



Annual Performance and Monitoring review

EPR Permit BR9685IX

Dow Silicones UK Ltd - 2019

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

Contents

Summary.....	2
Incidents	3
Air monitoring.....	4
Trends for Monthly monitoring	4
Trends for Quarterly monitoring:	5
Trends for Annual monitoring:	9
Water monitoring	17
Trends for Quarterly monitoring:	17
Waste	23
Disposal.....	23
Recovery	24
Complaints.....	24

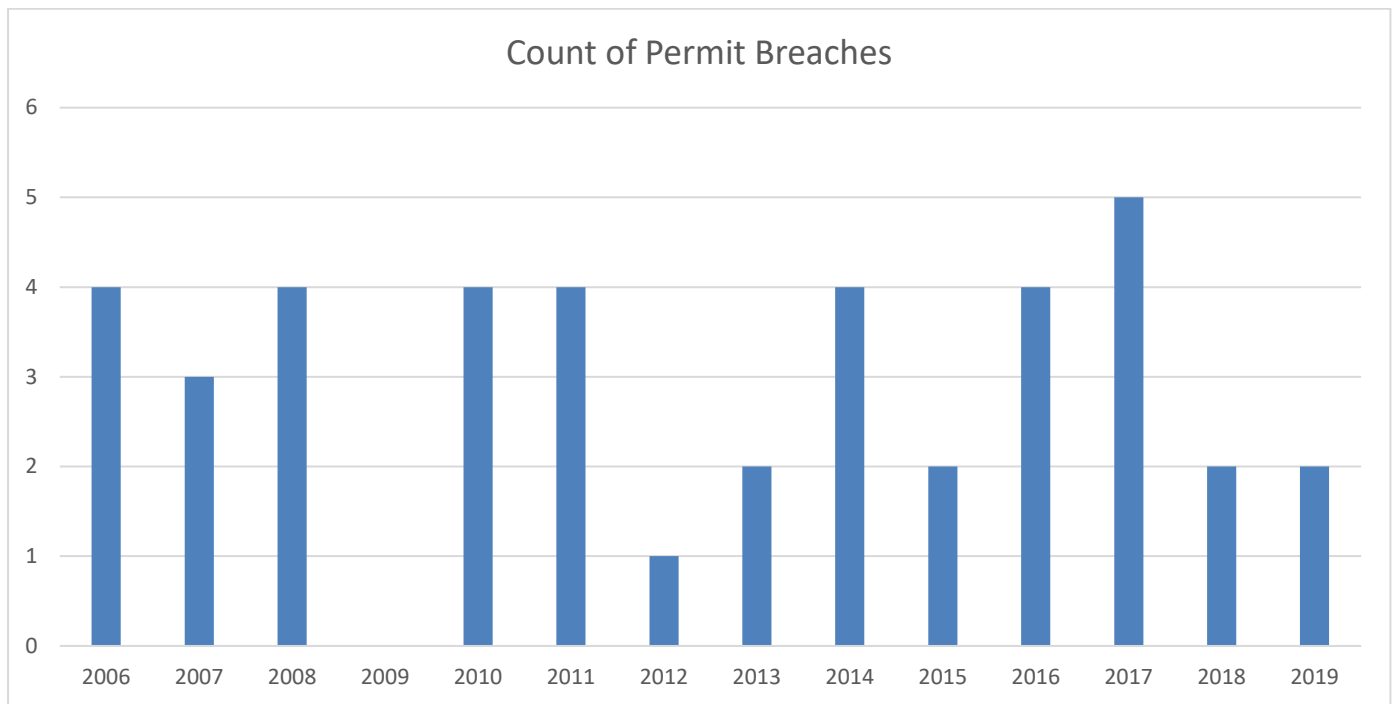
Summary

The report includes details of our performance during 2019. SPC charts have been used for all analytical monitoring we carry out for releases to air and water.

Points of interest for 2019 :

- Incineration has increased a little this year due to now being able to send material to one of the outlets we didn't use much last year, but total waste is less than 2018.
- Methyl chloride venting to atmosphere from A12 was lower than last year, this was mainly due to a site turnaround during April and May and not running this process during October, November and December.
- ERU was sampled for Dioxins and furans every month in 2019 to gather data regarding any elevated readings. The levels remained low throughout the year and well below the permit limit.
- The site production rate was lower in 2019 than in 2018.

Incidents



There were 2 permit breaches reported in 2019:

W1 – Final effluent Methanol excursion

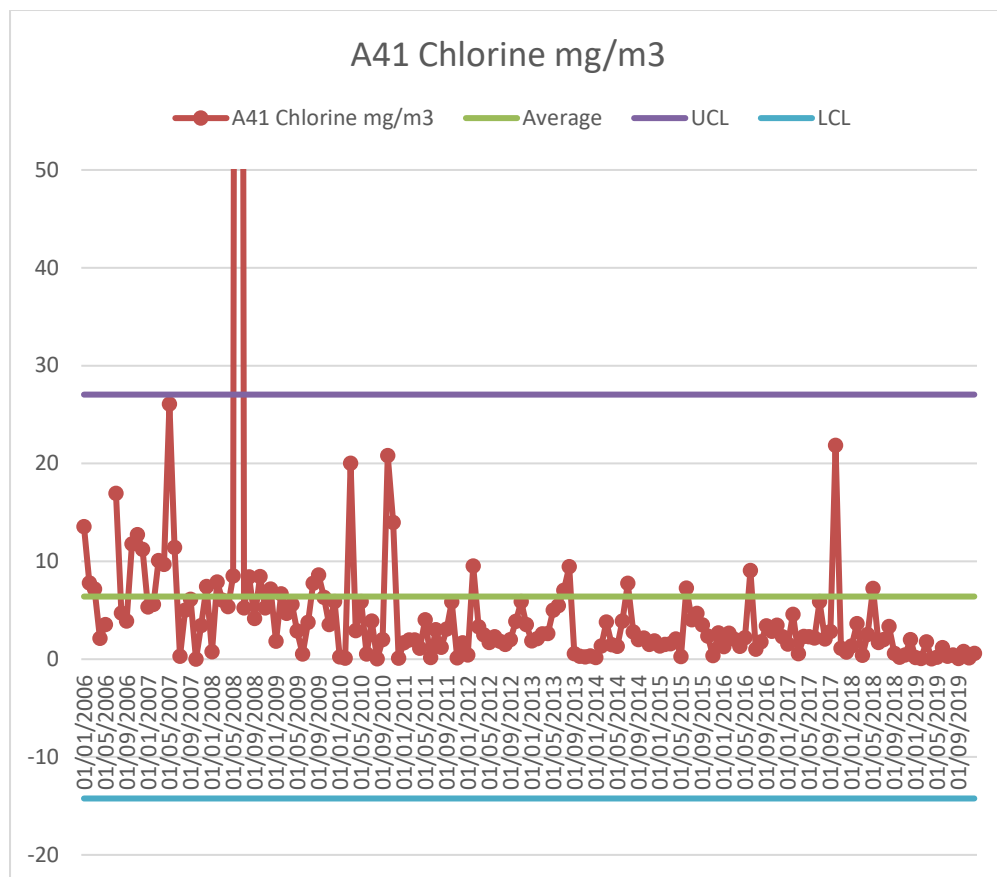
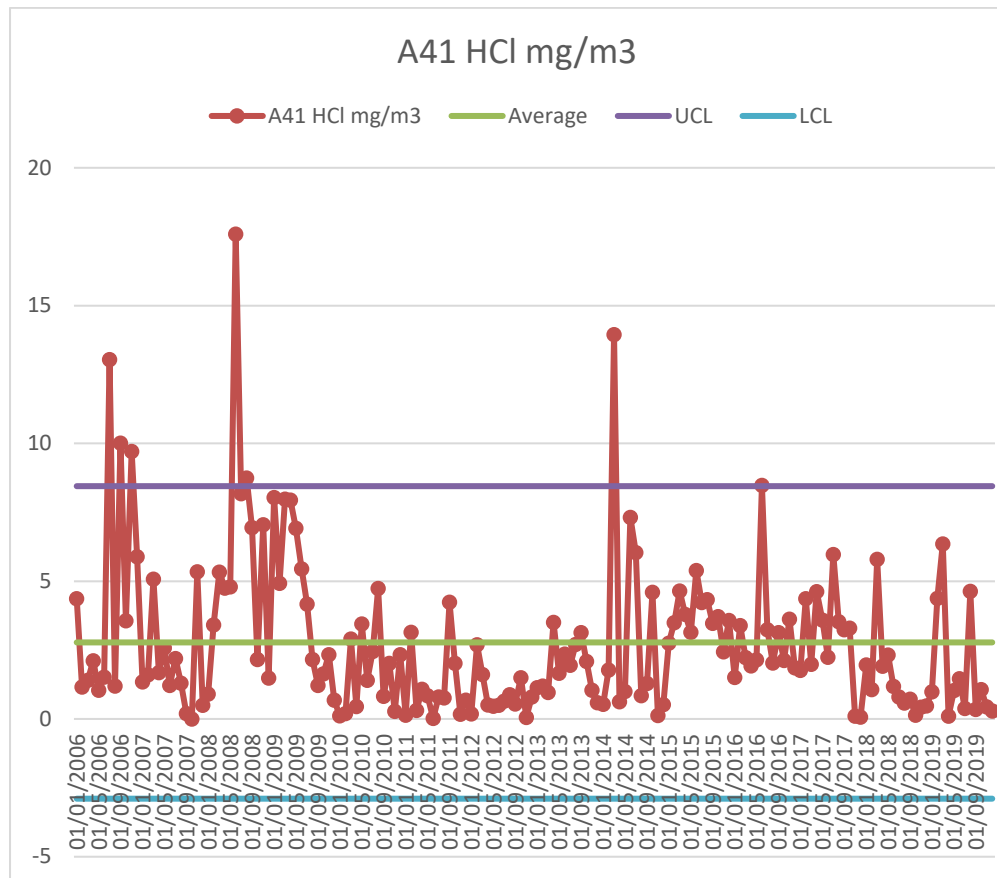
There was a methanol excursion in the final treated effluent to release point W1 in May due to internal damage of a heat interchanger. The carbon heat exchanger became cracked during start up allowing a methanol stream to leak into an effluent stream. The effluent stream went into the waste water treatment process, where the majority of the methanol was removed. The remaining methanol was measured in the final effluent stream and found to be over the level corresponding with the BOD limit on the permit.

A34 – Daily chloromethane permit exceedance

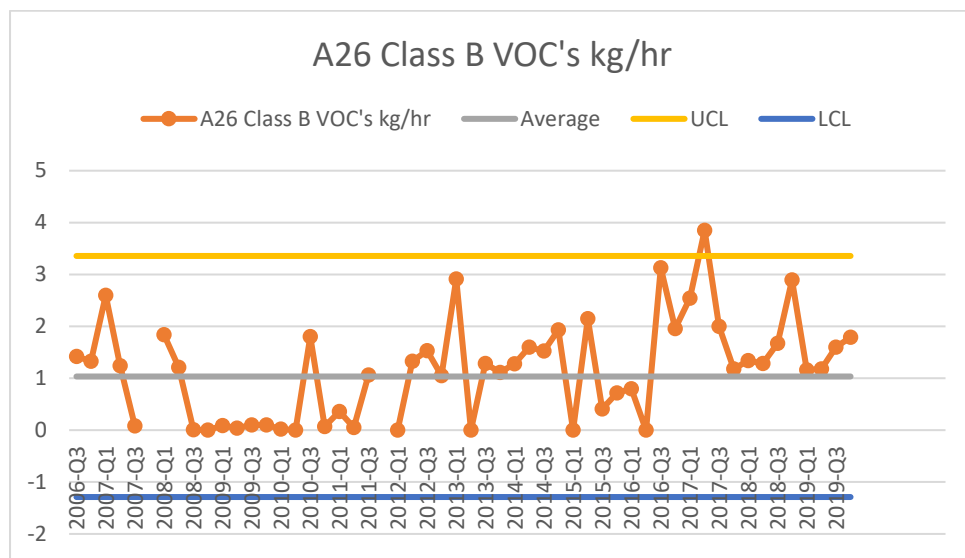
There was a breach of the daily chloromethane limit on 29th November 2019. This was caused by start up of one of the processes coinciding with the vent energy recovery unit being unavailable. The methyl chloride plant was also started up too quickly with inerts in the process, which subsequently overloaded the vent recovery process. Procedures and training have been updated to ensure future start ups are managed in a more controlled manner. As soon as the operators realised that the vents were going to atmosphere rather than recovery, the start up was halted until the recovery route could be re-established.

Air monitoring

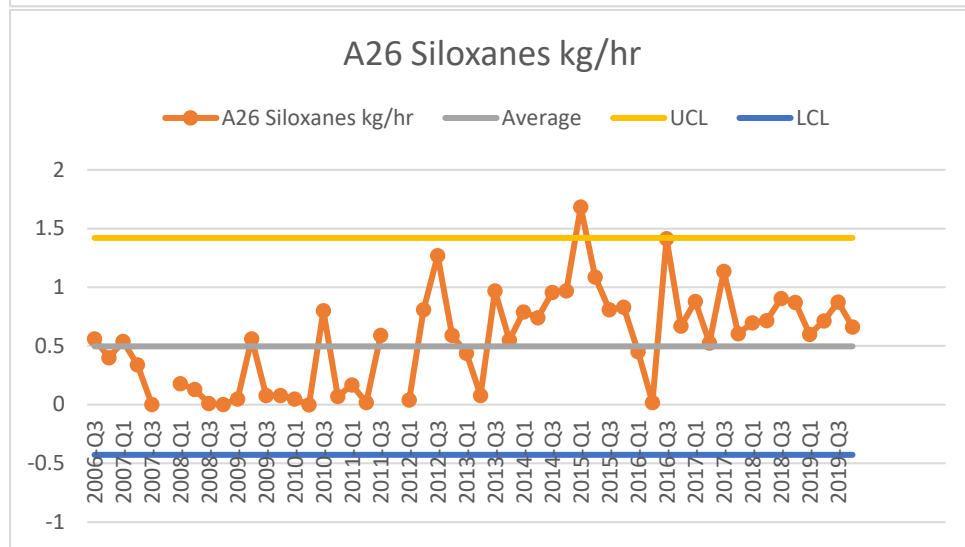
Trends for Monthly monitoring



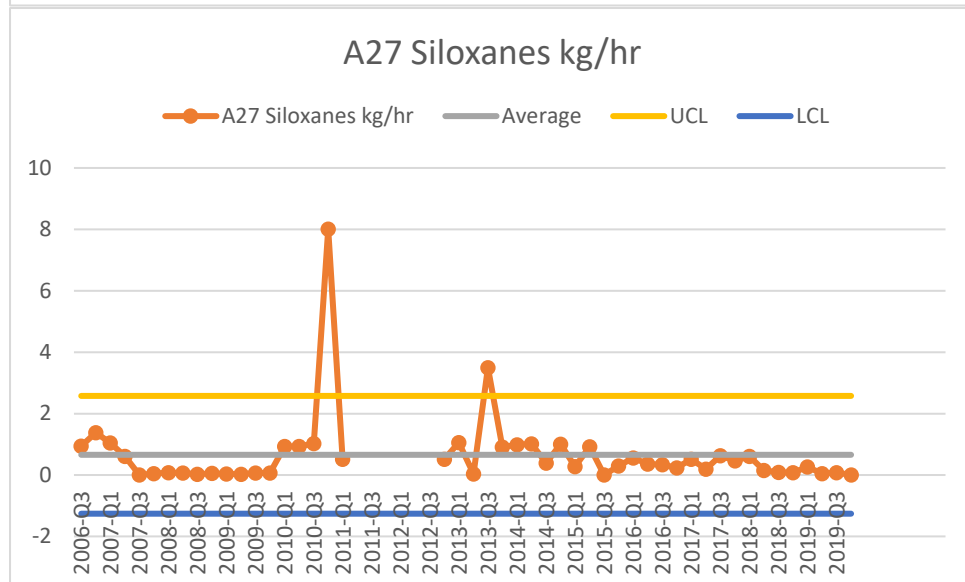
Trends for Quarterly monitoring:



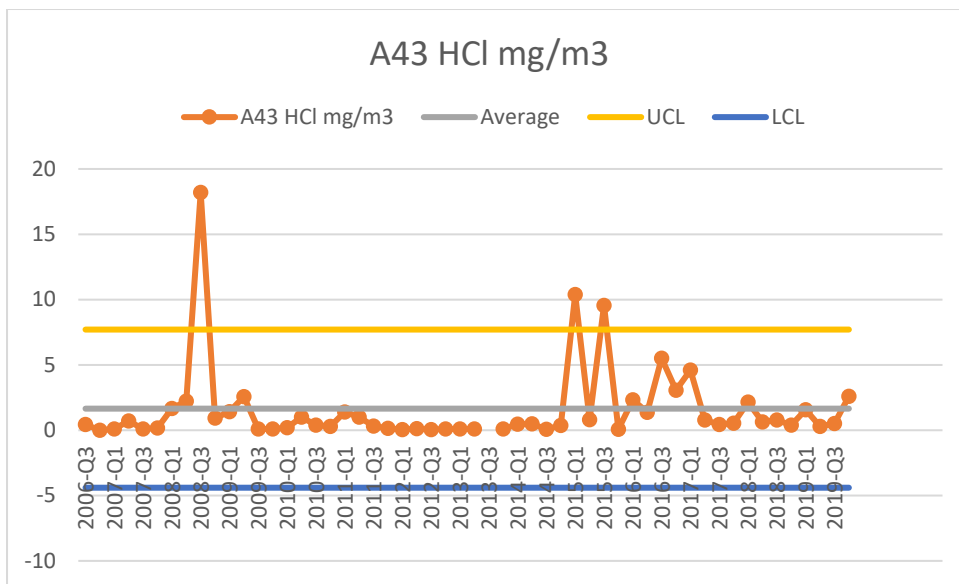
Results in control.



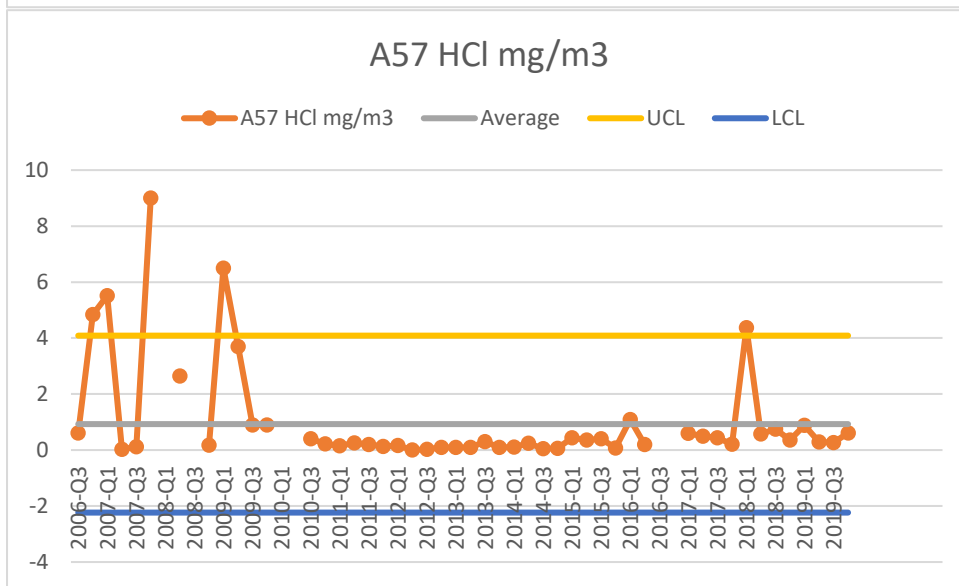
Results in control.



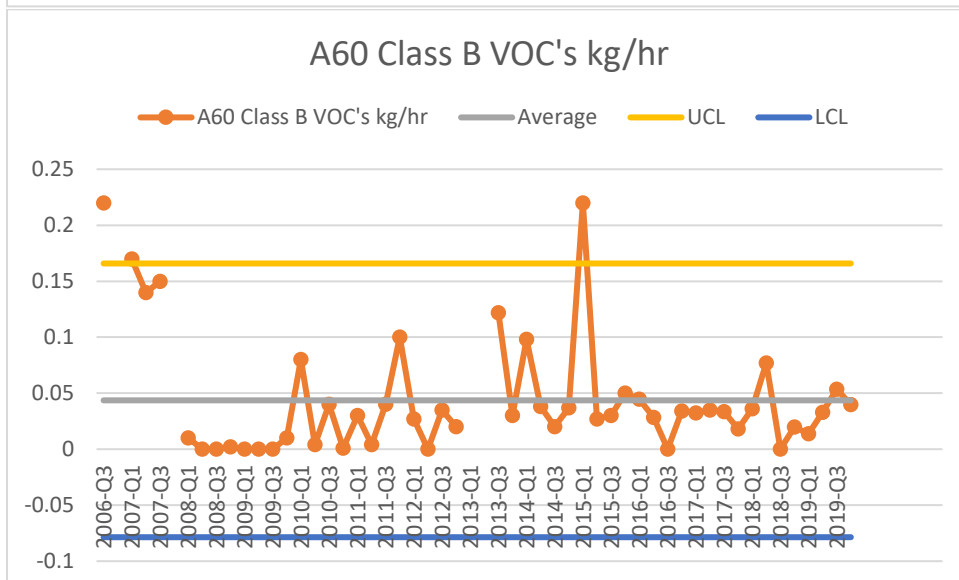
Results in control.



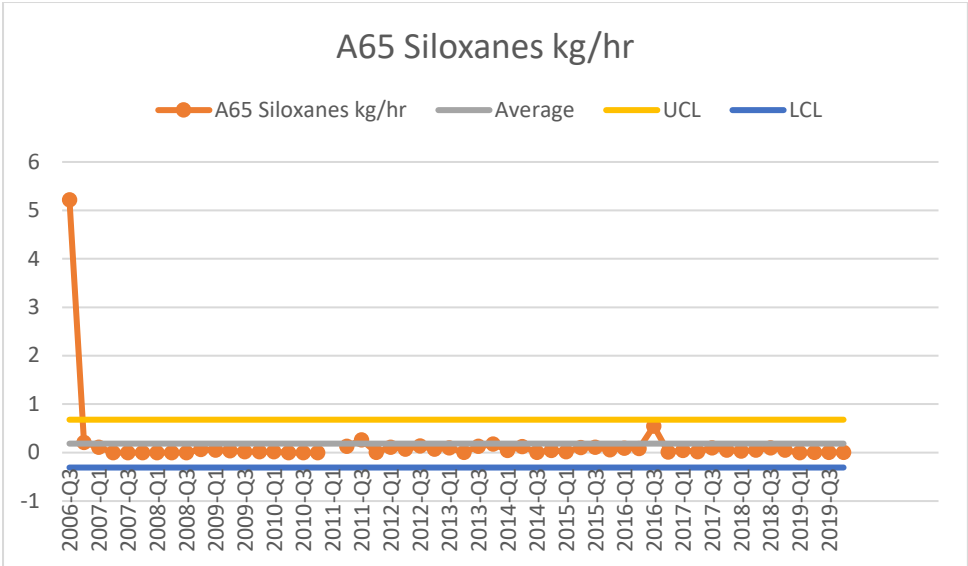
Results in control and within permit limit (10mg/m3).



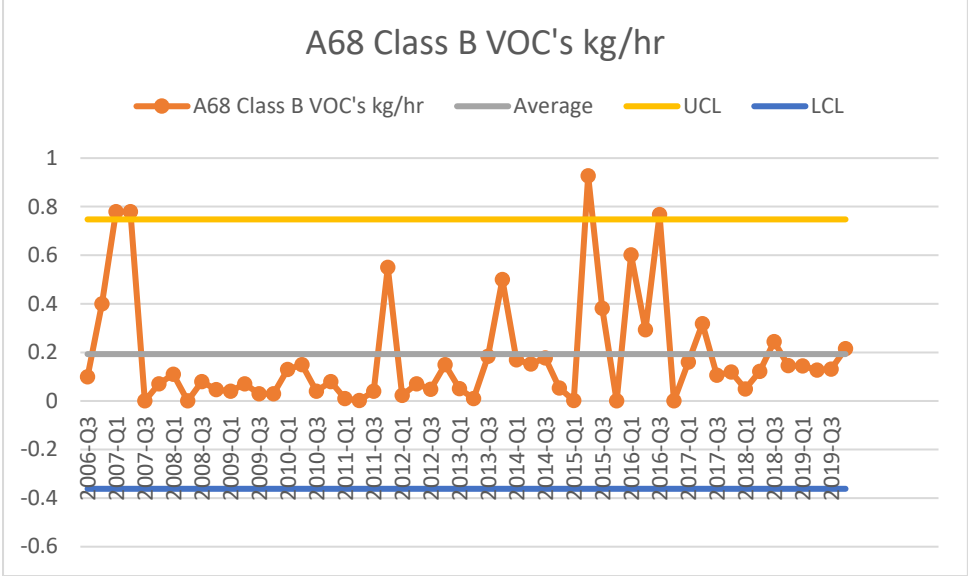
Results in control and within permit limit (10mg/m3).



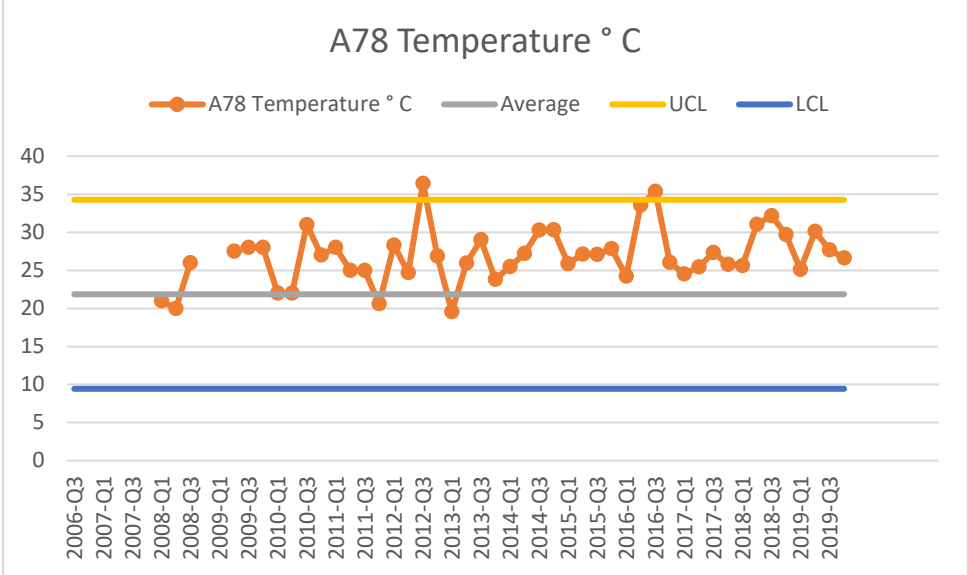
Results in control.



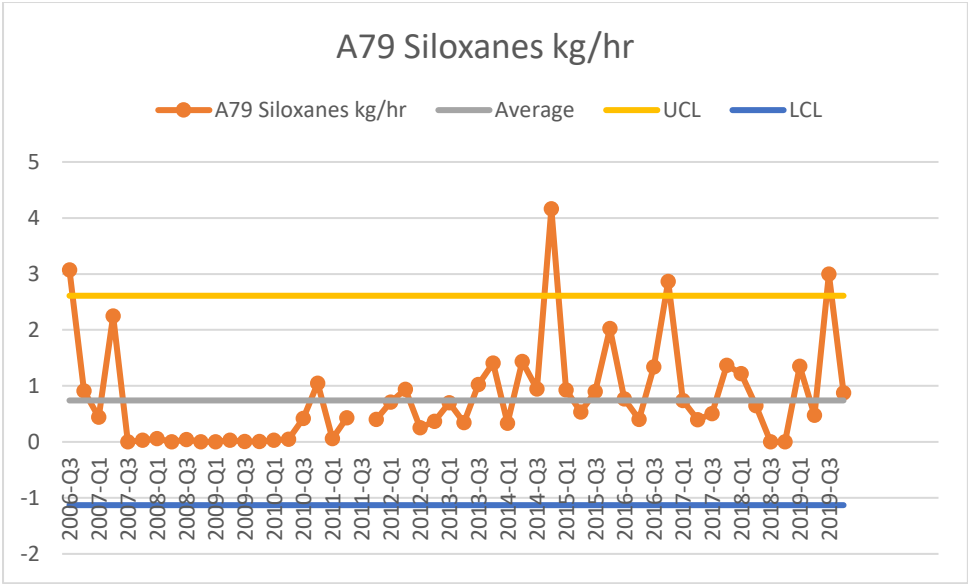
Results in control.



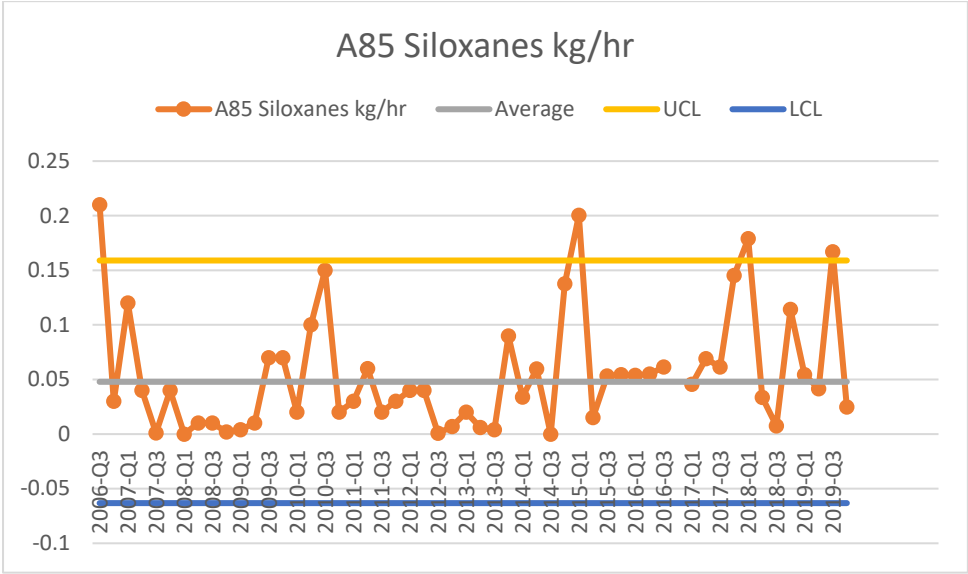
Results in control.



Results in control.

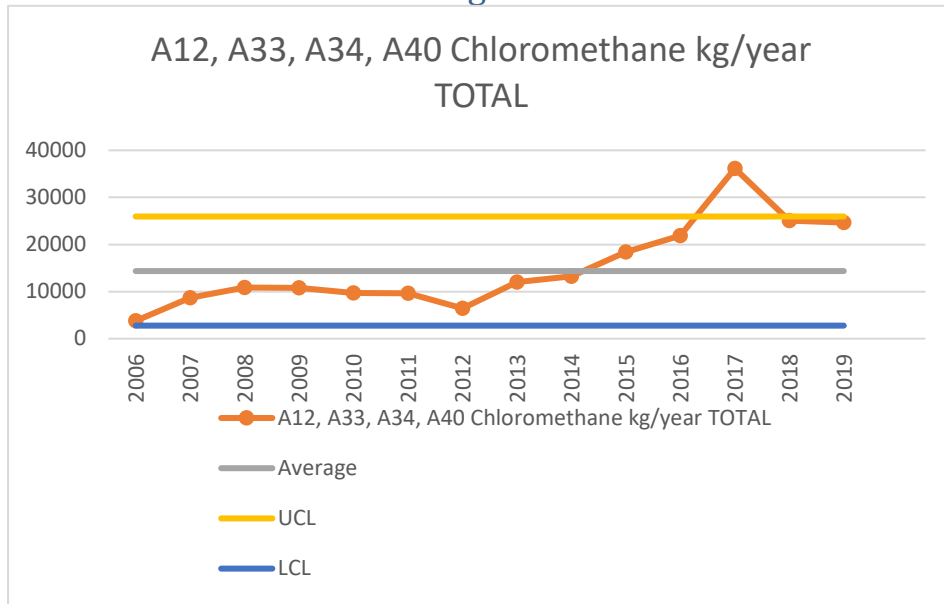


Results in control.



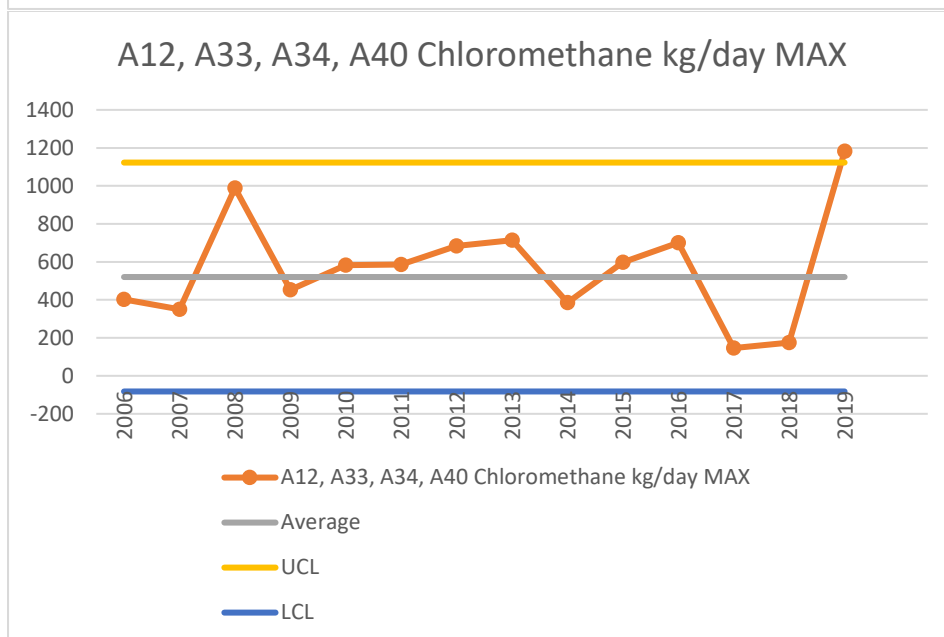
Very variable results from this vent during 2018 and 2019. This will continue to be monitored.

Trends for Annual monitoring:

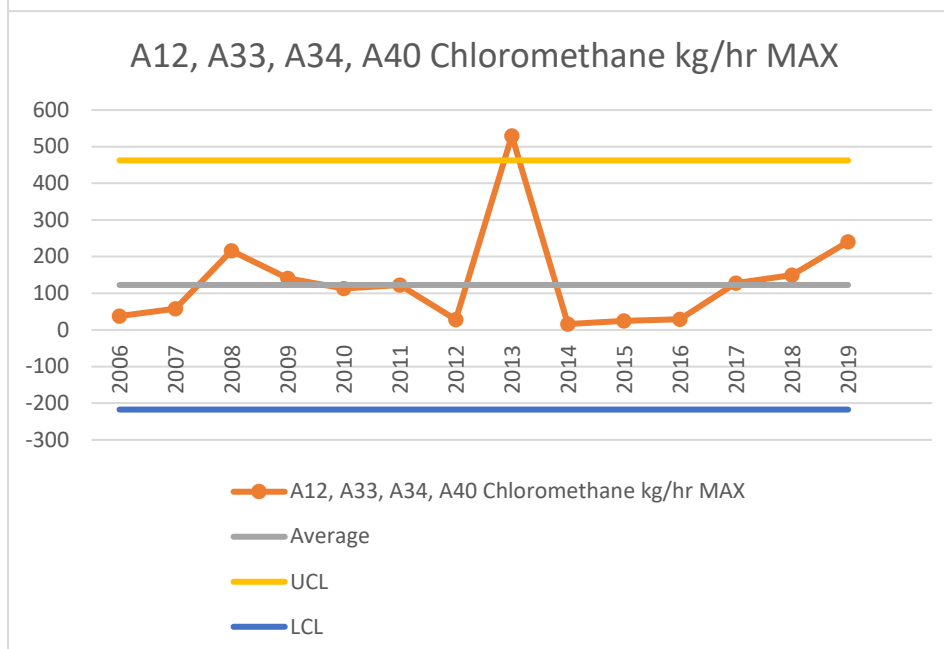


Results similar to 2018, but higher than historical data – still well within permit limit (60,000 kg/year).

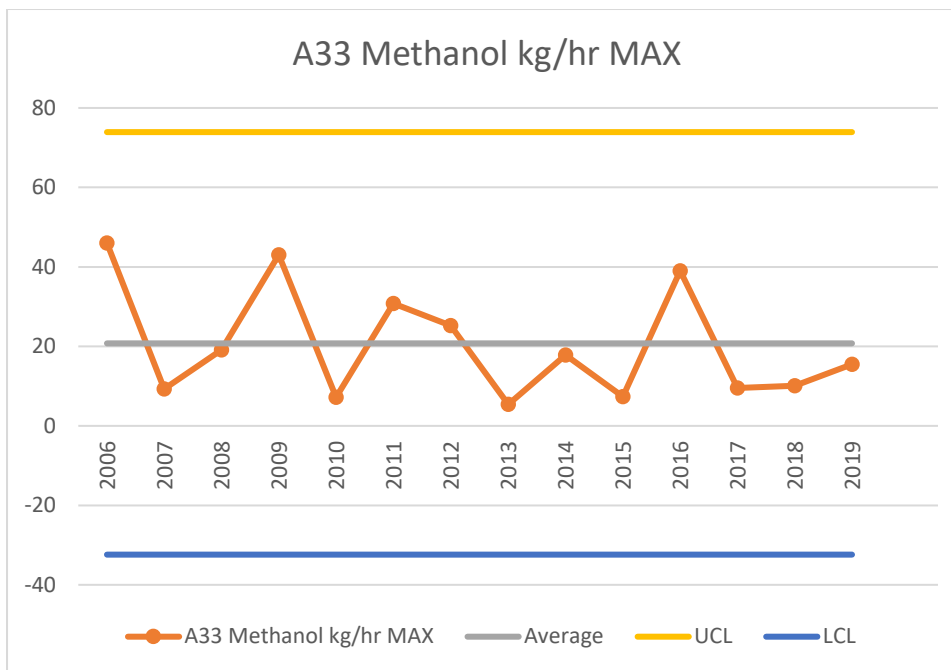
This agreed increase allows Dow Silicones to increase the online time of one of the Recovery processes, thus reducing the quantity of solid hazardous waste produced.



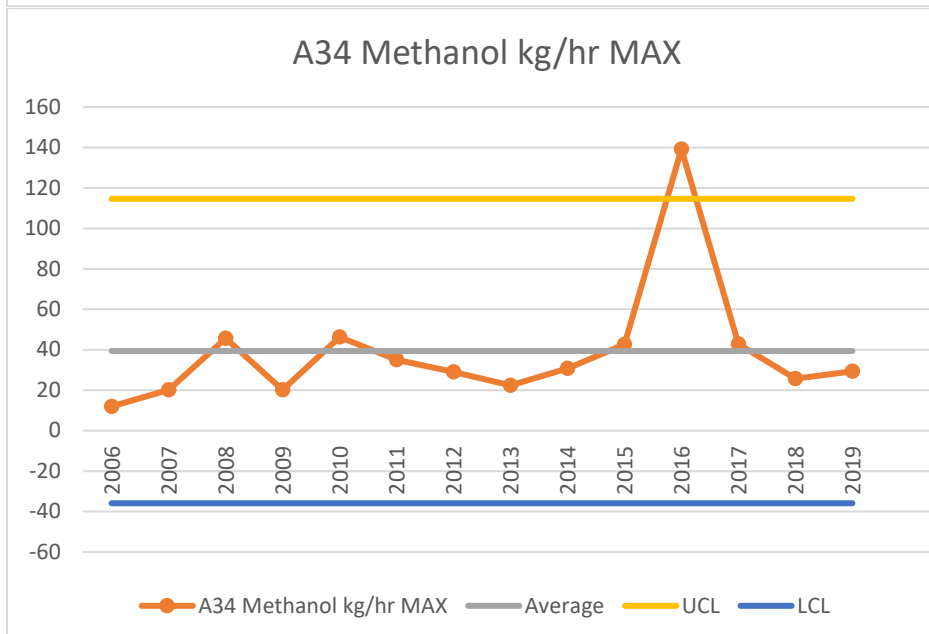
The 2019 Maximum value is out of control and also exceeds the permit limit (1000 kg/day). This permit breach in May was reported via Schedule 5.



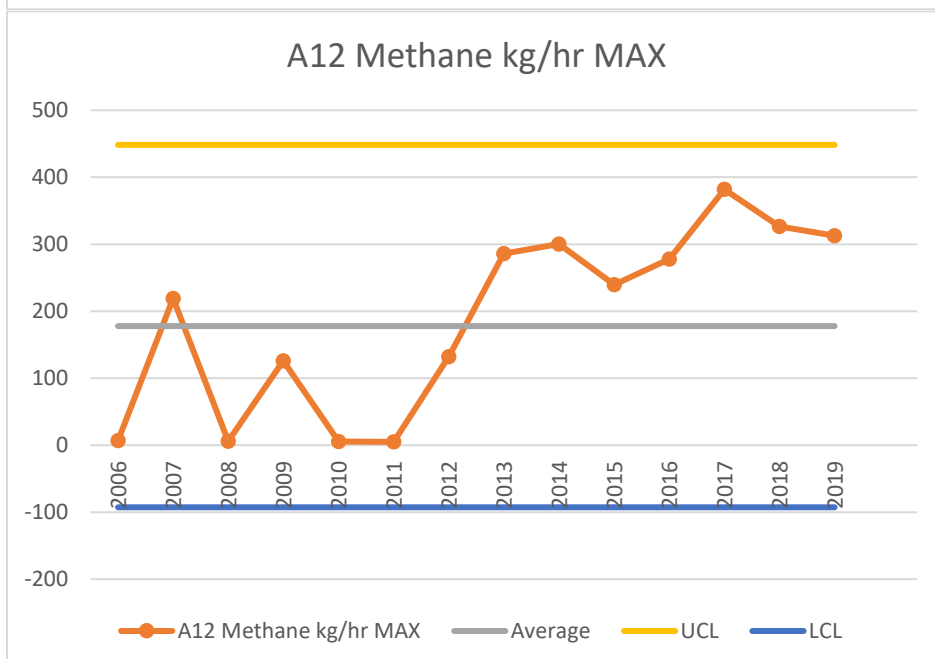
Results in control and within permit limit (250 kg/hr). This result was close to the limit on the same day that the Daily permit limit was exceeded (see graph above)



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

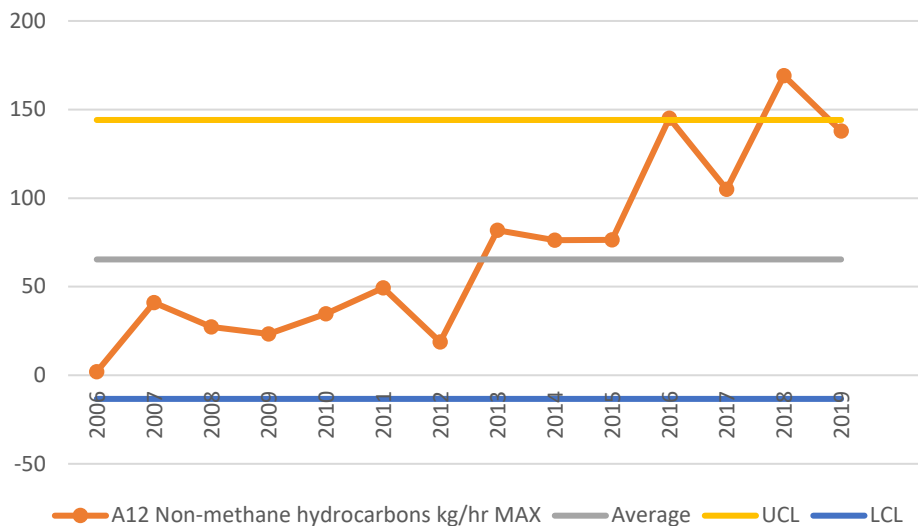


Results in control and within permit limit (max flow of 60kg/hr).



Results in control.

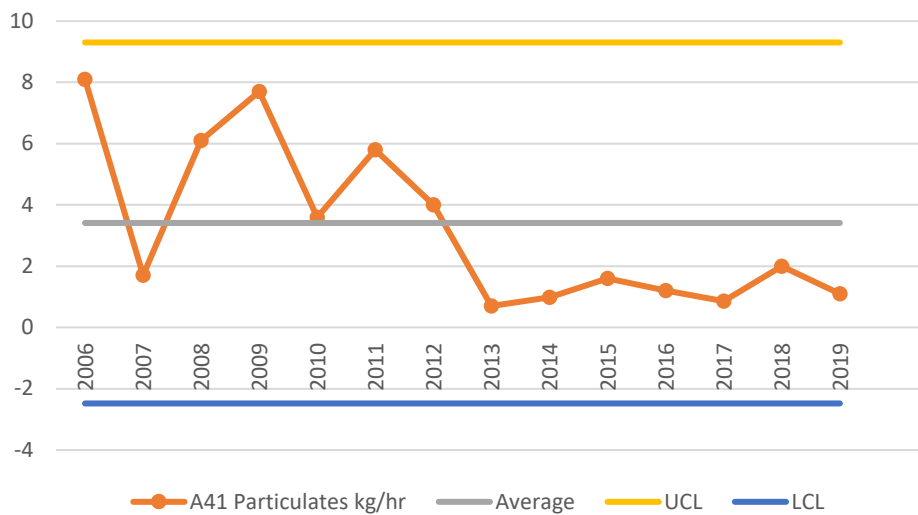
A12 Non-methane hydrocarbons kg/hr MAX



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

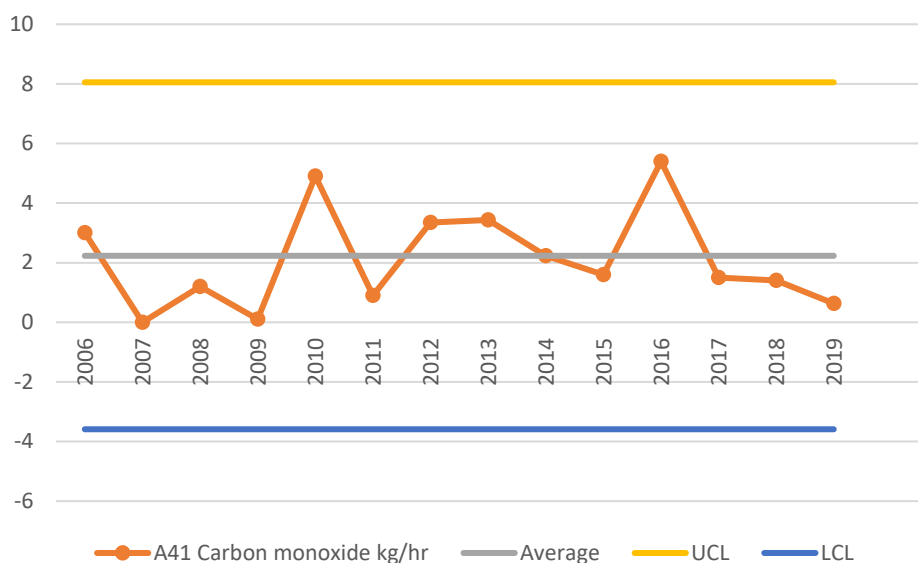
Average whilst venting during the year was 12.96kg/hr.

A41 Particulates kg/hr



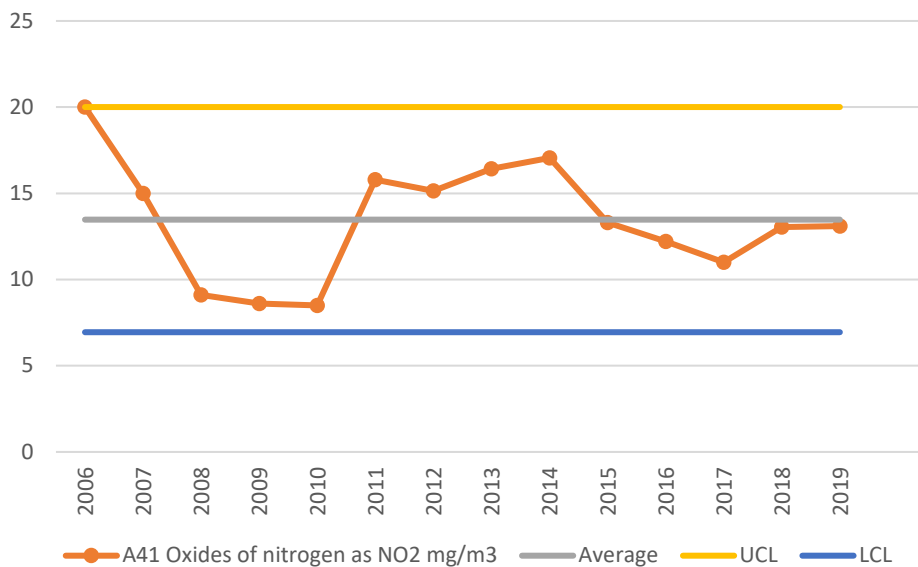
Results in control and within permit limit (10 mg/m³).

A41 Carbon monoxide kg/hr



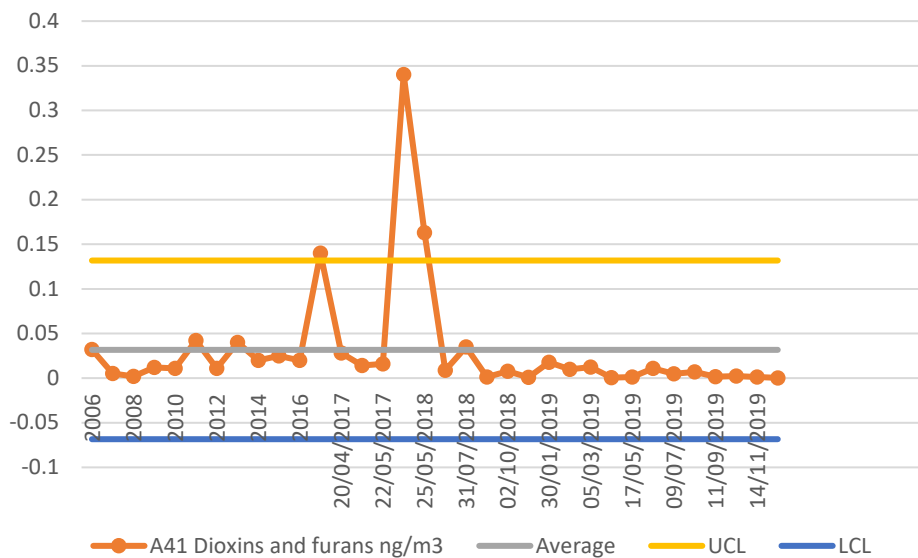
Results in control and within permit limit (50mg/m³).

A41 Oxides of nitrogen as NO2 mg/m3



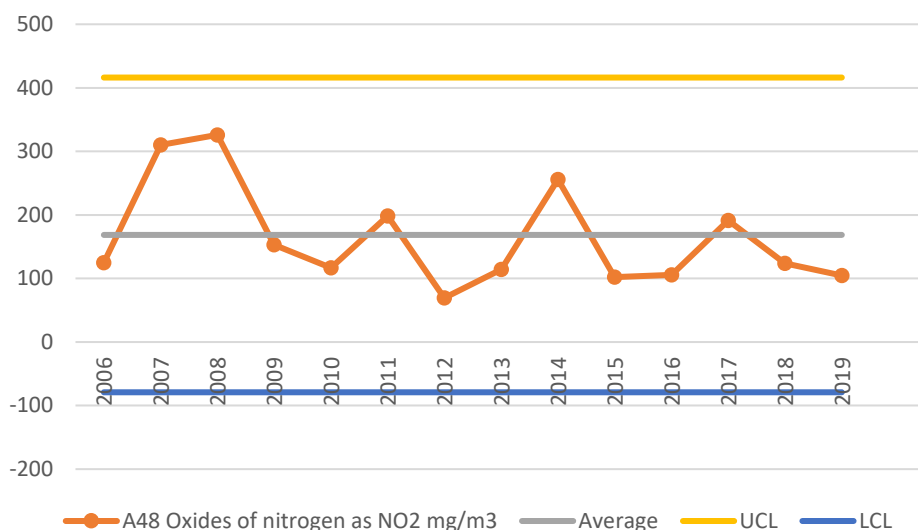
Results in control and within permit limit (100mg/m3).

A41 Dioxins and furans ng/m3



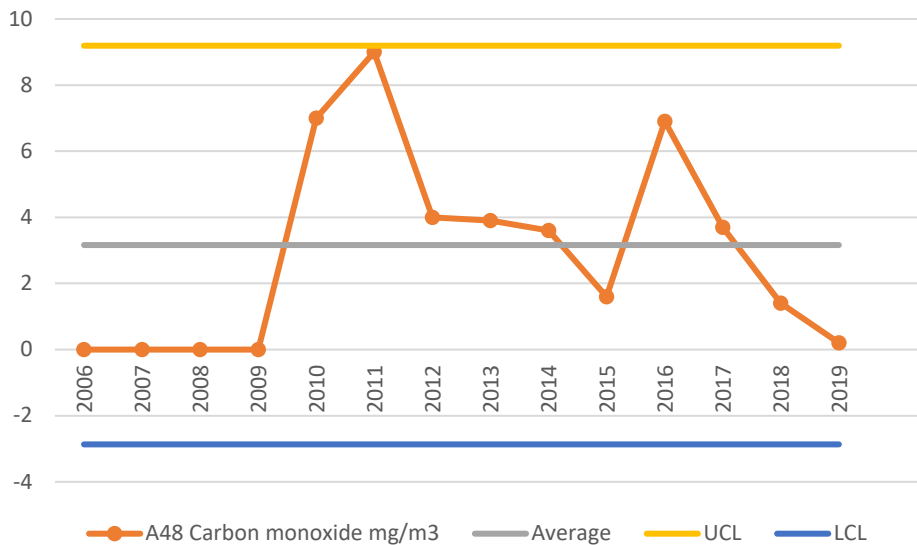
Monthly samples taken throughout 2019. Results in control and within permit limit (0.1ng/m3).

A48 Oxides of nitrogen as NO2 mg/m3



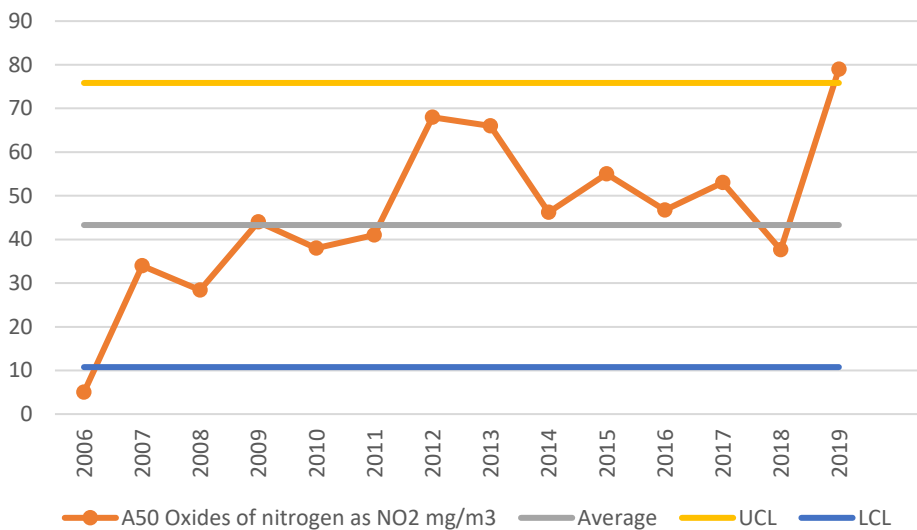
Results in control.

A48 Carbon monoxide mg/m3



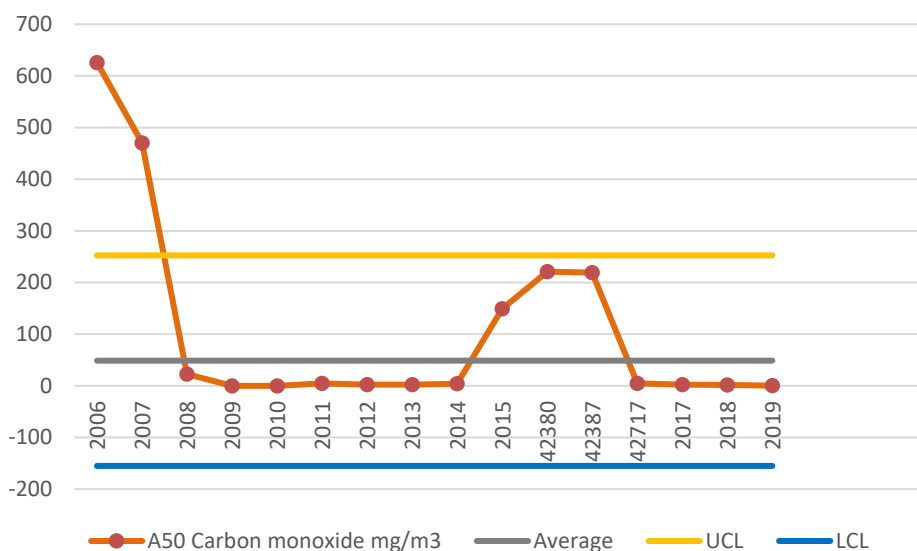
Results in control.

A50 Oxides of nitrogen as NO2 mg/m3



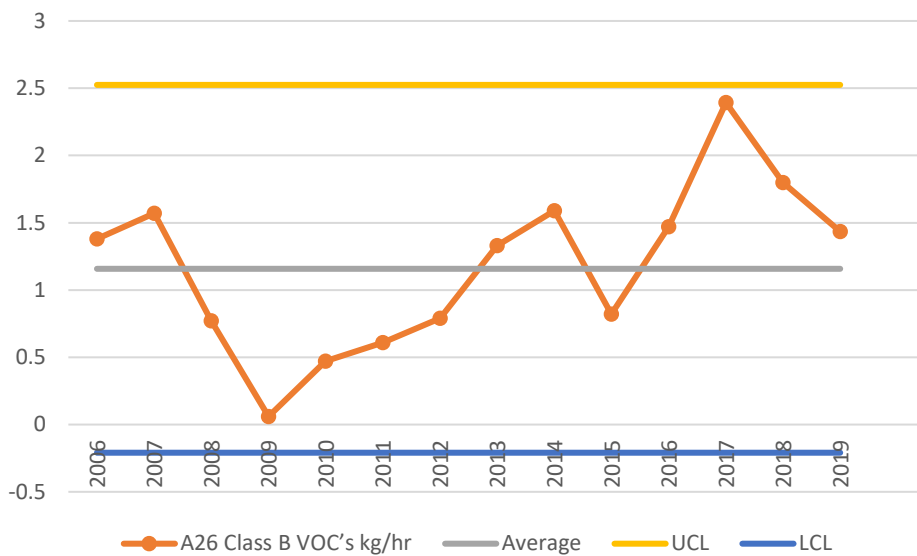
Results out of control high , but within permit limit (200mg/m3). We will continue to monitor this.

A50 Carbon monoxide mg/m3



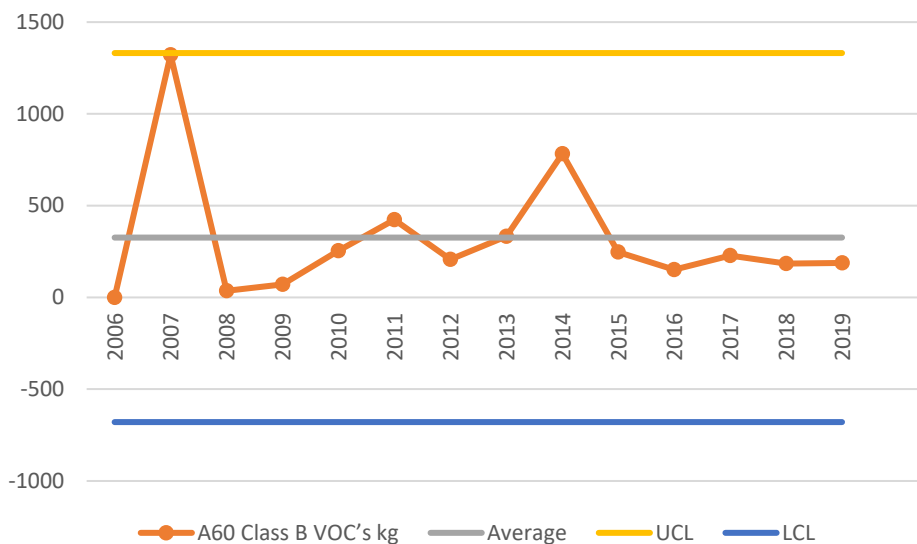
Results in control and within permit limit (200mg/m3).

A26 Class B VOC's kg/hr



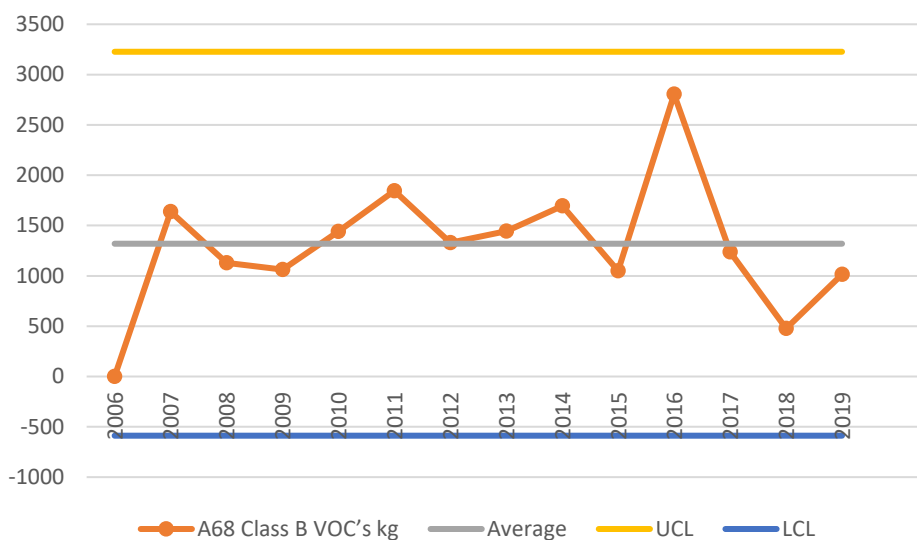
Results in control.

A60 Class B VOC's kg

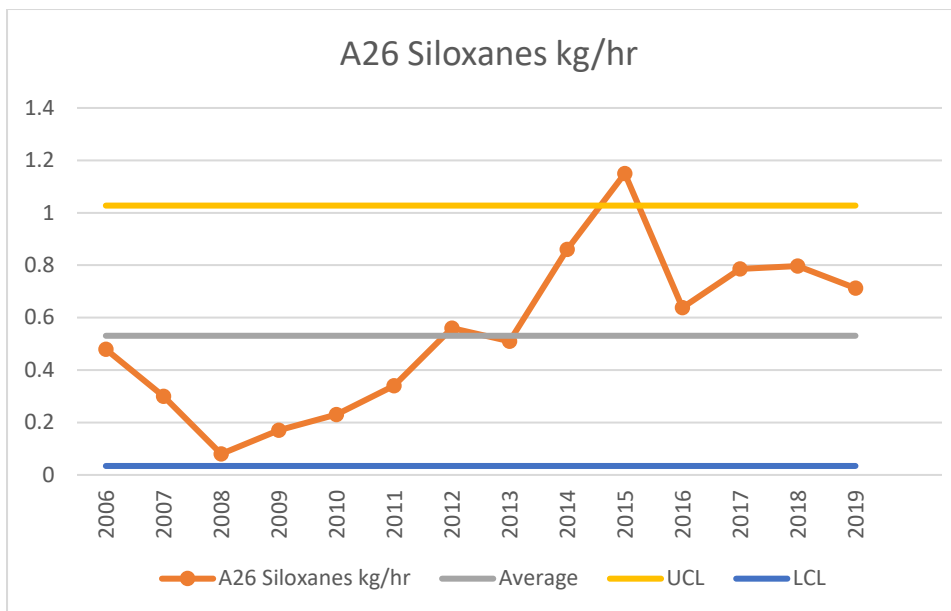


Results in control and within permit limit (5,000 kg/yr).

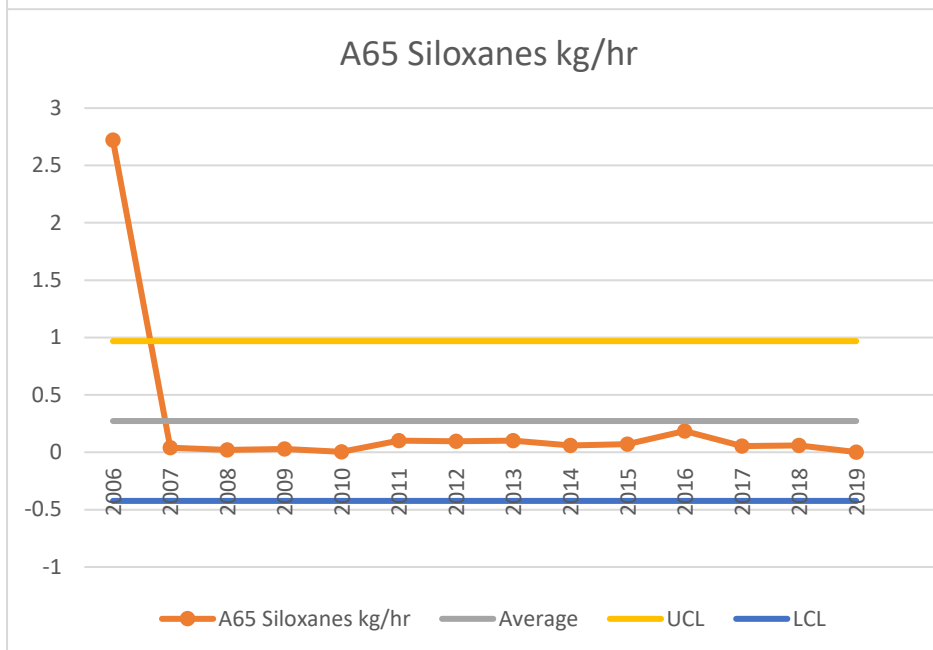
A68 Class B VOC's kg



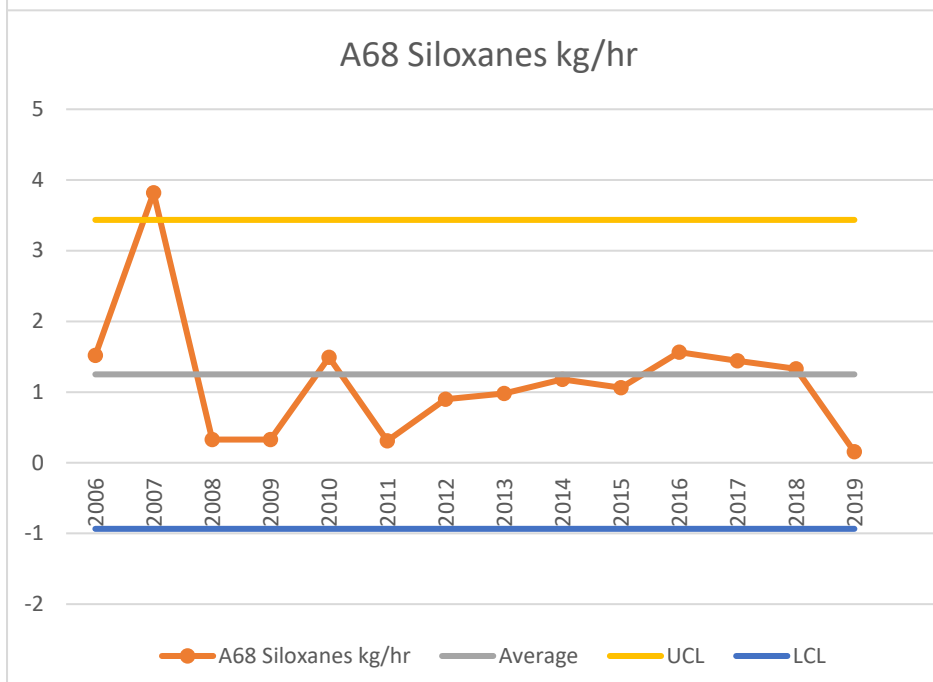
Results in control and within permit limit (5,000 kg/yr).



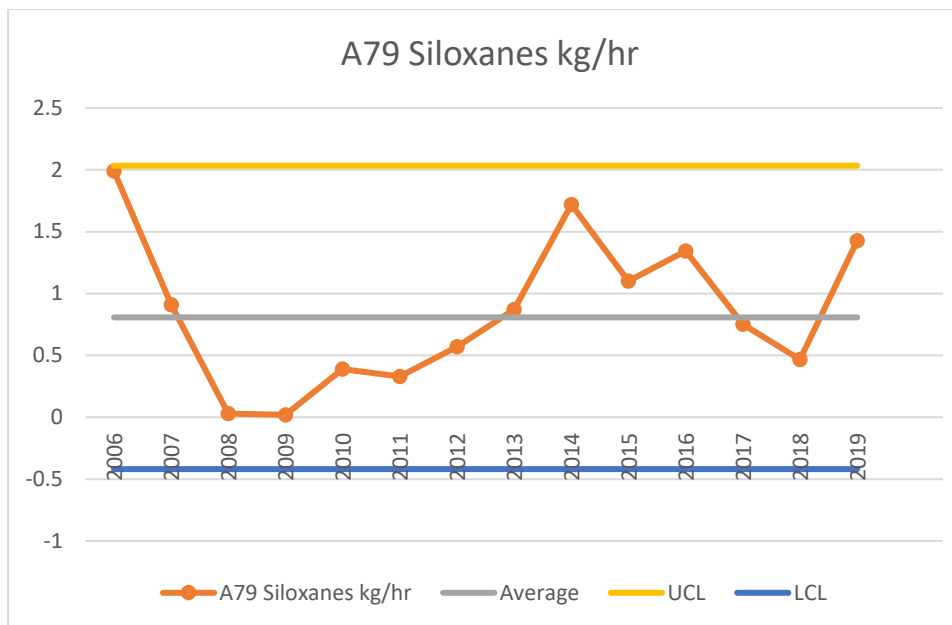
Results in control



Results in control

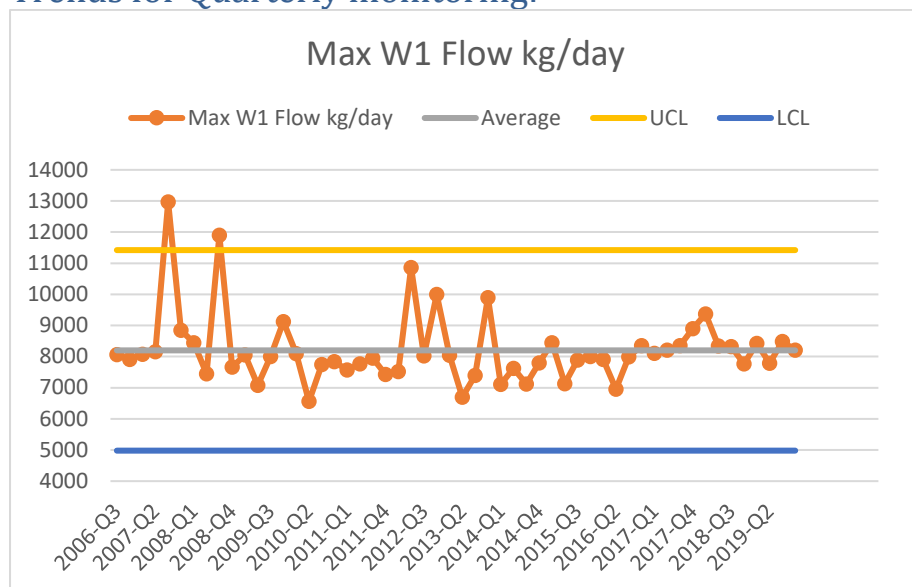


Results in control

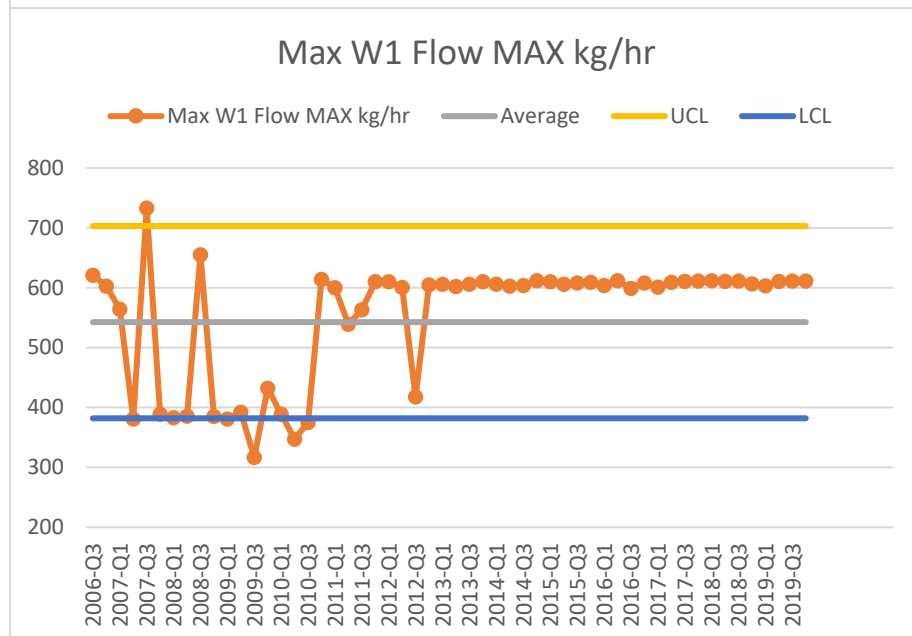


Water monitoring

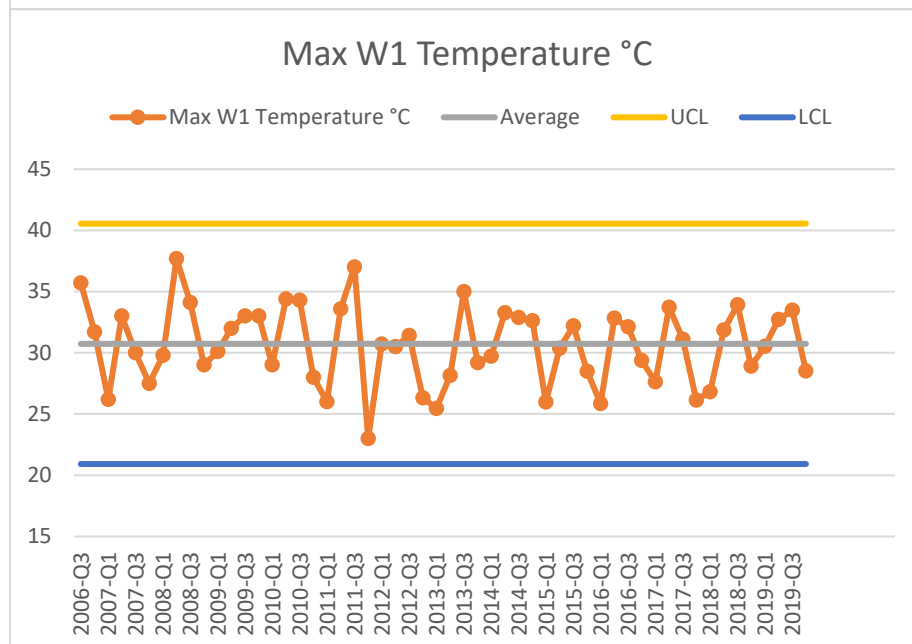
Trends for Quarterly monitoring:



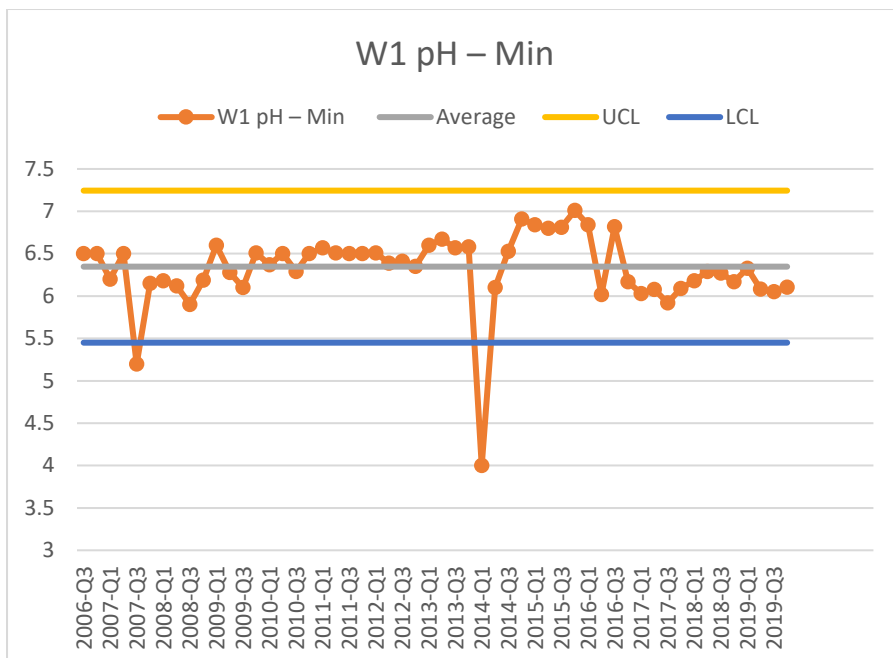
Results in control and within permit limit (11,000 m³/day)



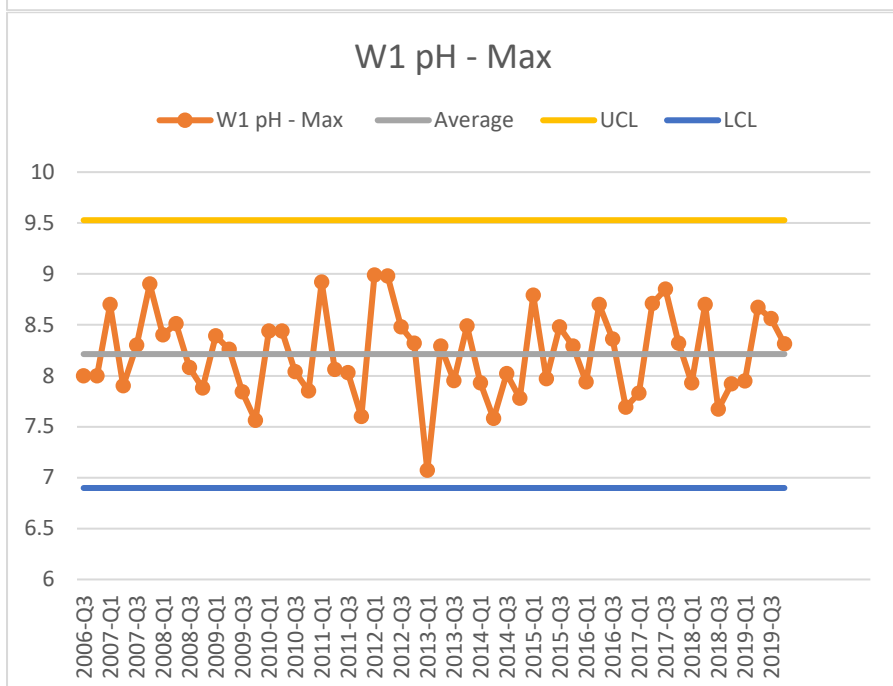
Results in control and within permit limit (625 m³/hr)



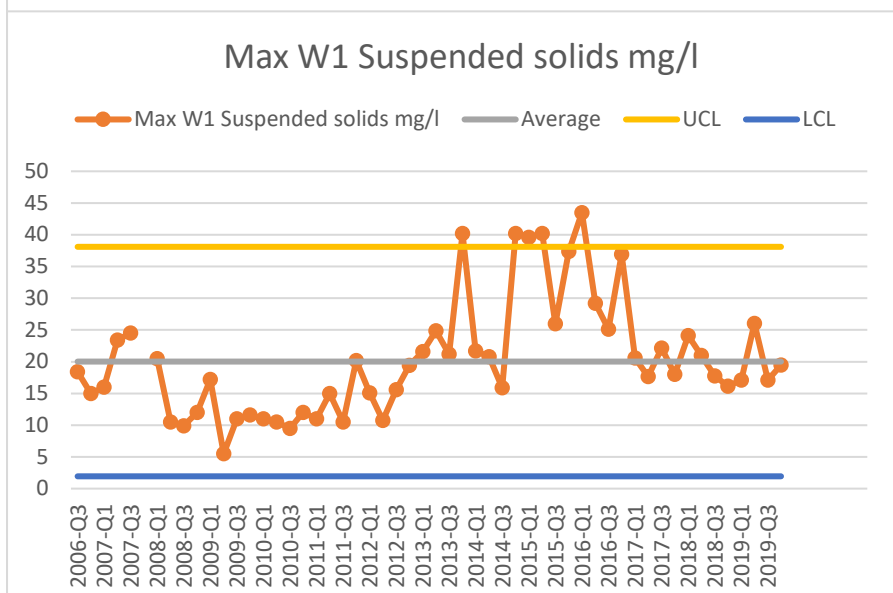
Results in control and within permit limit (40°C)



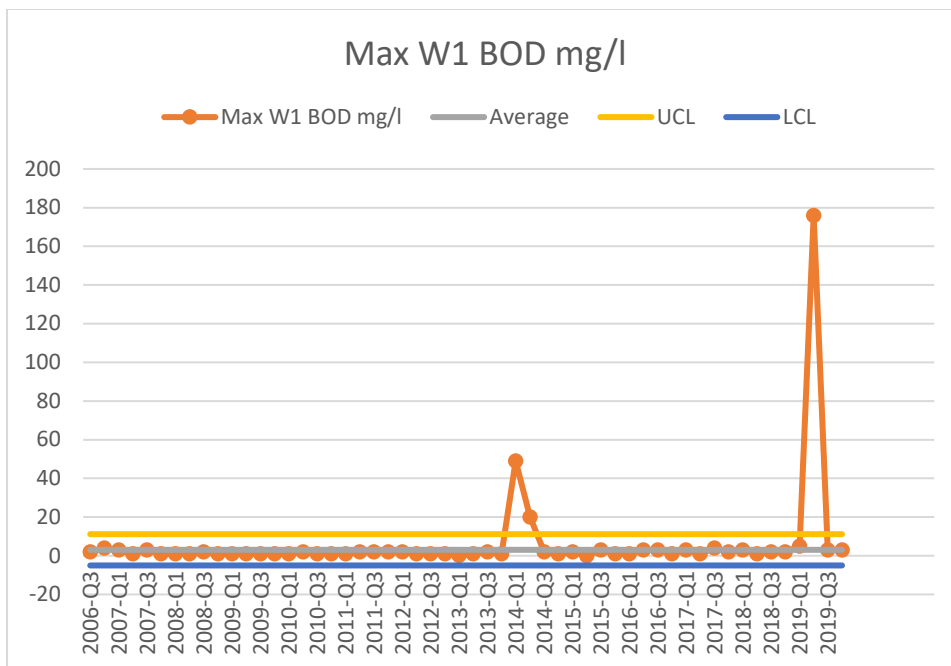
Results in control and within permit limit (>6)



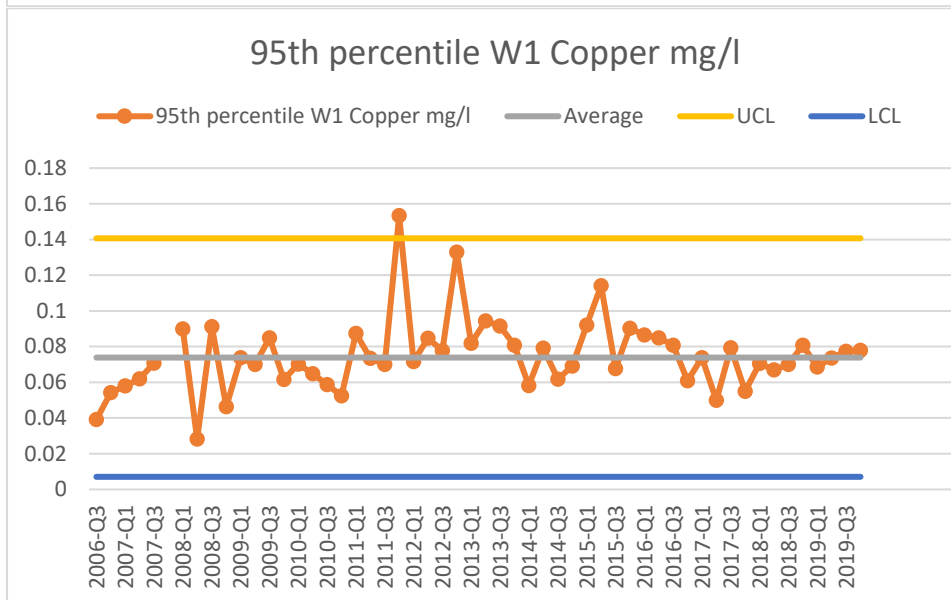
Results in control and within permit limit (<9)



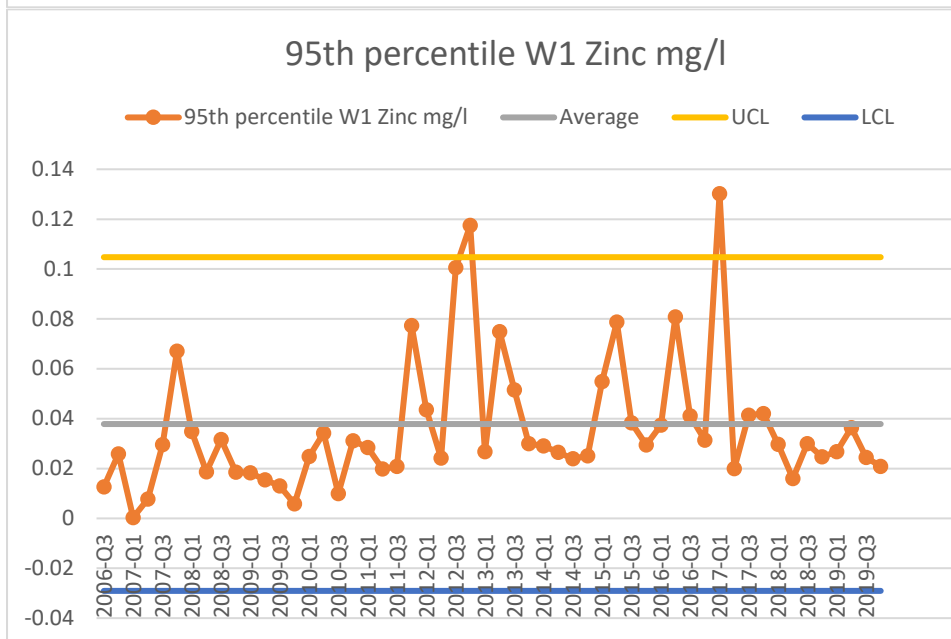
Results in control and within permit limit (30 mg/l)



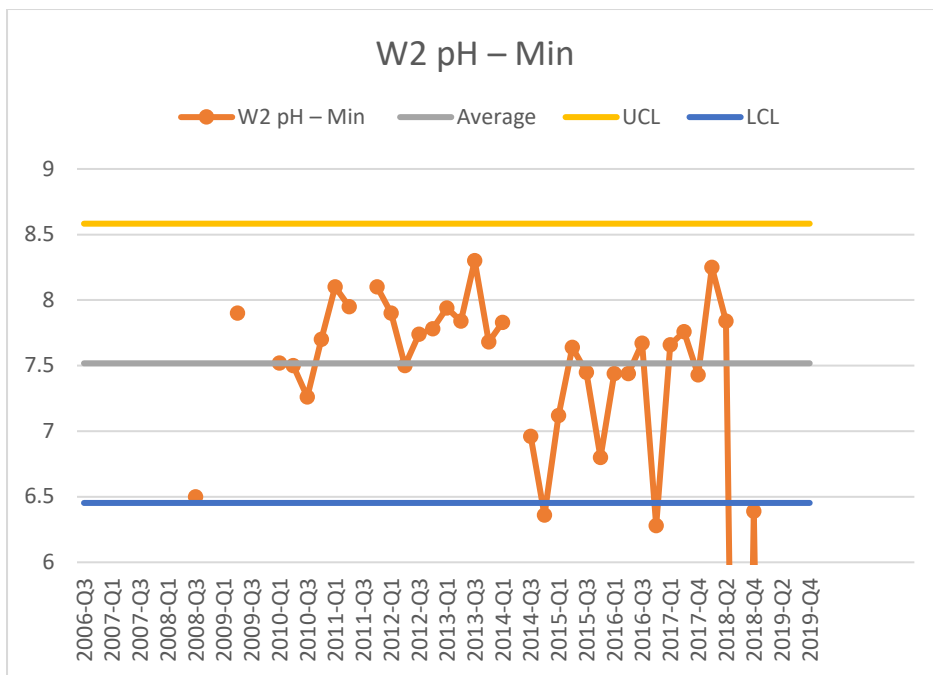
Results in control and within permit limit (20 mg/l)



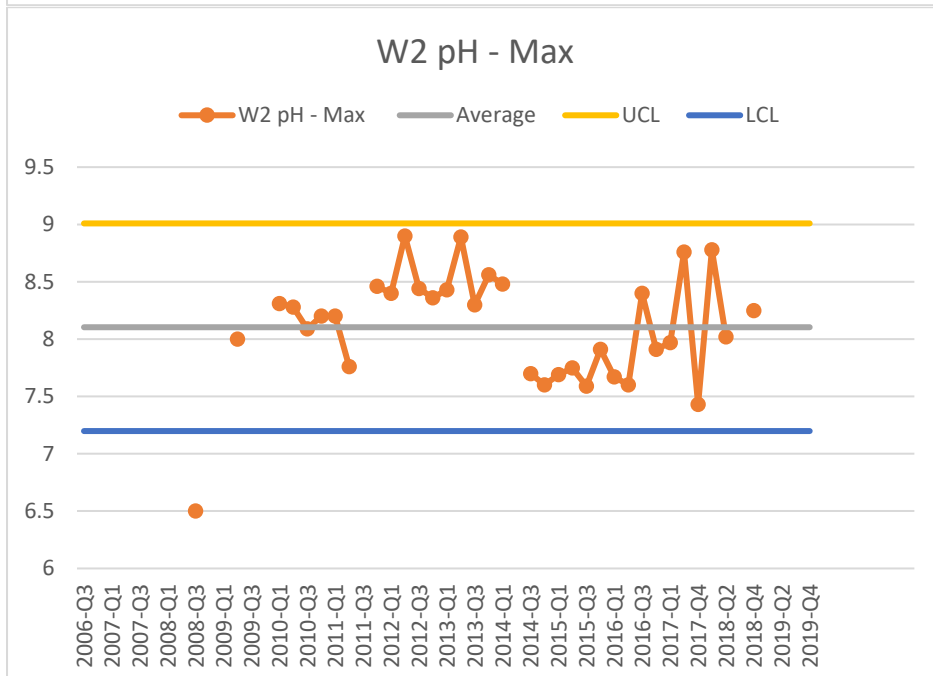
Results in control and within permit limit (0.1 mg/l)



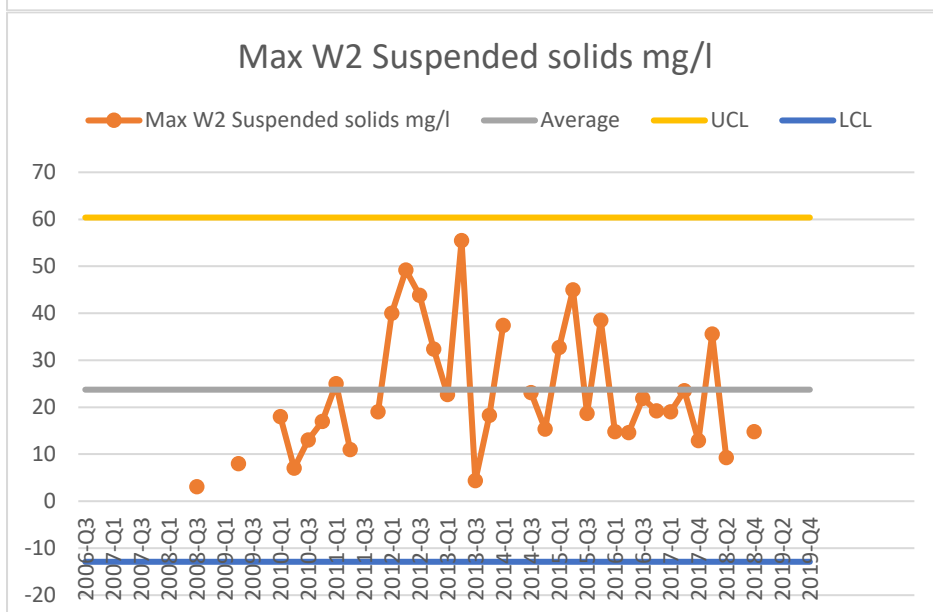
Results in control and within permit limit (0.5 mg/l)



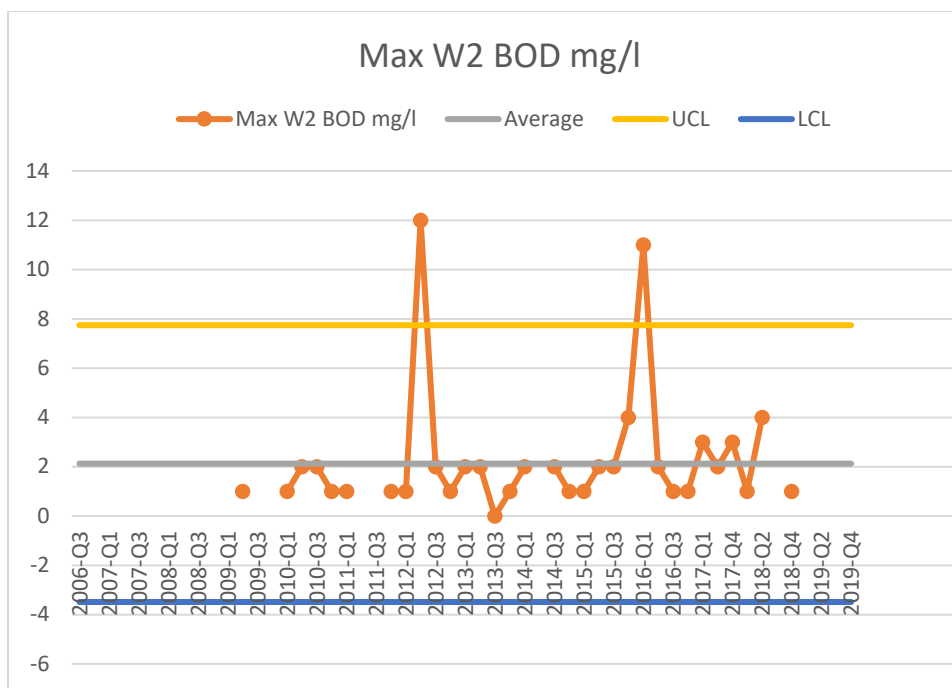
No releases to river in 2019.
Permit limit (>6)



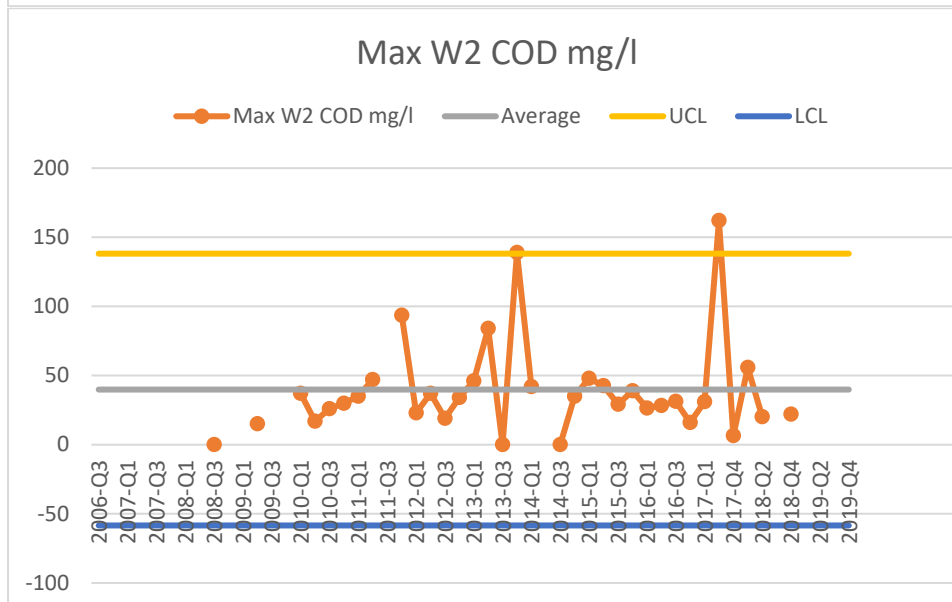
No releases to river in 2019.
Permit limit (<9)



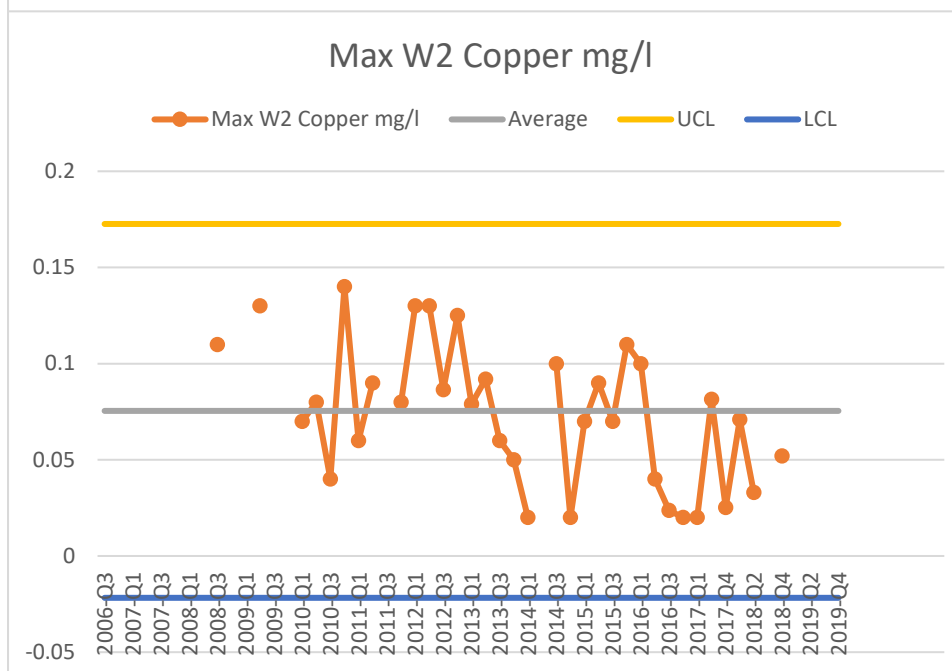
No releases to river in 2019.
Permit limit (30 mg/l)



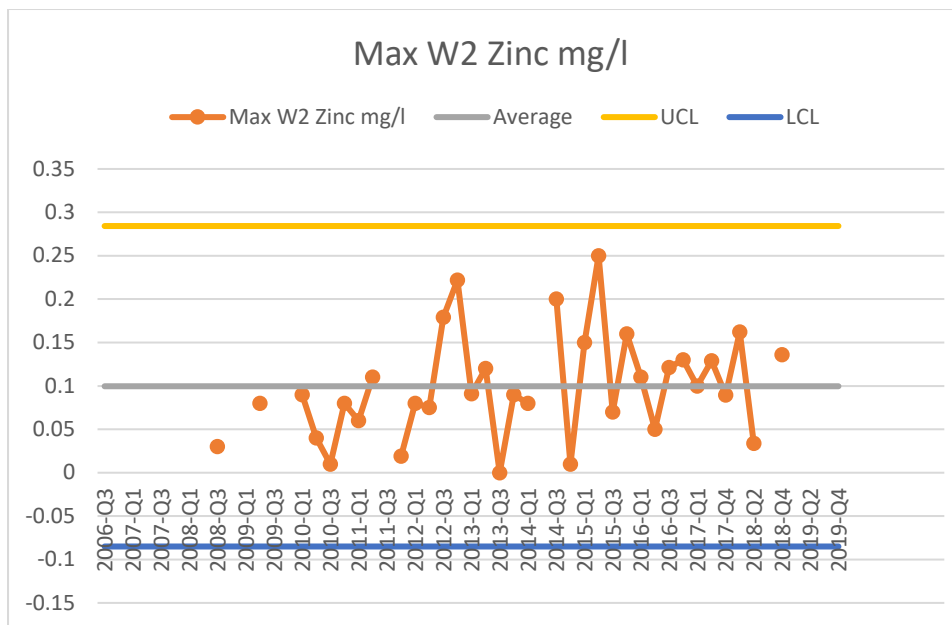
No releases to river in 2019.
Permit limit (20 mg/l)



No releases to river in 2019.
Permit limit (125 mg/l)



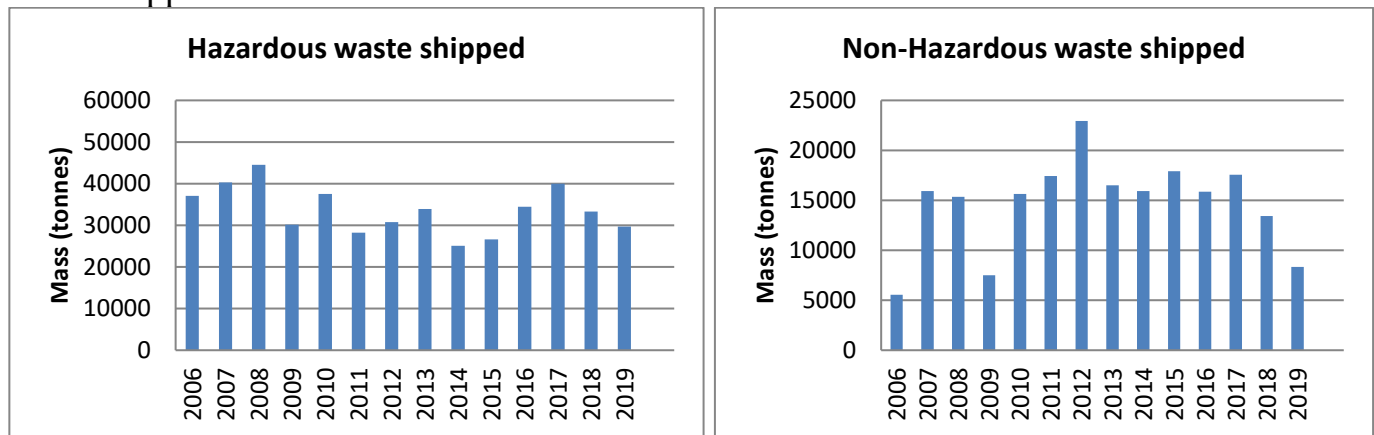
No releases to river in 2019.
Permit limit (0.15 mg/l)



No releases to river in 2019.
Permit limit (0.25 mg/l)

Waste

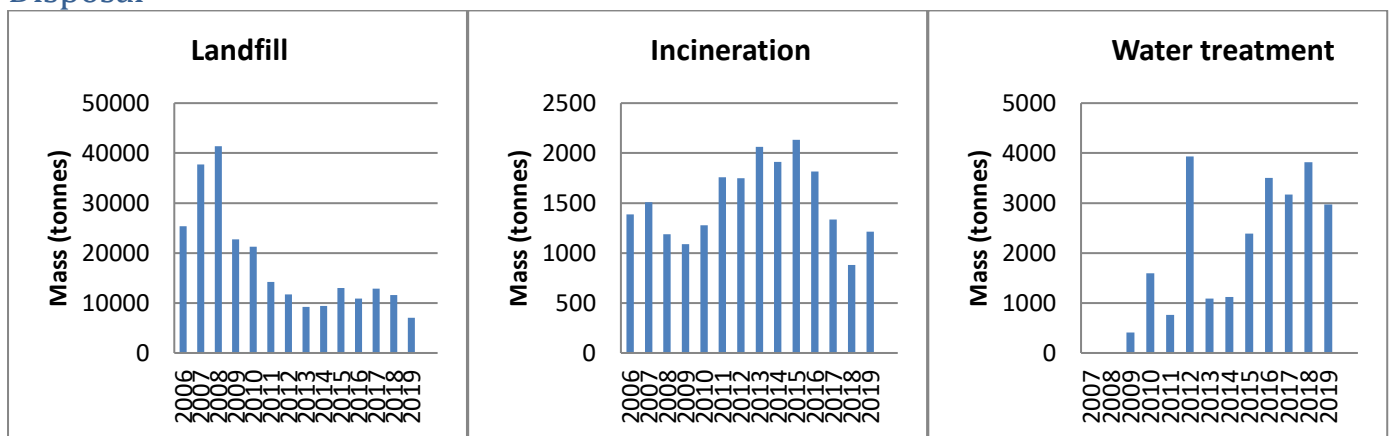
Waste shipped from the site was as follows:



The decrease in hazardous waste was a small percentage over many of the wastes due to lower production rates for 2019 over 2018.

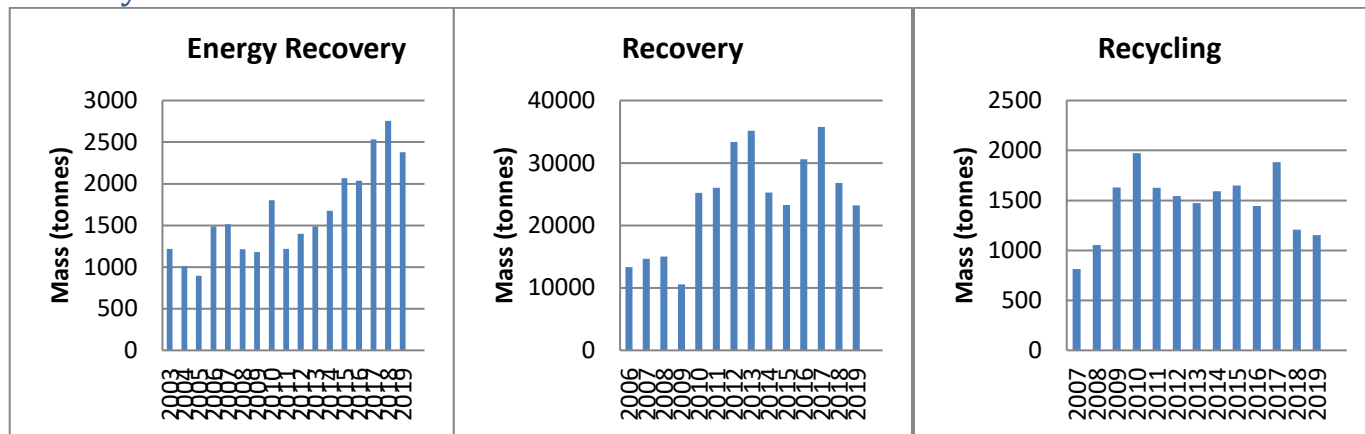
The decrease in non hazardous waste is due to less DPR gels being produced, showing increased running of the waste reduction process and less Calcium slurry due to improved running of the Wastewater treatment process..

Disposal



- The decrease in landfill was a small percentage over many of the waste due to lower production rates for 2019 over 2018.
- Incineration is back up to 2017 levels from a very low 2018 due to outlets not being available.
- Water treatment decreased due to improved running of the Wastewater treatment process, thus not producing very much calcium slurry.

Recovery



- Energy recovery decreased from last year due to a reduction in specific waste streams. This shows an improvement in a couple of the processes.
- Recovery decreased a small amount this year, this was a small percentage over the the main wastes due to lower production rates for 2019 over 2018
- Recycling was very similar in 2018 and 2019

Complaints

There were 7 complaints to the Barry Industrial complex helpline in 2019

- 3 were for odour –
 - 2 of the complaints were to do with a sewage smell attributed to sewage tankers adjacent to the fence line near the gym area
 - 1 complaint was unsubstantiated
- 4 were for noise:
 - 1 complaint was unsubstantiated
 - 2 complaints were attributed to process equipment at the Dow site and adjustments made to rectify
 - 1 complaint was attributed to Cabot, condensate hammer.