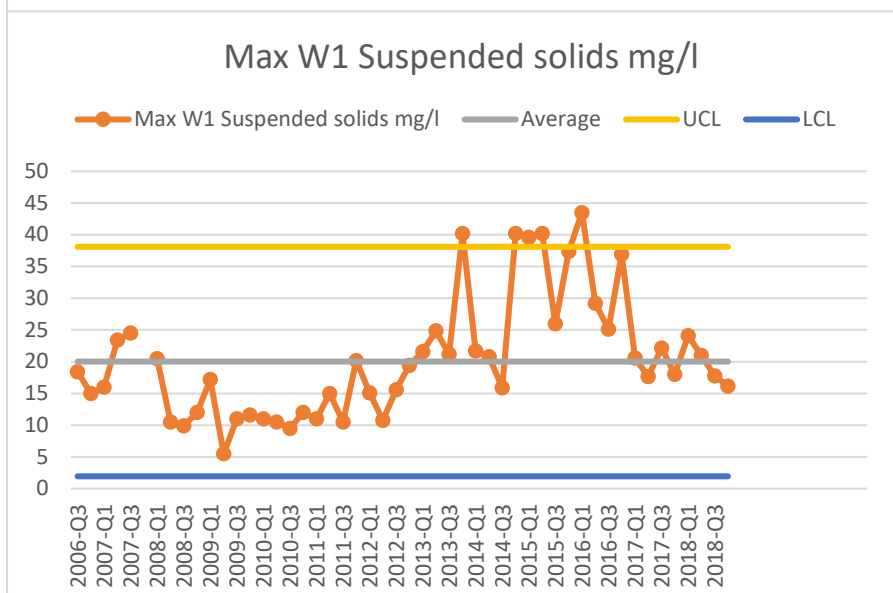
Results in control and within permit limit (40°C)



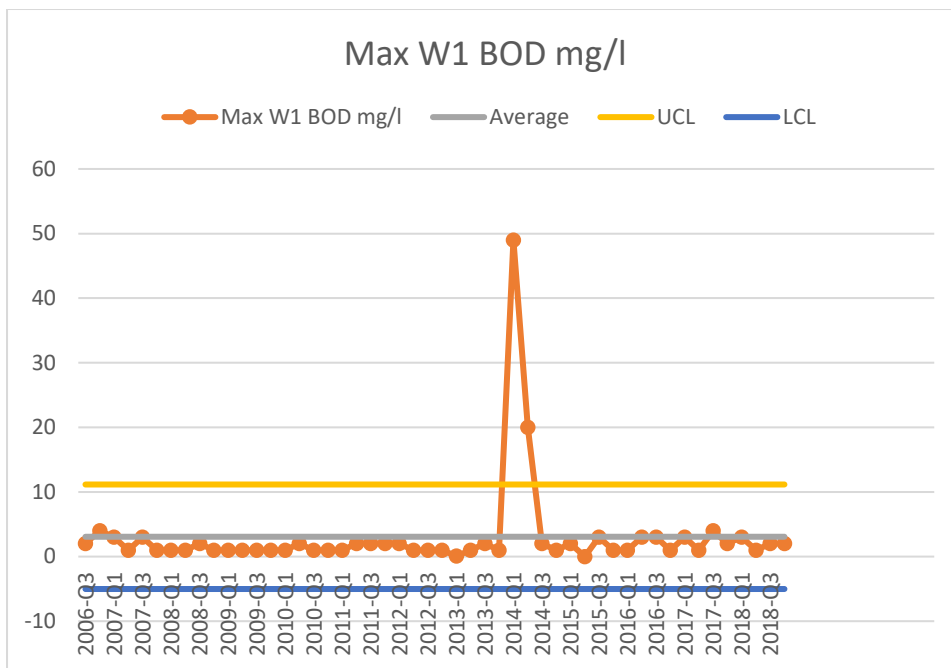
Results in control and within permit limit (>6)



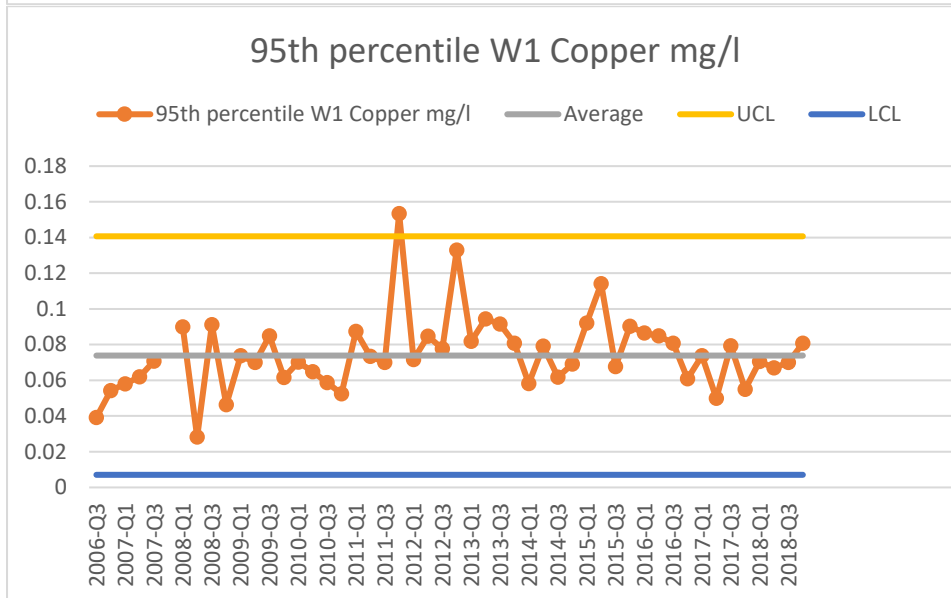
Results in control and within permit limit (<9)



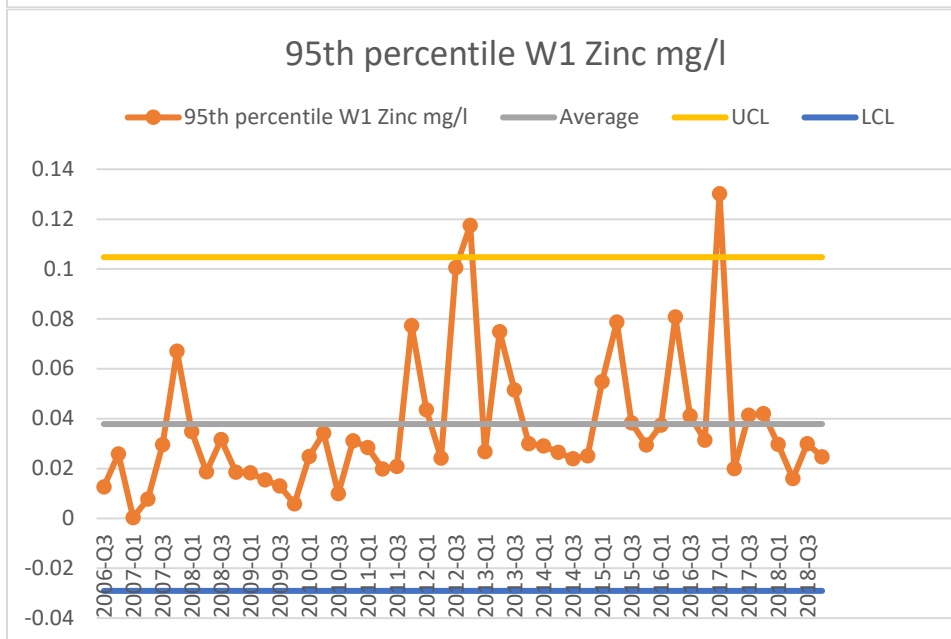
Results in control and within permit limit (30 mg/l)



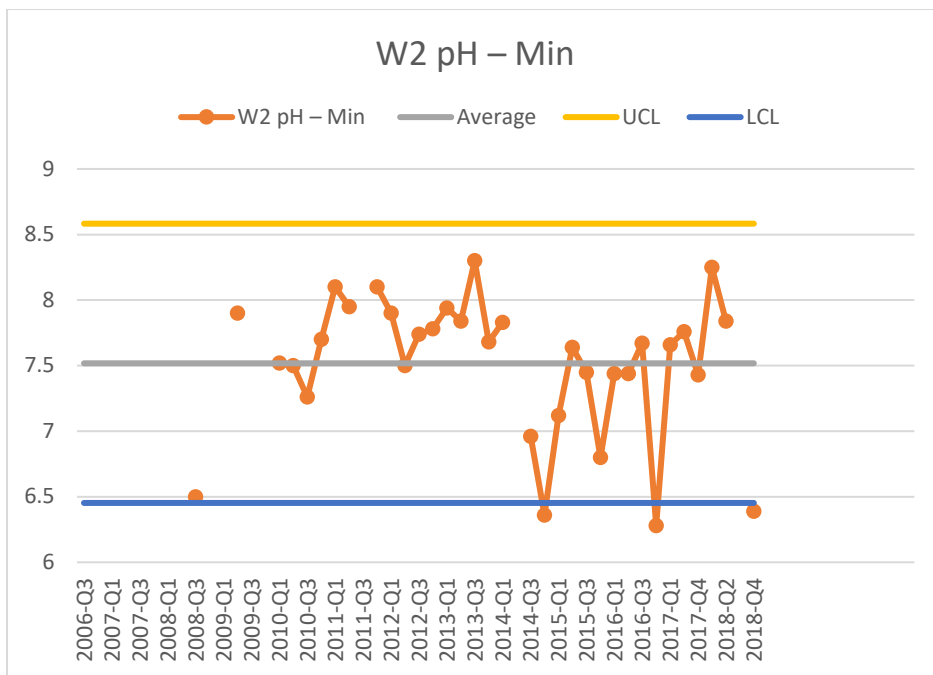
Results in control and within permit limit (20 mg/l)



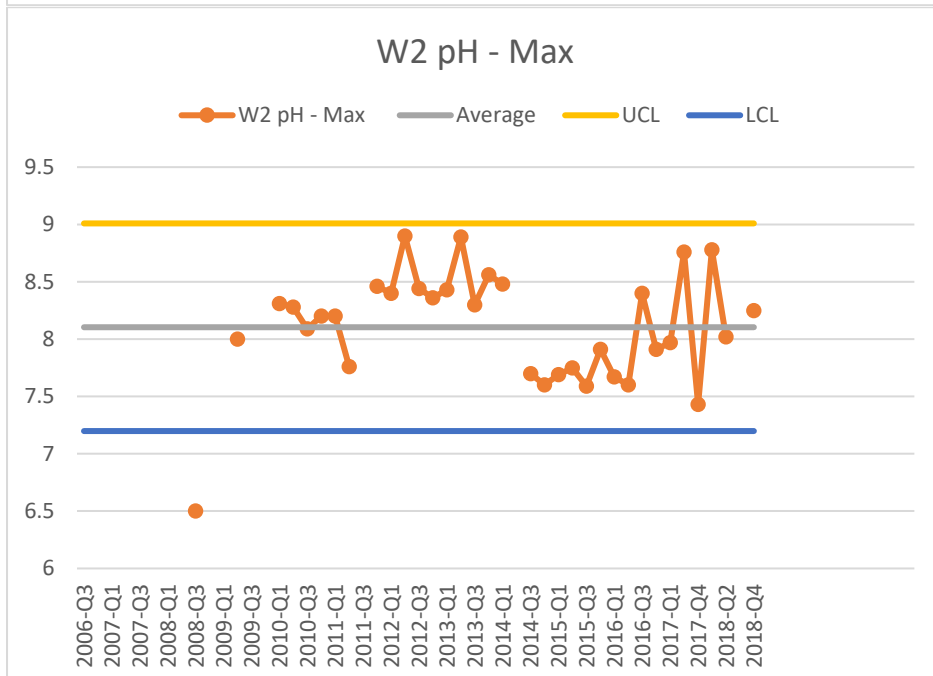
Results in control and within permit limit (0.1 mg/l)



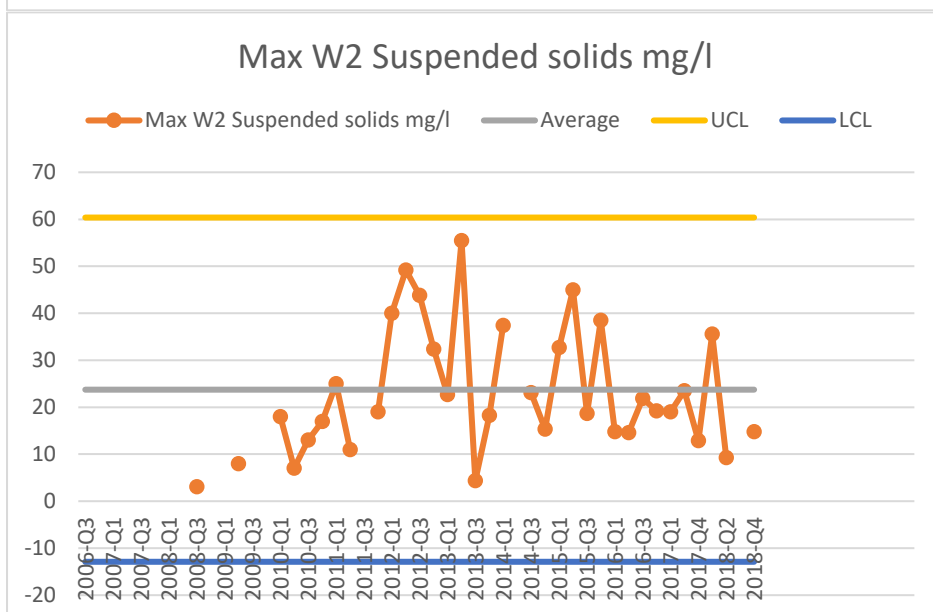
Results in control and within permit limit (0.5 mg/l)



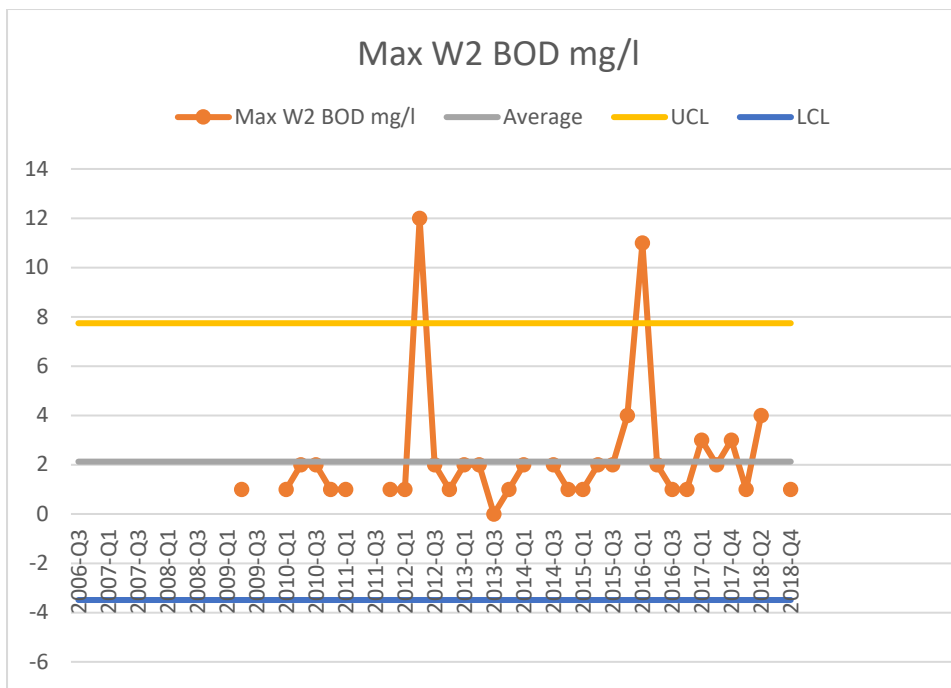
Q4 result just below the lower control limit – but within permit limit (>6)



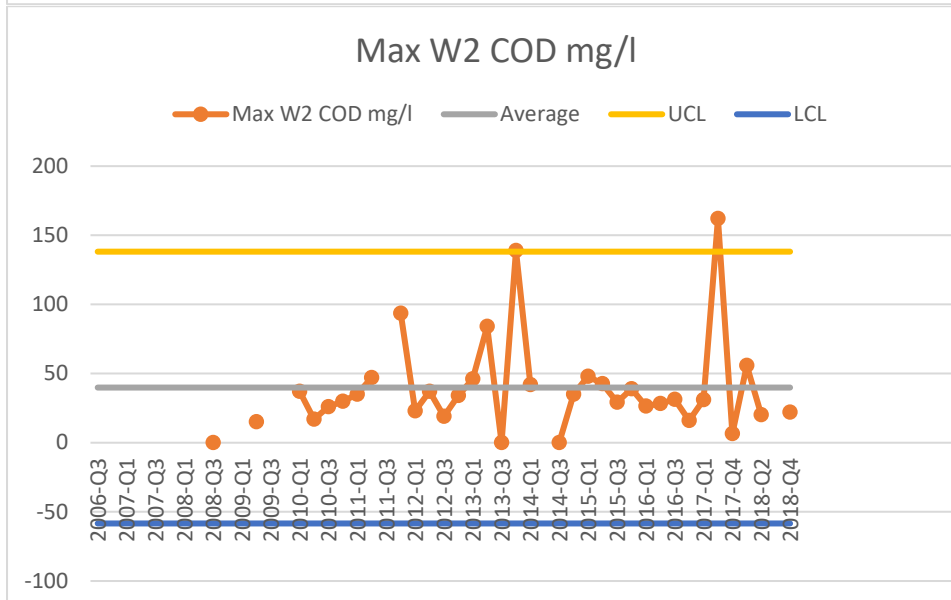
Results in control and within permit limit (<9)



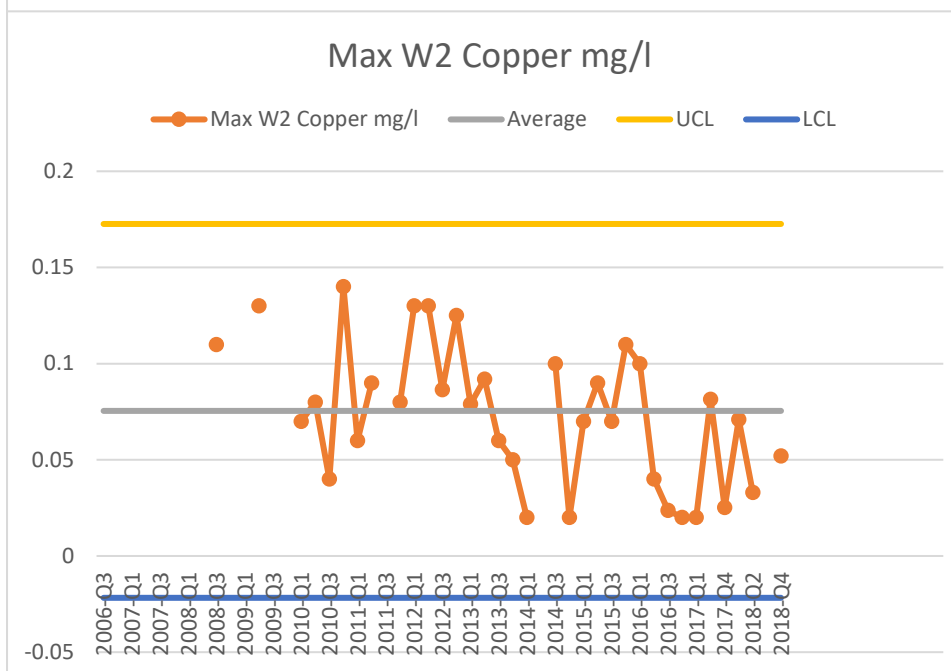
Results in control and within permit limit (30 mg/l)



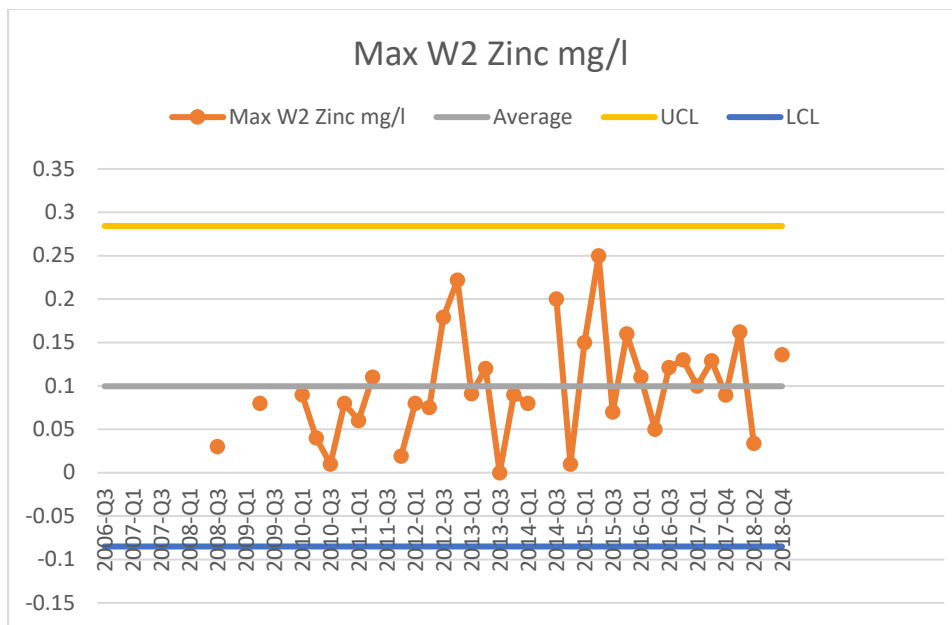
Results in control and within permit limit (20 mg/l)



Results in control and within permit limit (125 mg/l)



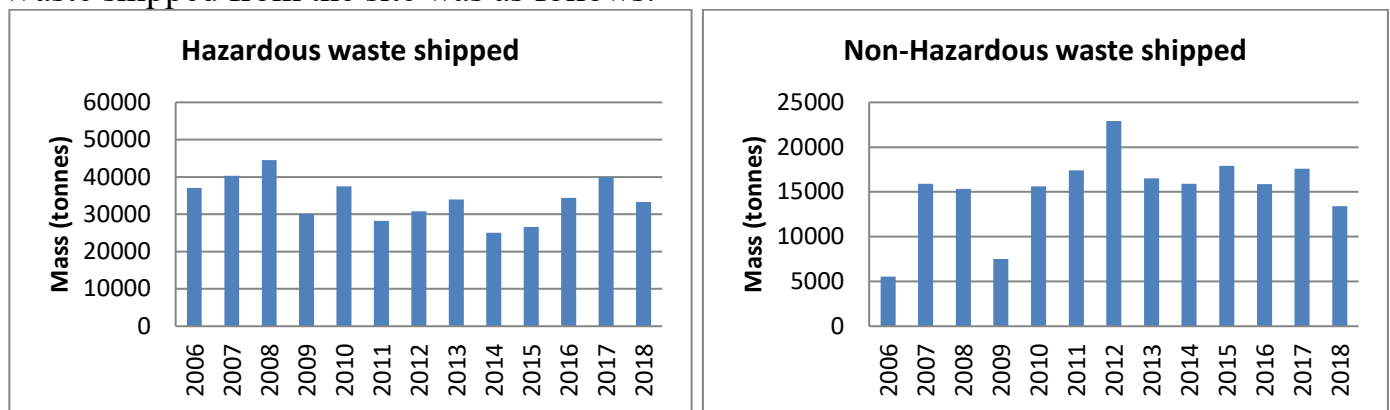
Results in control and within permit limit (0.15 mg/l)



Results in control and within permit limit (0.25 mg/l)

Waste

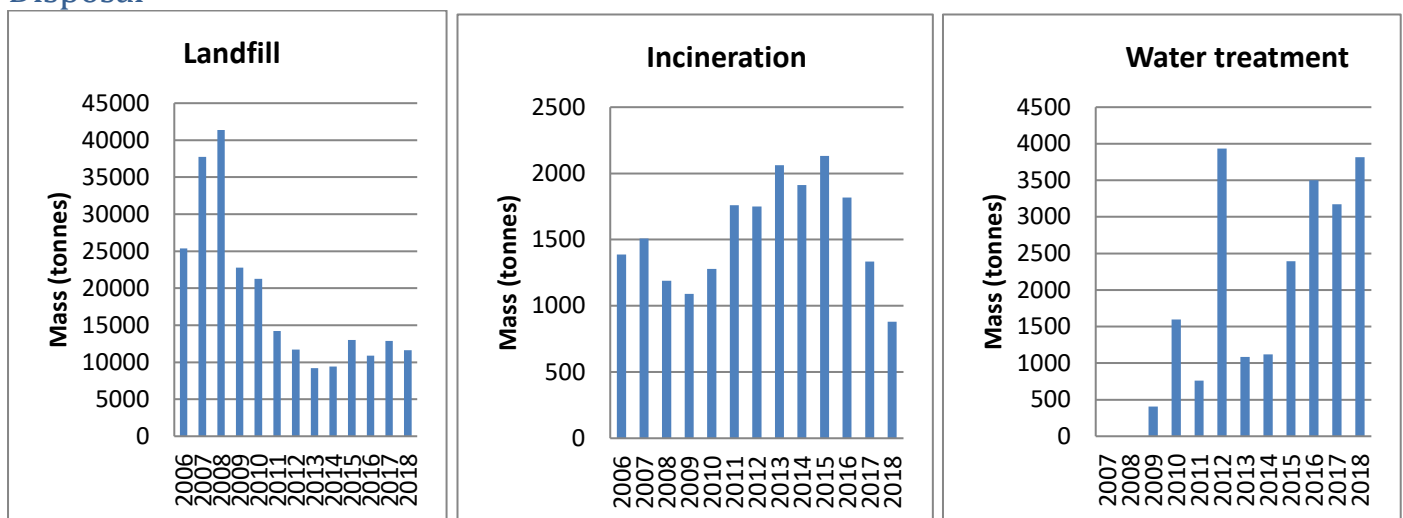
Waste shipped from the site was as follows:



The decrease in total waste this year in comparison to last is that we are back to normal production levels now that the landfill storage area has now been emptied and closed prior to the capping project in 2019.

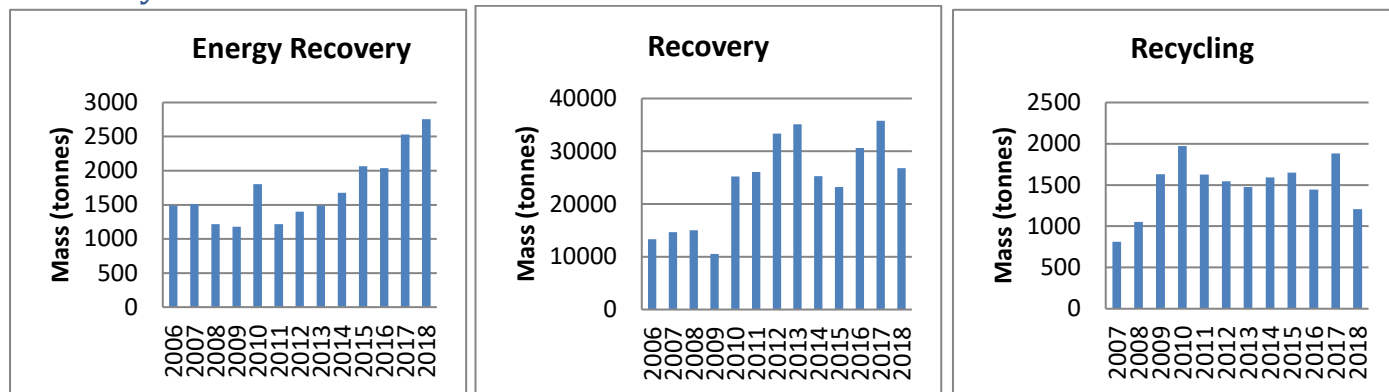
The decrease in non hazardous waste is due to the reclassification of the filter cake during the year due to the improvement in it's water removal.

Disposal



- Water treatment was higher during 2018 due to issues with the Waste water treatment clarification process.
- Incineration was low this year due to one of our outlets struggling to process our materials.

Recovery



Energy recovery increased during the year as we try to move smaller streams up the waste hierarchy and also were able to send more waste to Energy recovery rather than incineration.

Complaints

There were 10 complaints to the Barry Industrial complex helpline in 2018

- 3 were for odour - None of the odour complaints were attributed to Dow Silicones
- 6 were for noise – 2 were unsubstantiated
 - Venting of steam at the CHP plant due to an electrical fault.
 - Jetting, residents had been sent a flyer warning of noise on this date, but believed it would be minimized at night time.
 - An alarm running constantly on one of the plant, which was stopped when identified.
 - The new local exhaust fan on the Elastomers unit. Temporary soundproofing has been applied, the unit turned and rubber feet installed to reduce the noise.
- 1 was for dust
 - Visited the garage took samples which appeared like black coffee granules. Samples were analysed but contained no copper and low silica content. Colouring composition indicate that it is not a solid waste from Dow. Garage is located upwind of the chemical complex and is directly adjacent to the railway.