



Annual Performance and Monitoring review

EPR Permit BR9685IX

Dow Silicones UK Ltd - 2020

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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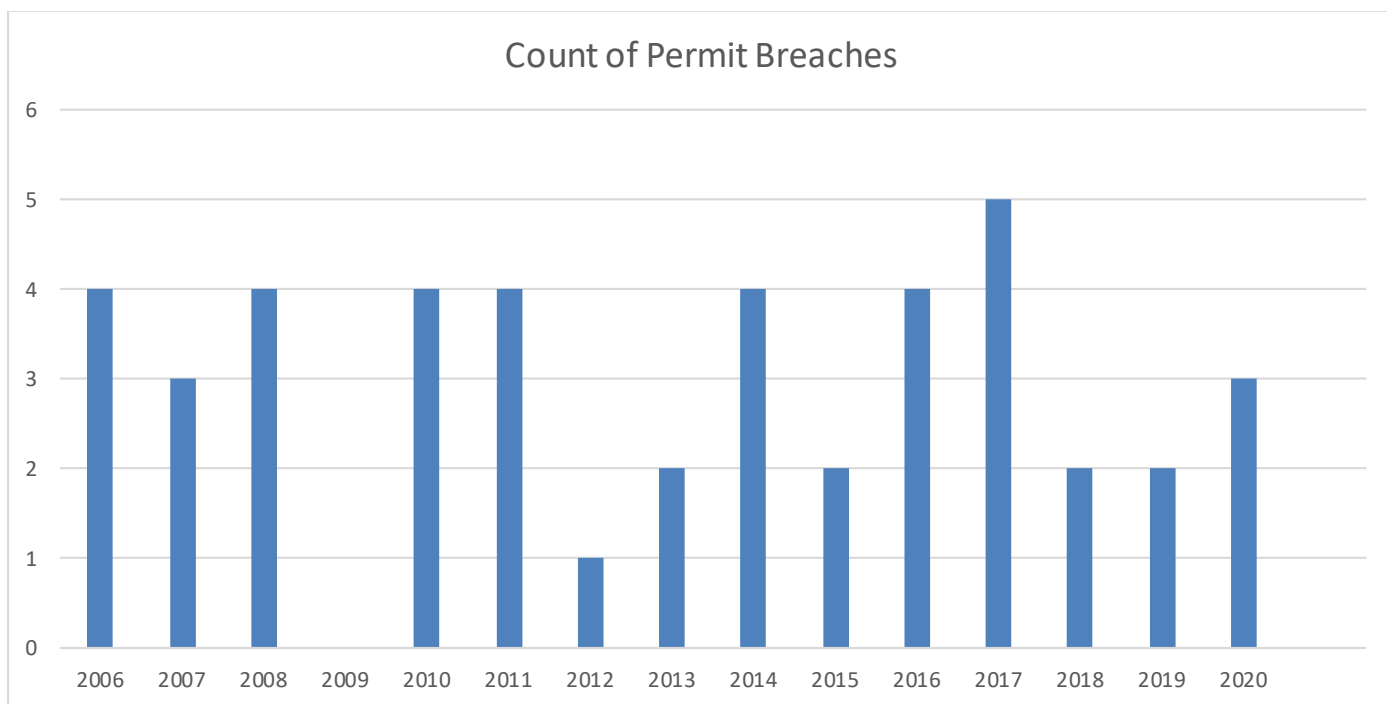
Summary

The report includes details of our performance during 2020. SPC charts have been used for all analytical monitoring we carry out for releases to air and water.

Points of interest for 2020 :

- Issues with the operation of the SWWT process caused higher copper in the final effluent at periods during the year.
- Methyl chloride cumulative venting to atmosphere was lower again in 2020 than 2019 and 2018, there was less vented from all 3 of the main contributors, culminating in a significantly lower total.
- W714 and W718 did not run during
- The plants continued to run throughout the year in spite of the Covid 19 pandemic. Support staff levels on site were dramatically reduced with only essential workers attending site and staggered arrivals and departures to allow social distancing.
- All ERU sampling was carried out as normal. The annual particulates were slightly higher than normal and the monthly average NO₂ value was slightly higher than previous years. These results were still within permitted limits and will continue to be monitored.

Incidents



There were 3 permit breaches reported in 2020:

W1 – Final effluent Copper 95th percentile exceedance – Q2

During Q2 six final effluent composite samples were over 0.1 mg/l of Copper. The average for the quarter was 0.0501 mg/l. Following a detailed investigation, it was found that the samples were contaminated in the composite autosampling equipment itself due to a build up of solids in the equipment. It was extremely unlikely that the flow to the river was high in copper. A regular cleaning and maintenance regime for the composite sampler have been set up as an outcome of this issue.

W1 & W2 – Final effluent BOD analysis not carried out due to Covid-19 – Q2

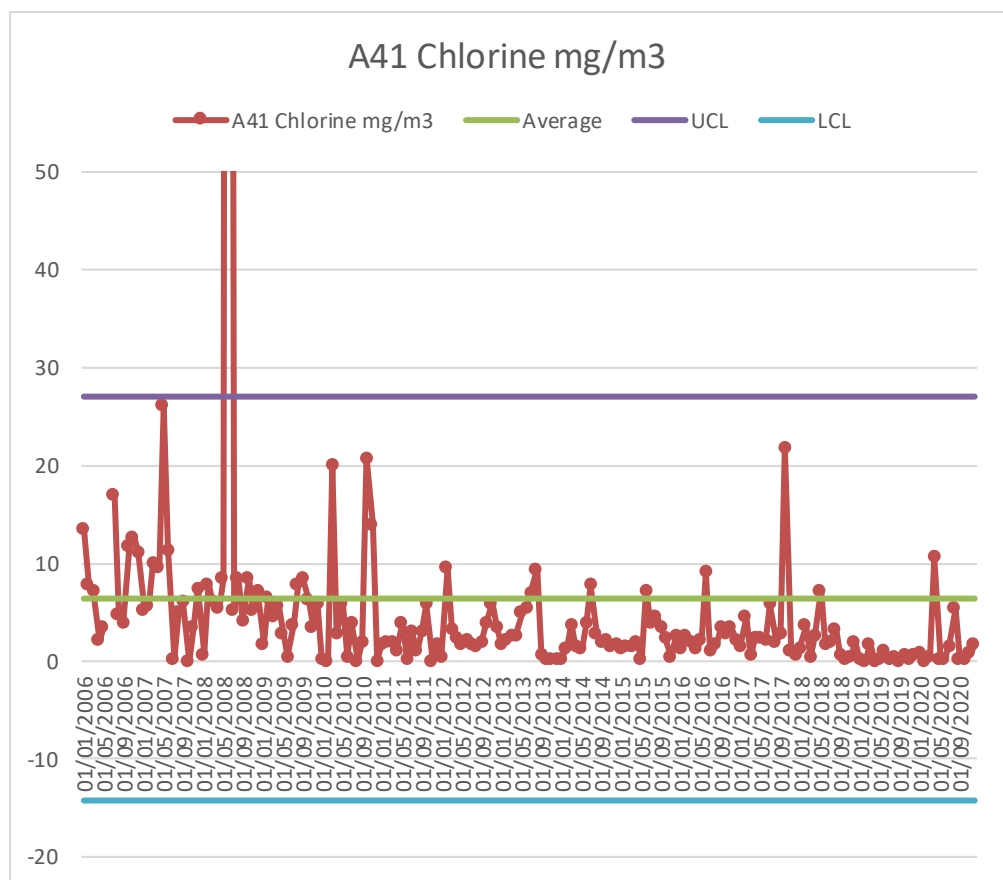
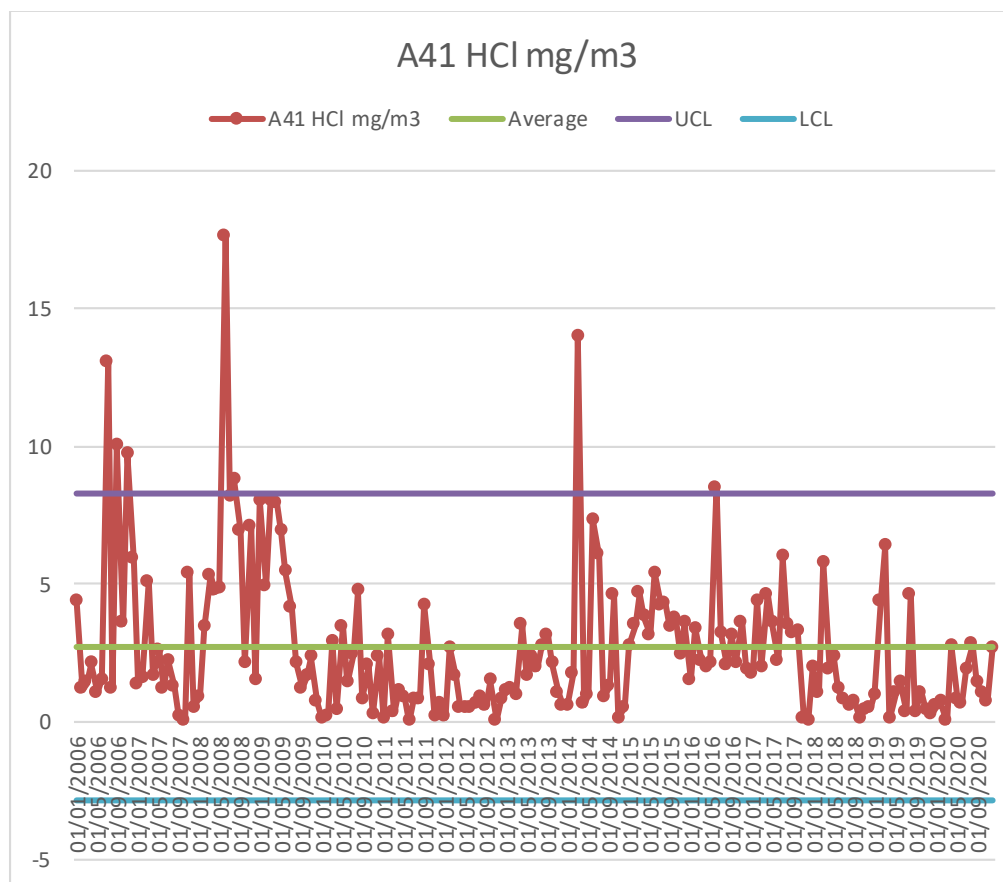
During Q2 samples were not sent off for analysis for BOD₅ testing during April and May (usually once per month) due to the external lab that carries out the analysis being unavailable due to Covid 19. Sampling resumed during June.

W1 – Final effluent Copper 95th percentile exceedance – Q4

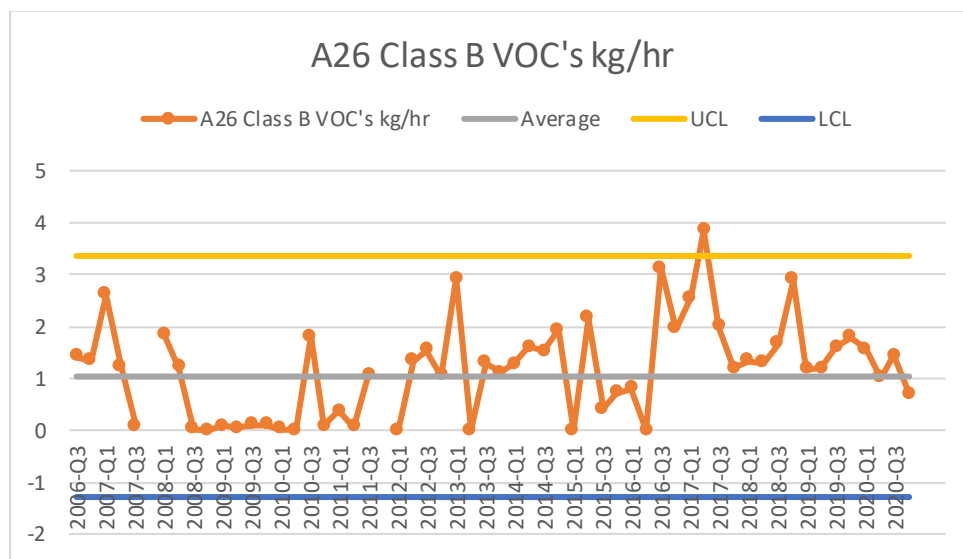
During Q4 seven final effluent composite samples were over 0.1 mg/l of Copper. The average for the quarter was 0.0534 mg/l. These were principally isolated occurrences. Three of the occurrences can be explained by plant running conditions including issues with pH control in the SWWT process. The remaining four occurrences were not well understood and may have been due to composite sampler contamination. The frequency of the composite autosampler cleaning and maintenance has been increased, including weekly operator cleaning of all the equipment with demin water.

Air monitoring

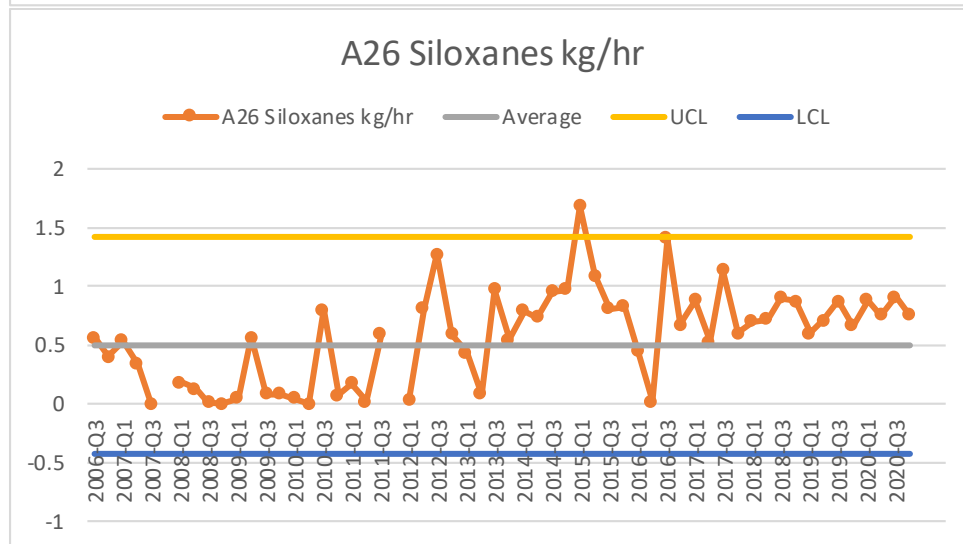
Trends for Monthly monitoring



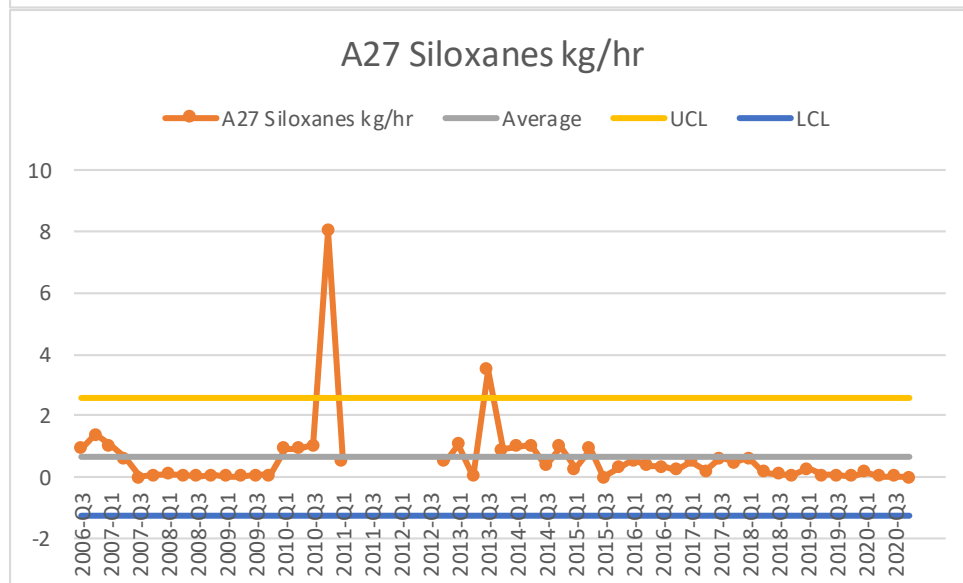
Trends for Quarterly monitoring:



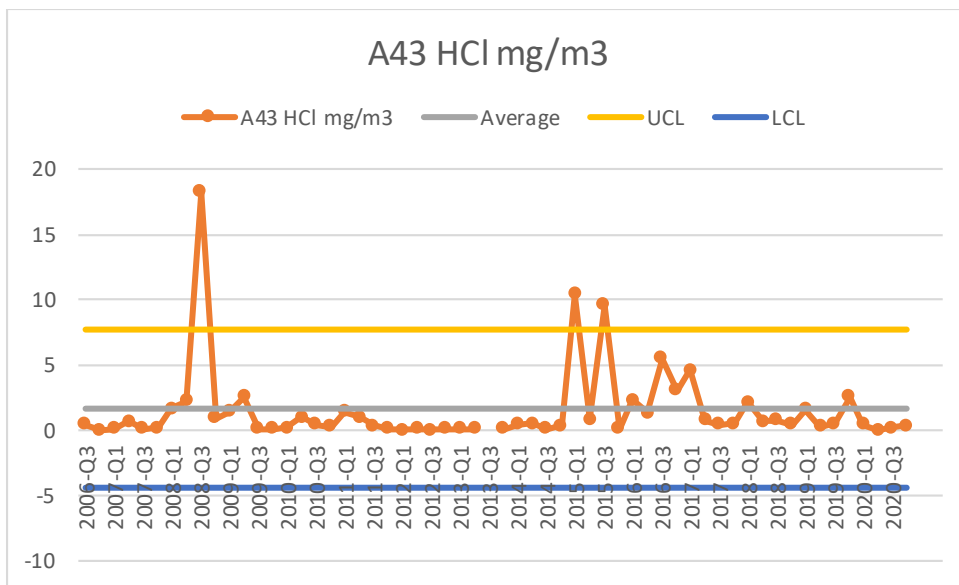
Results in control.



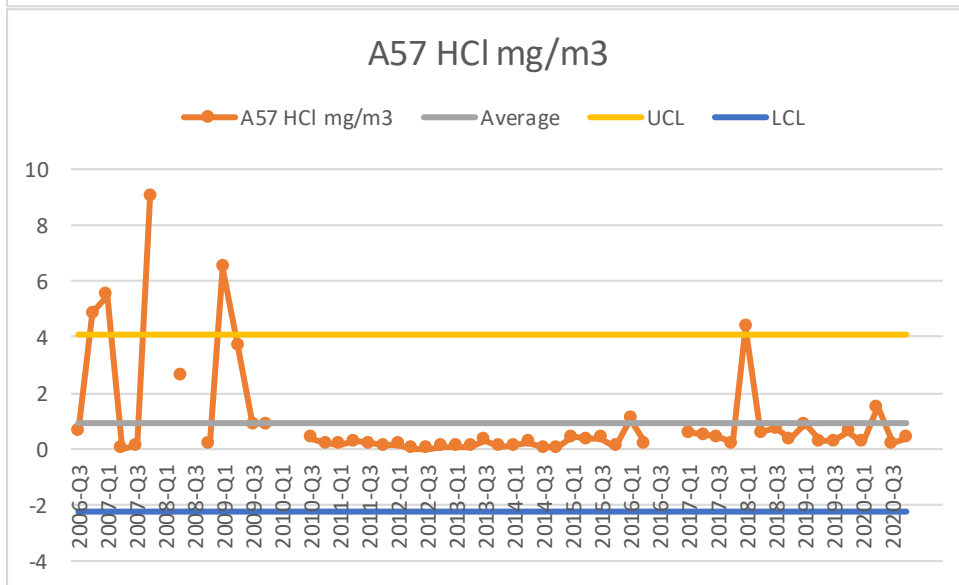
Results in control.



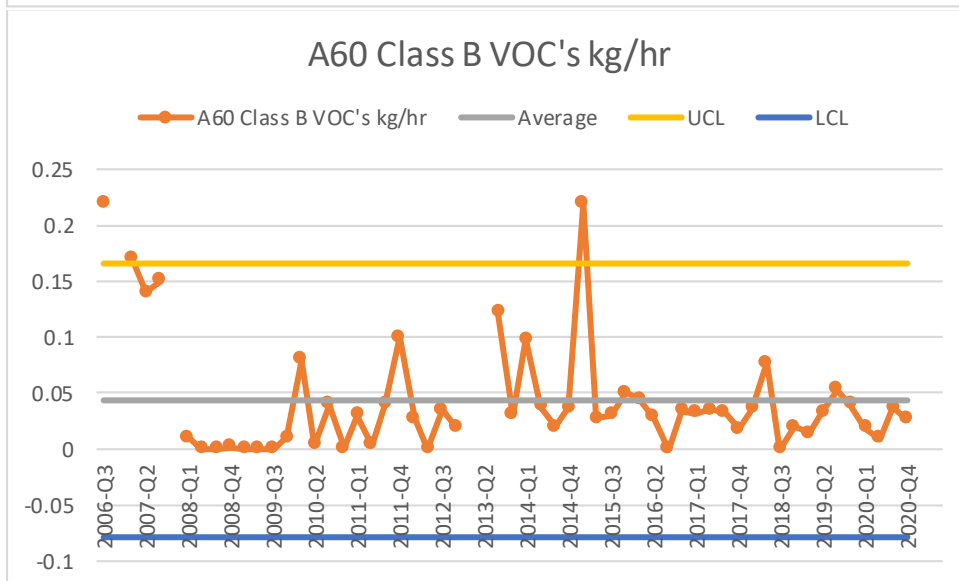
Results in control.



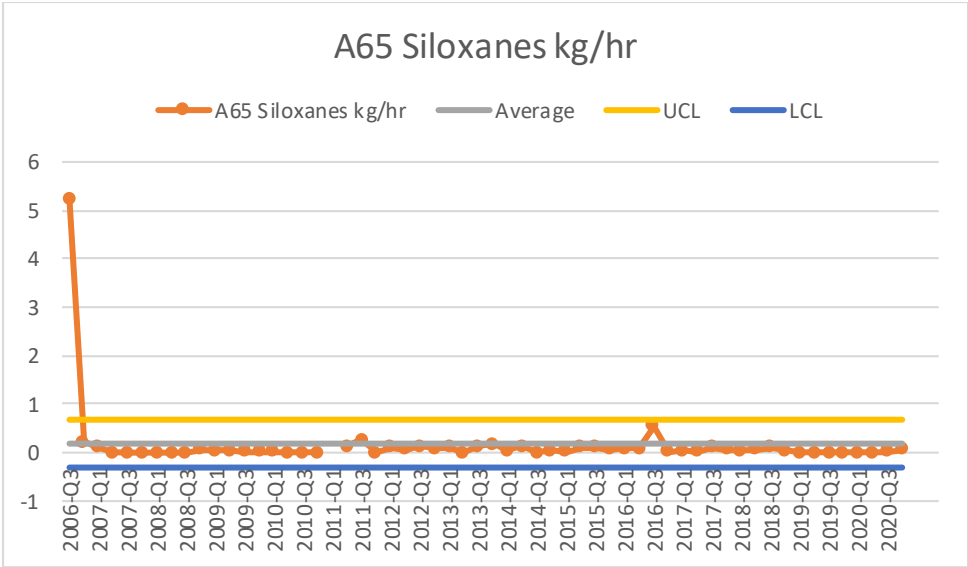
Results in control and within permit limit (10mg/m3).



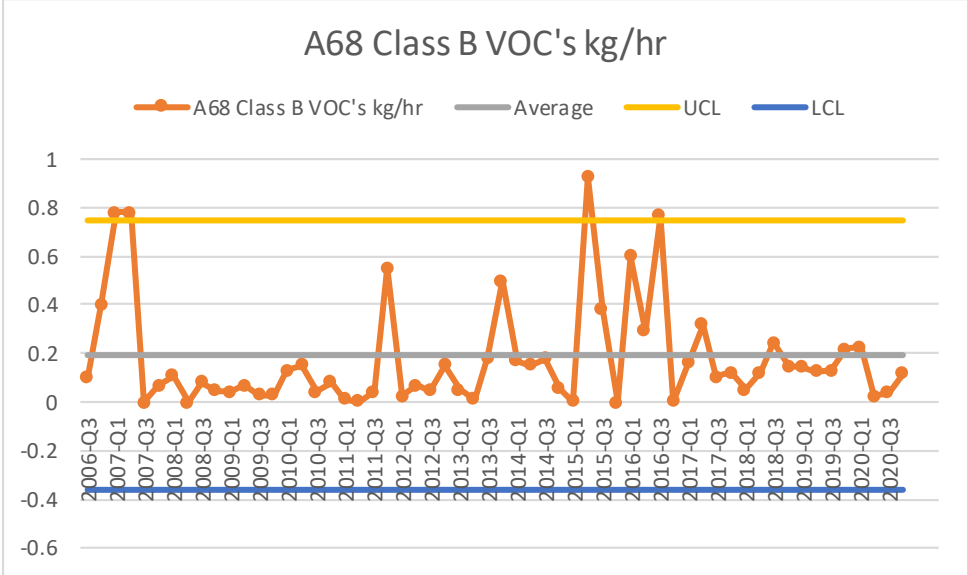
Results in control and within permit limit (10mg/m3).



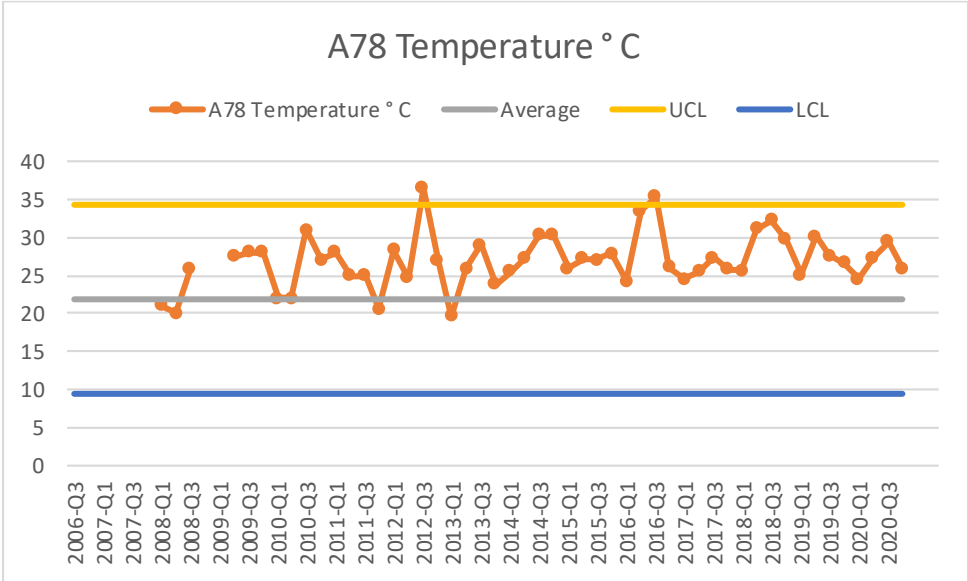
Results in control.



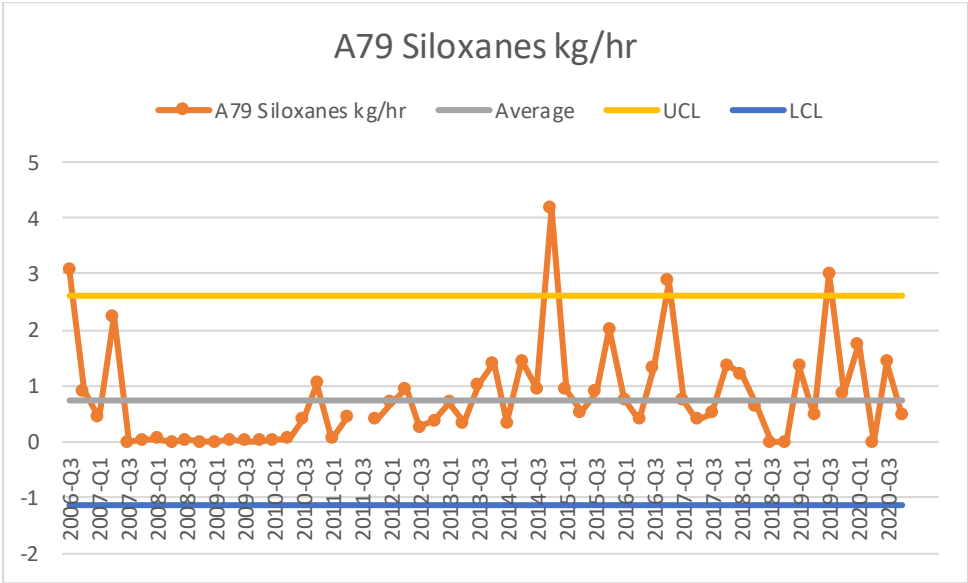
Results in control.



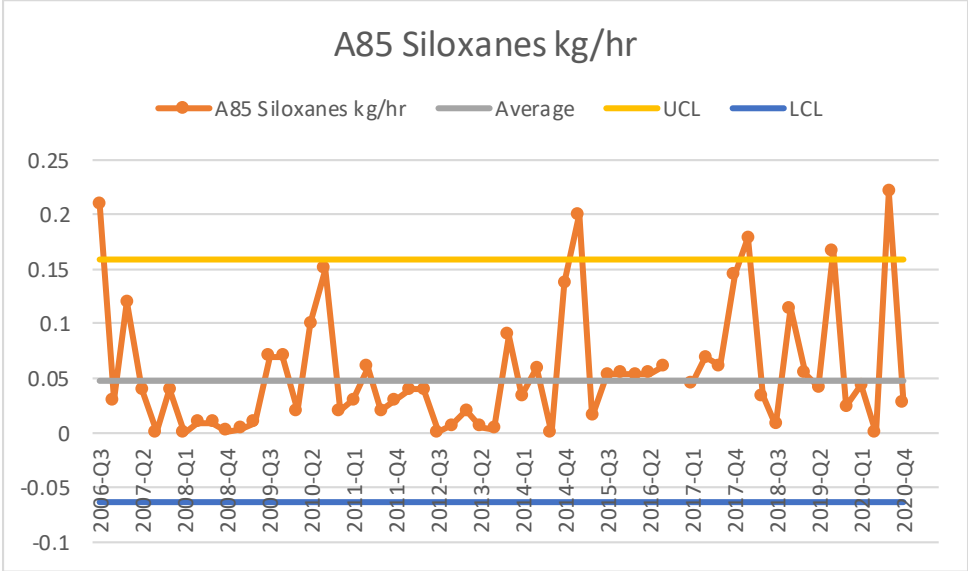
Results in control.



Results in control.

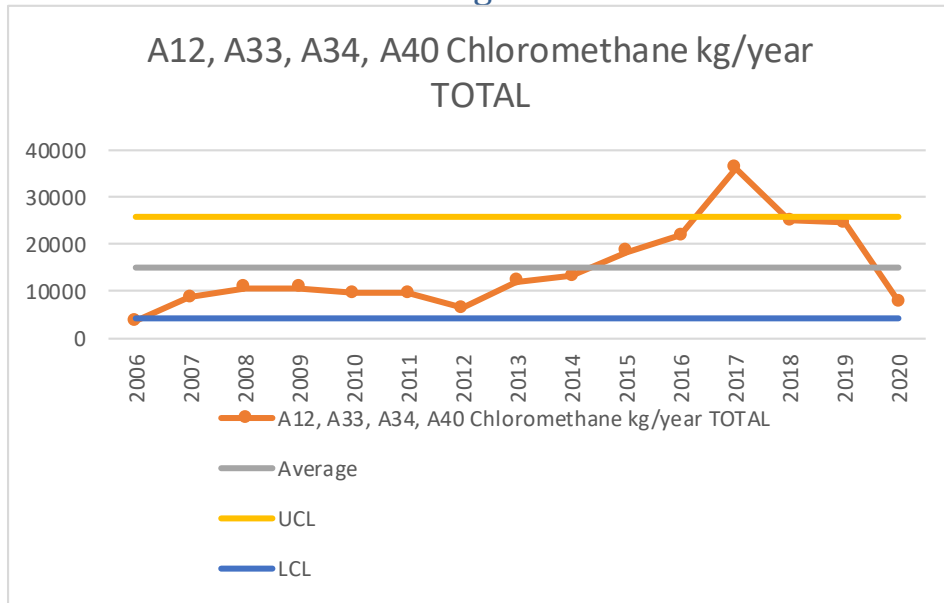


Results in control.

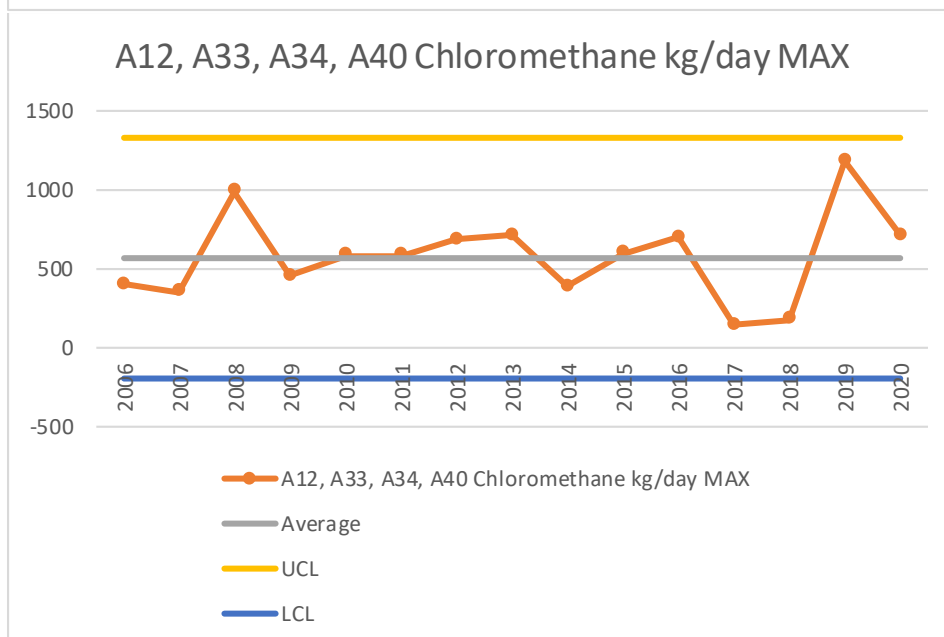


Very variable results from this vent during 2018,2019 and 2020. This will continue to be monitored.

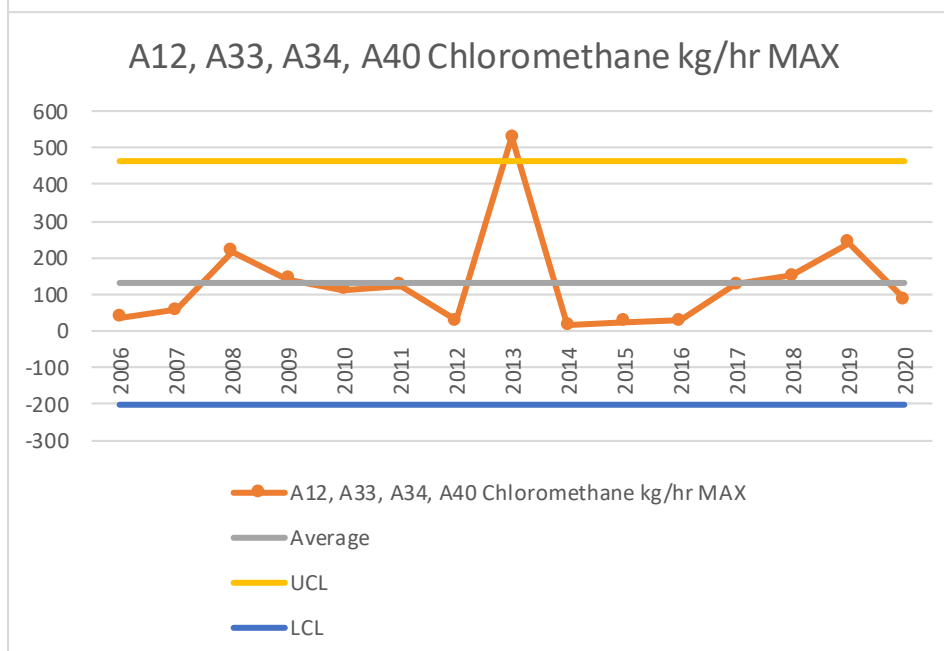
Trends for Annual monitoring:



Results lower from all three of the main contributors during 2020. W714 and W718 did not run from October to December and are not planned to run during 2021.

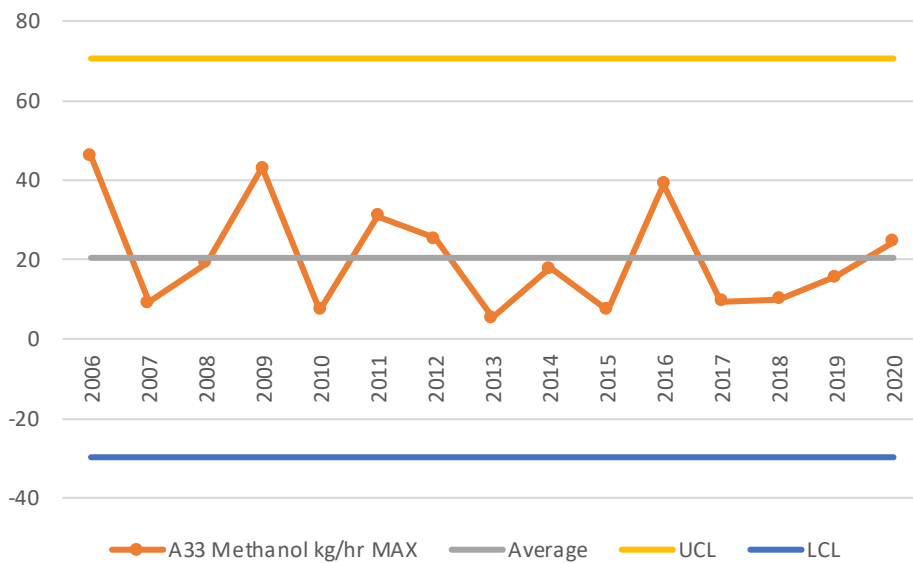


Results in control and within permit limit (1000 kg/day).



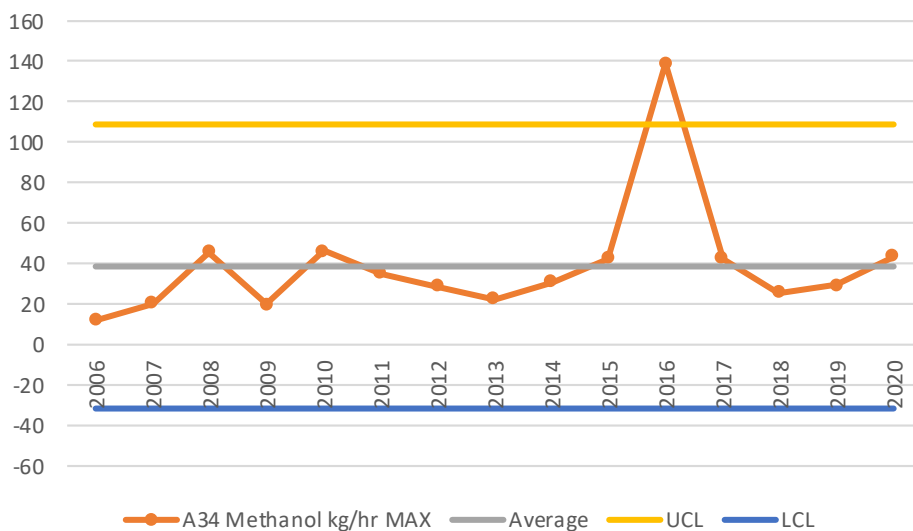
Results in control and within permit limit (250 kg/hr).

A33 Methanol kg/hr MAX



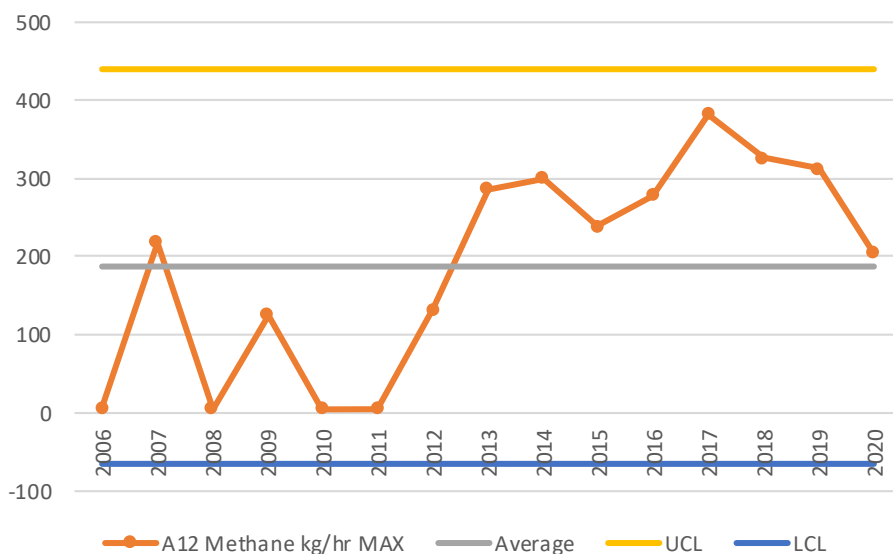
Results in control and within permit limit (max flow of 60kg/hr).

A34 Methanol kg/hr MAX



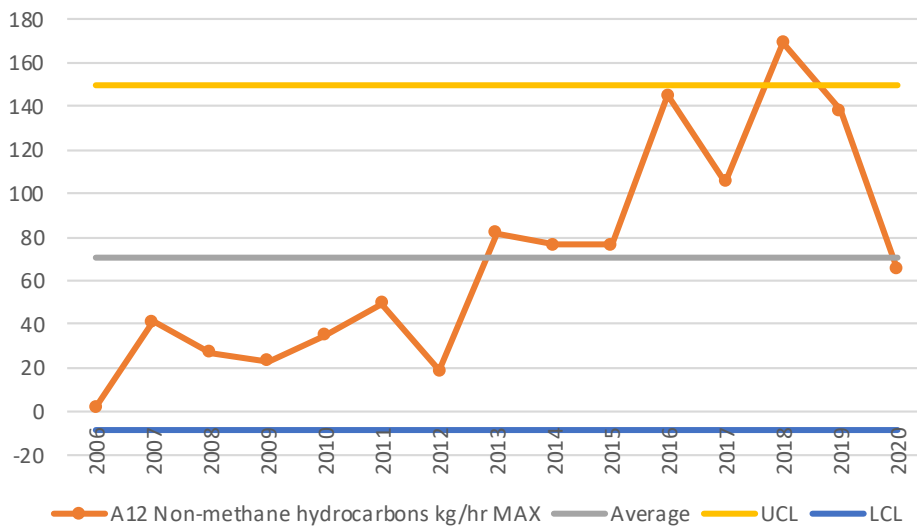
Results in control and within permit limit (max flow of 60kg/hr).

A12 Methane kg/hr MAX



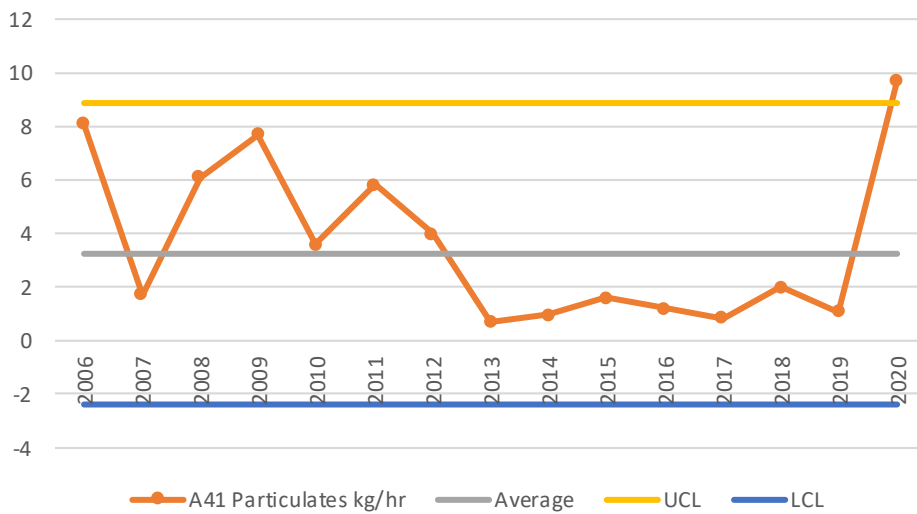
Results in control.

A12 Non-methane hydrocarbons kg/hr MAX



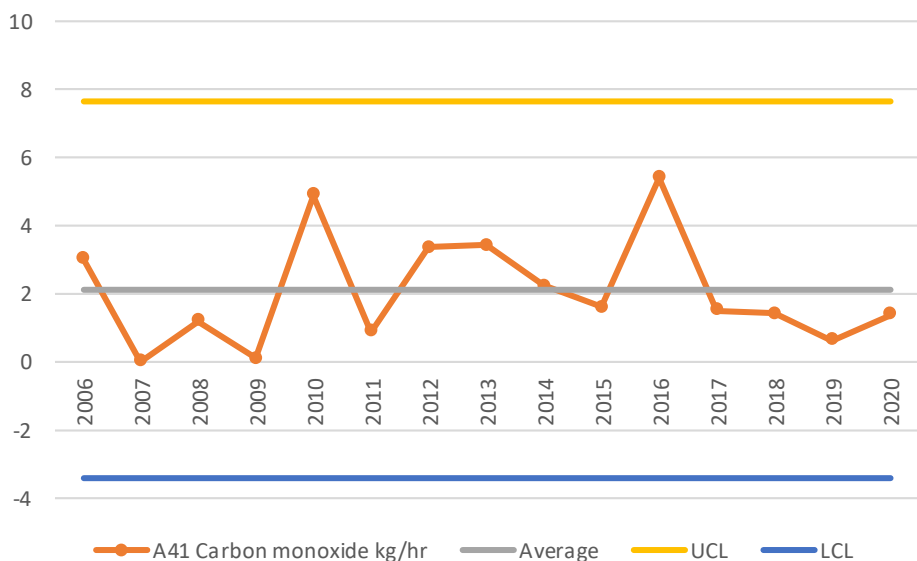
Results back in control for 2020. This is likely due to ensuring rundown batches vent to the ERU rather than atmosphere.

A41 Particulates kg/hr



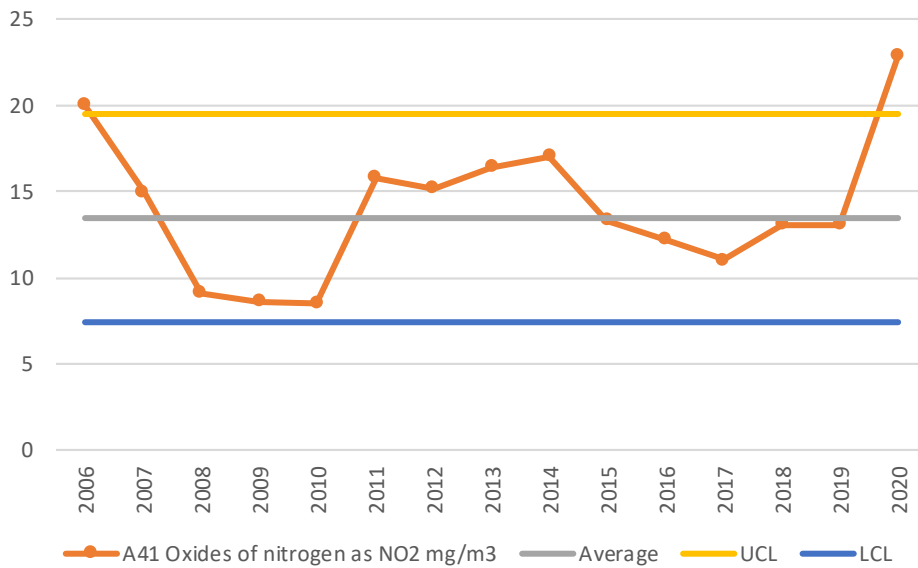
Results higher than usual, but out of control high. Still within permit limit (10 mg/m³). It looks like the 2020 sample coincided with an online clean, this is likely to have given an atypical result from normal operating parameters.

A41 Carbon monoxide kg/hr



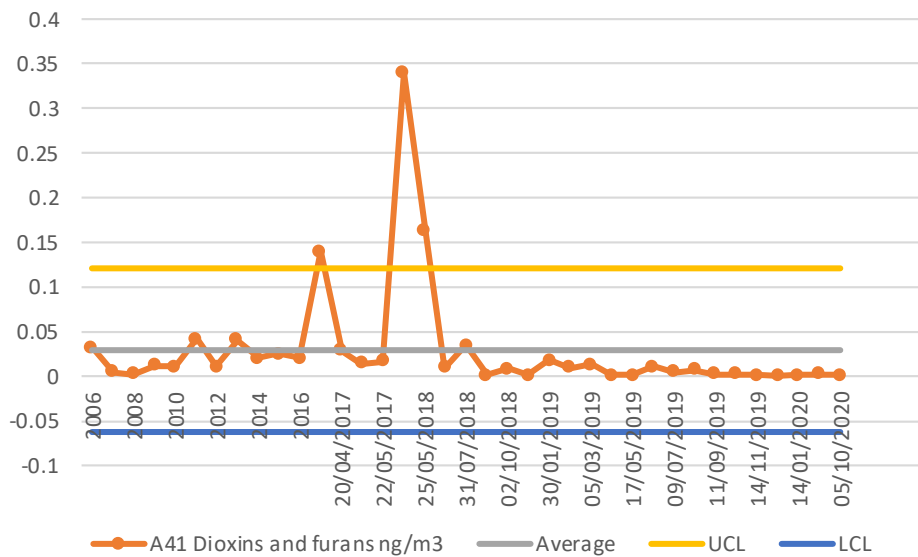
Results in control and within permit limit (50mg/m³).

A41 Oxides of nitrogen as NO2 mg/m3



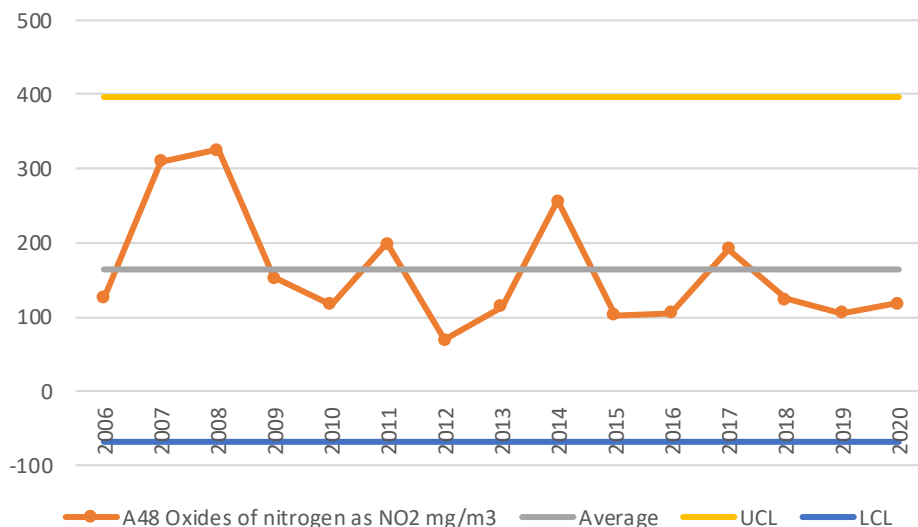
Results out of control high, but still well within permit limit (100mg/m3). This will continue to be monitored on a monthly basis.

A41 Dioxins and furans ng/m3

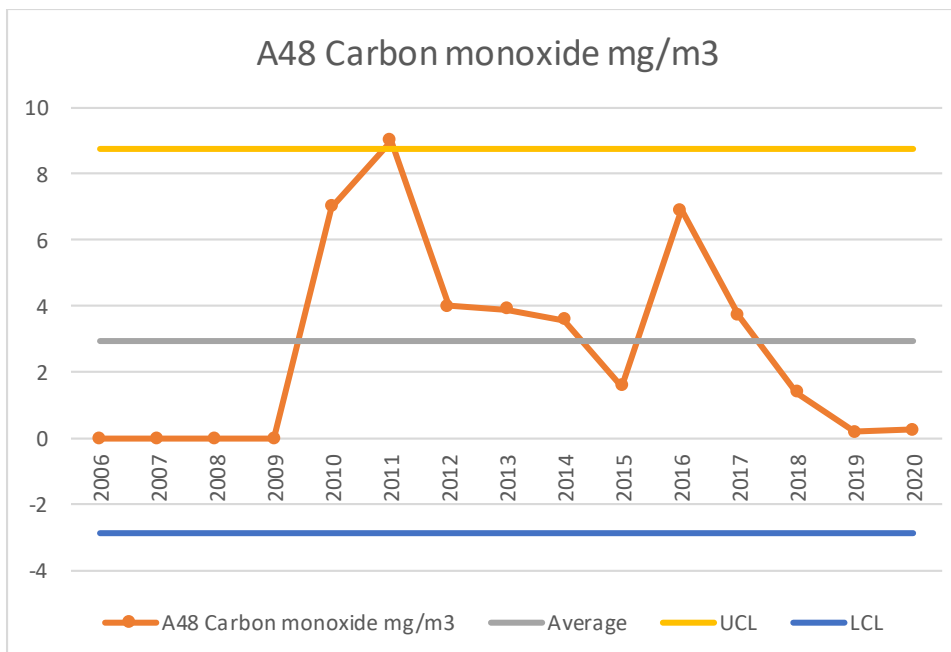


4 samples taken throughout 2020. Results in control and within permit limit (0.1ng/m3).

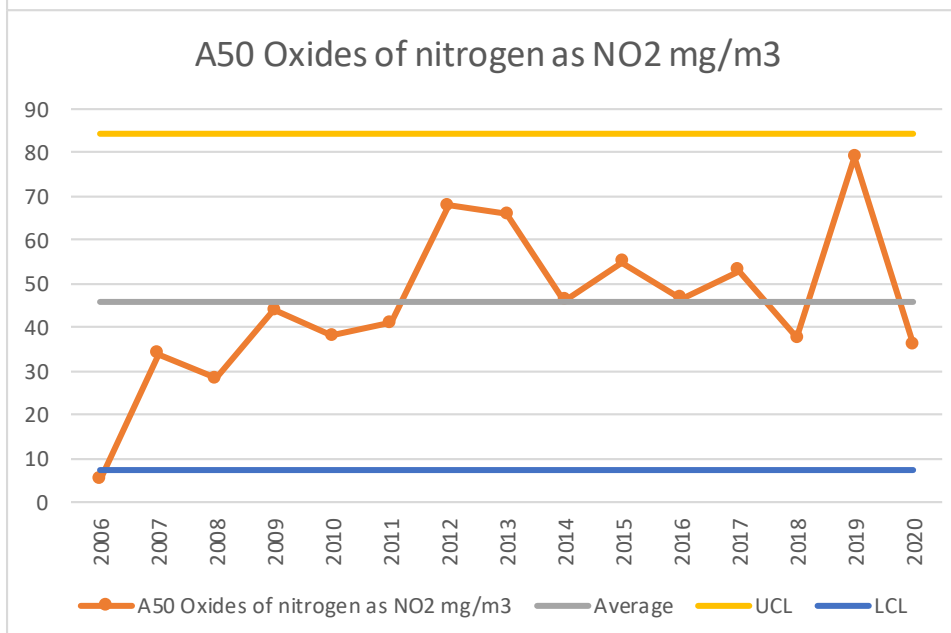
A48 Oxides of nitrogen as NO2 mg/m3



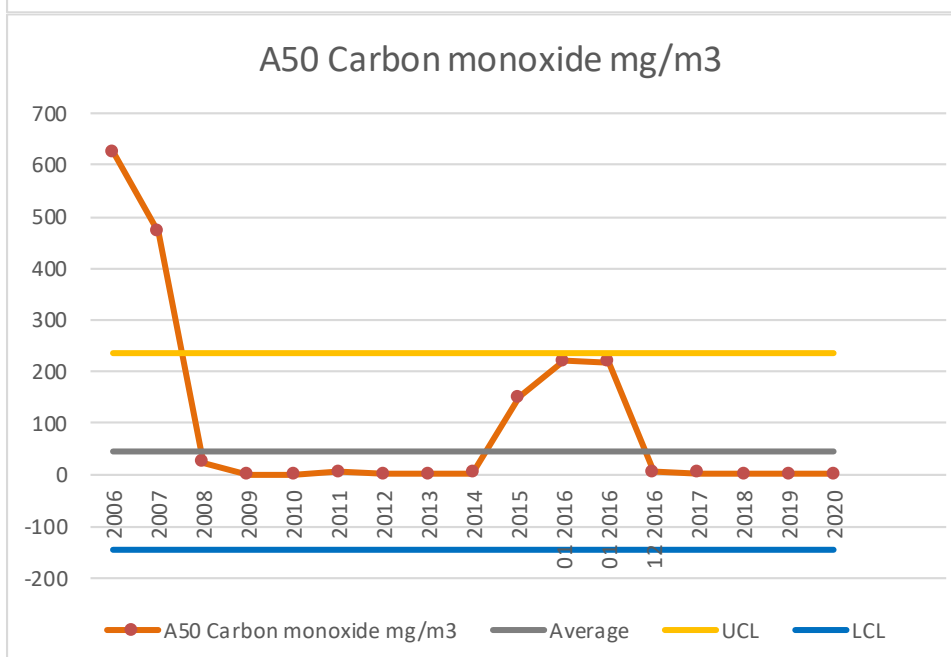
Results in control.



Results in control.

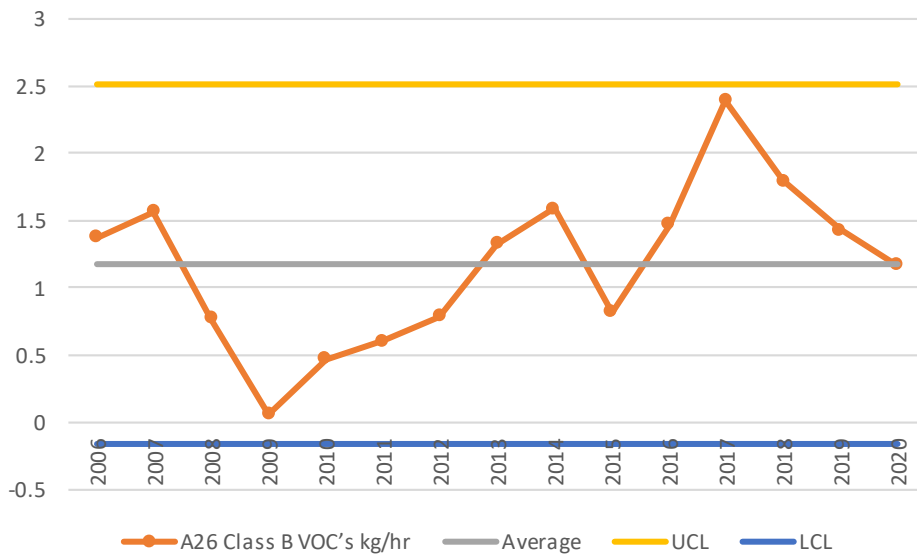


Results in control and within permit limit (200mg/m3).



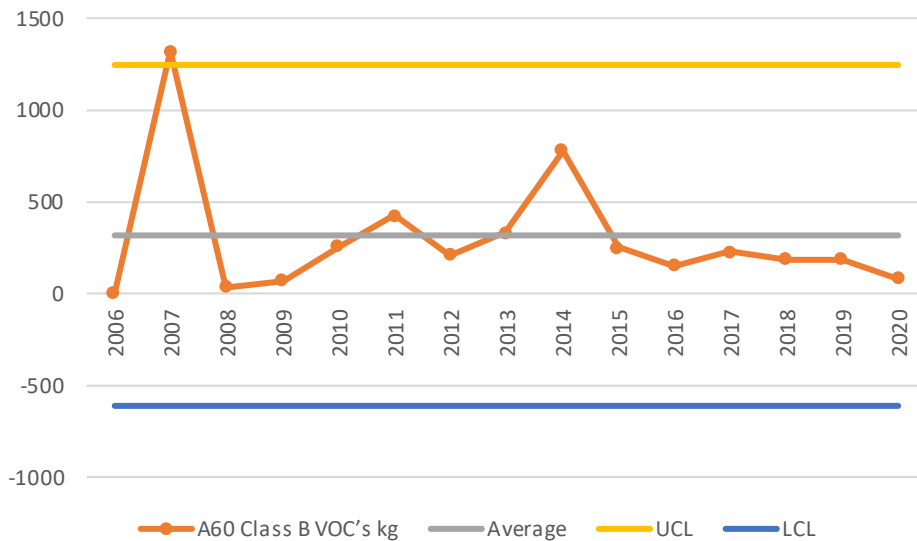
Results in control and within permit limit (200mg/m3).

A26 Class B VOC's kg/hr



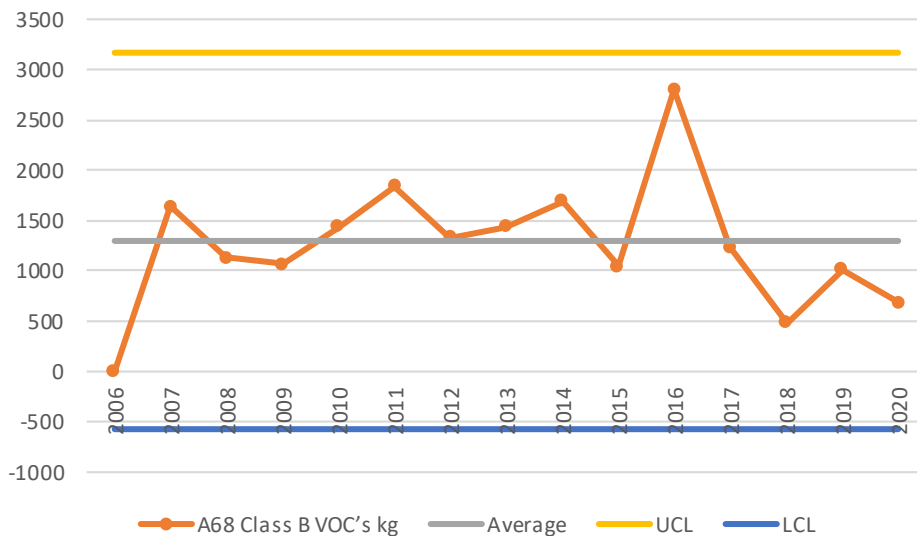
Results in control.

A60 Class B VOC's kg

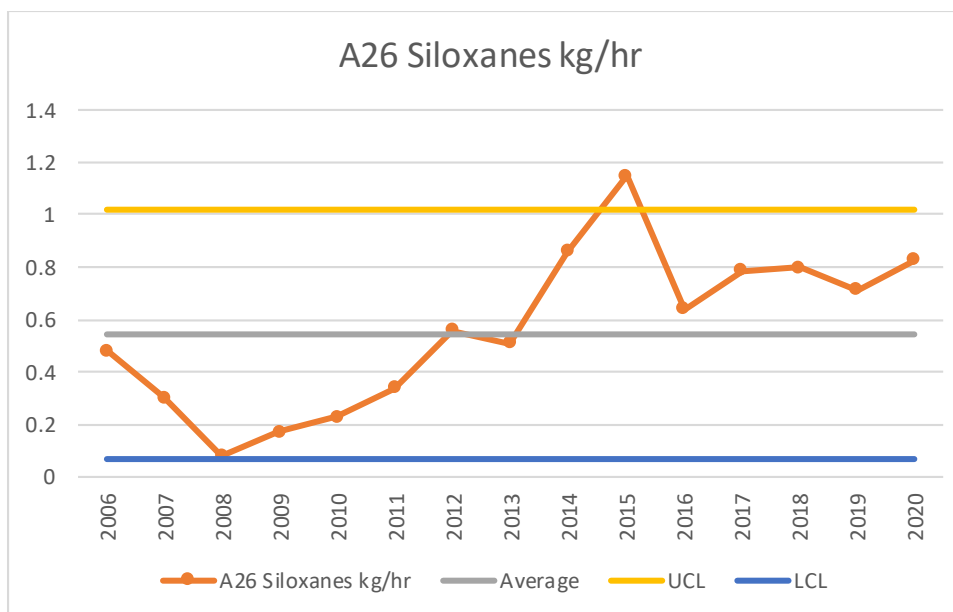


Results in control and within permit limit (5,000 kg/yr).

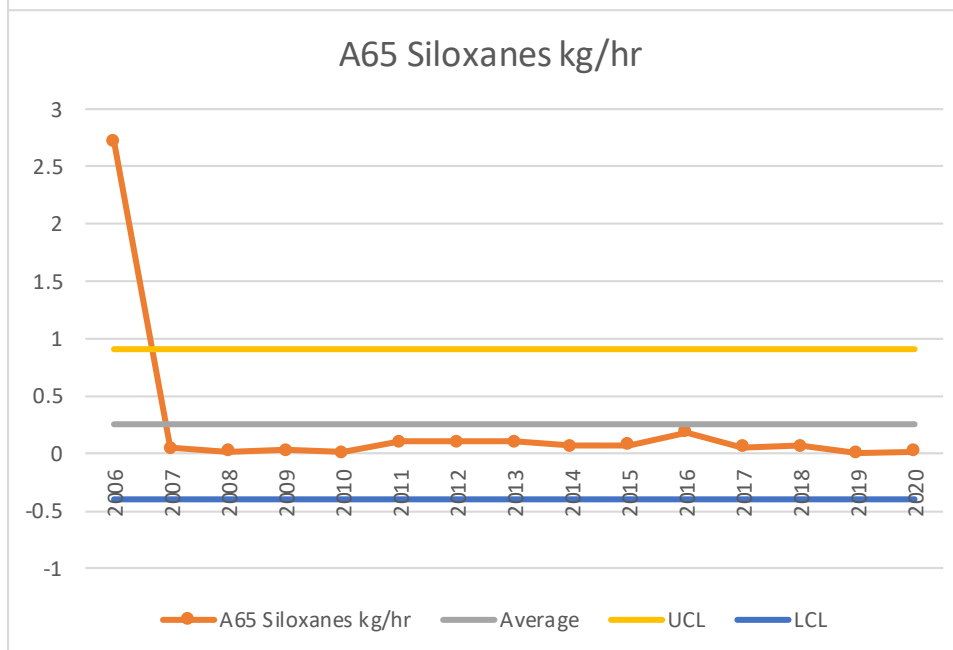
A68 Class B VOC's kg



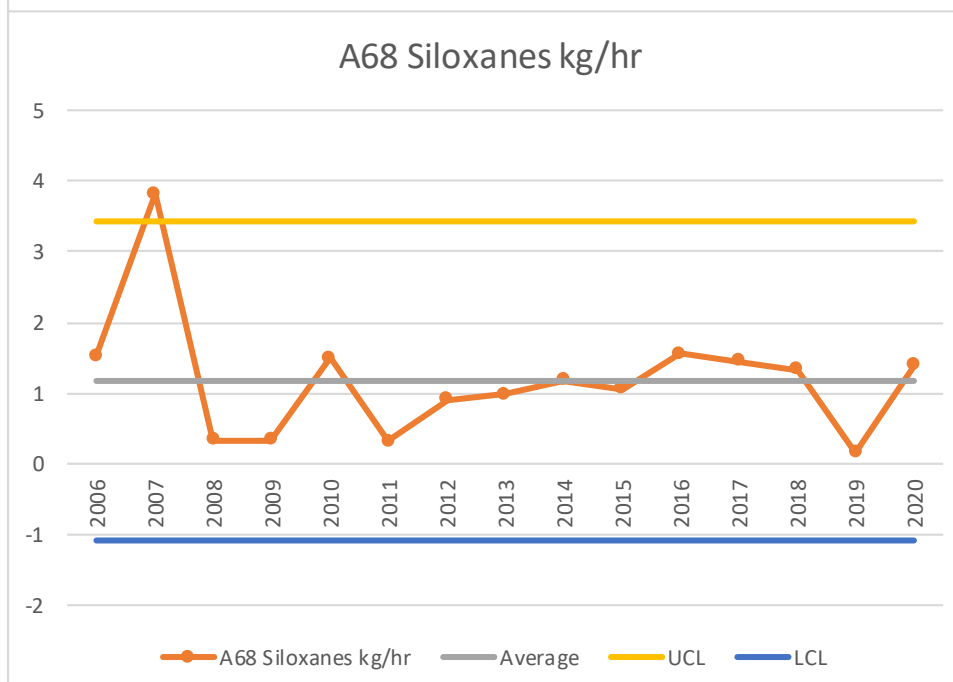
Results in control and within permit limit (5,000 kg/yr).



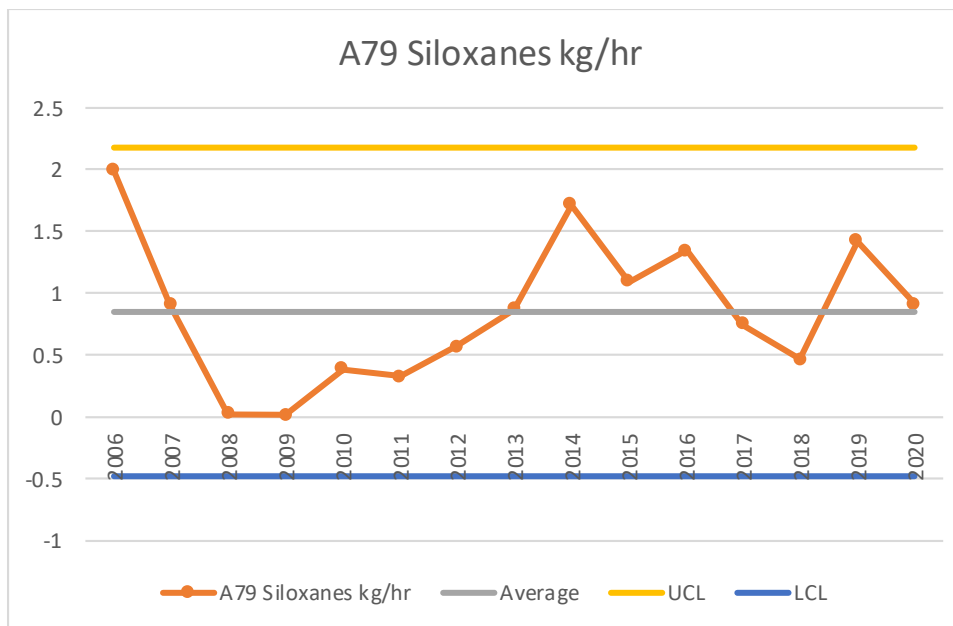
Results in control



Results in control

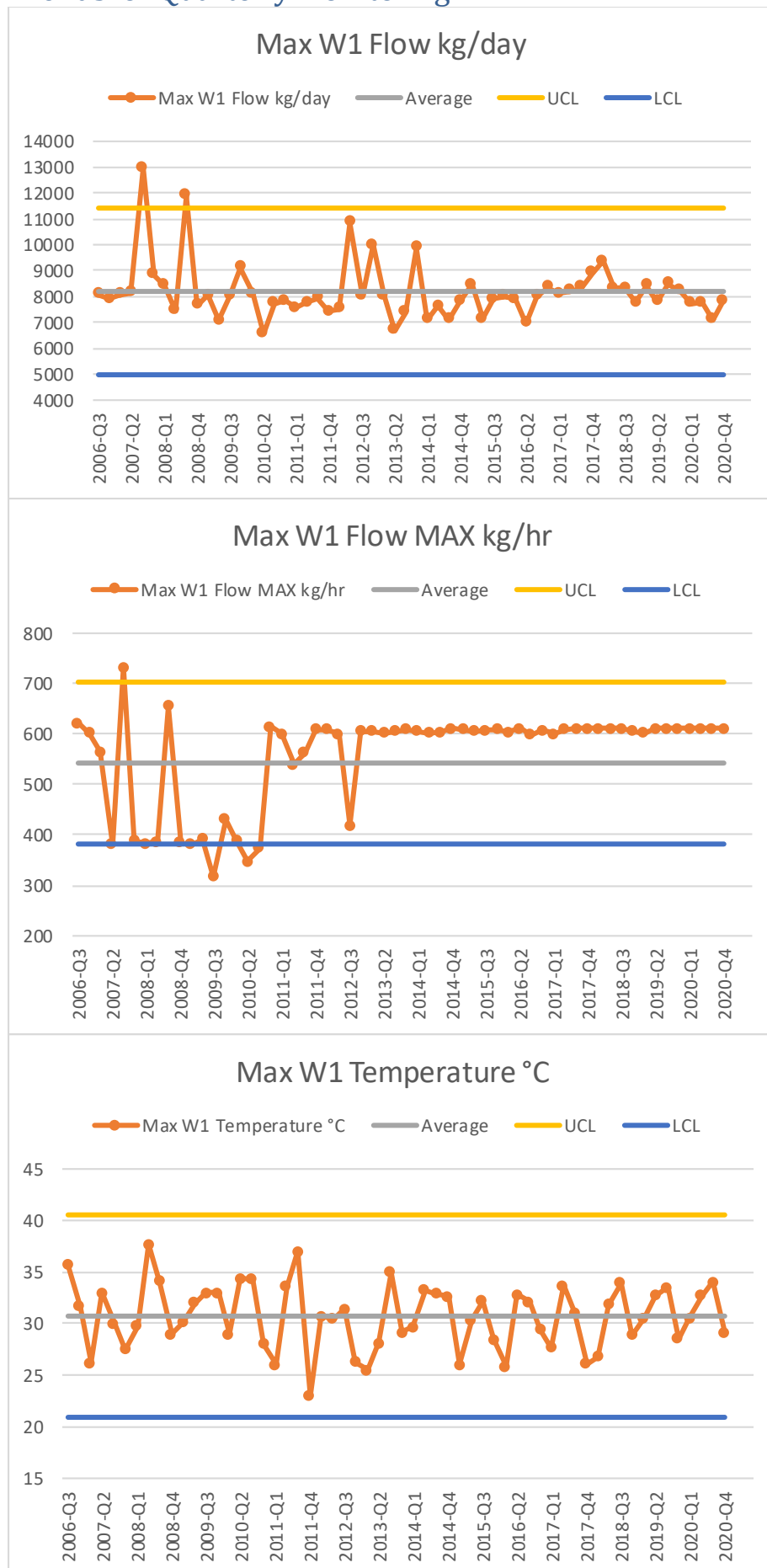


Results in control



Water monitoring

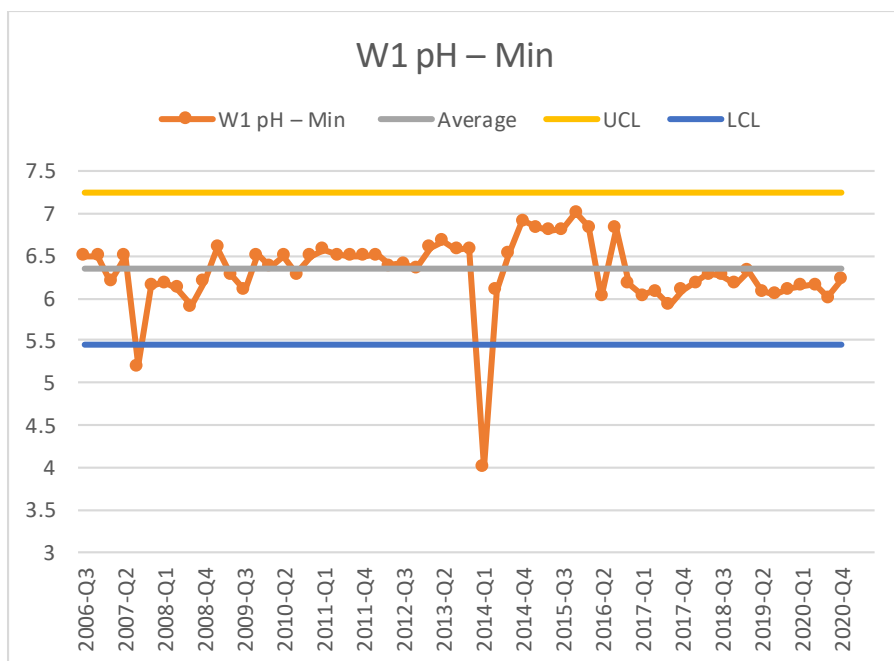
Trends for Quarterly monitoring:



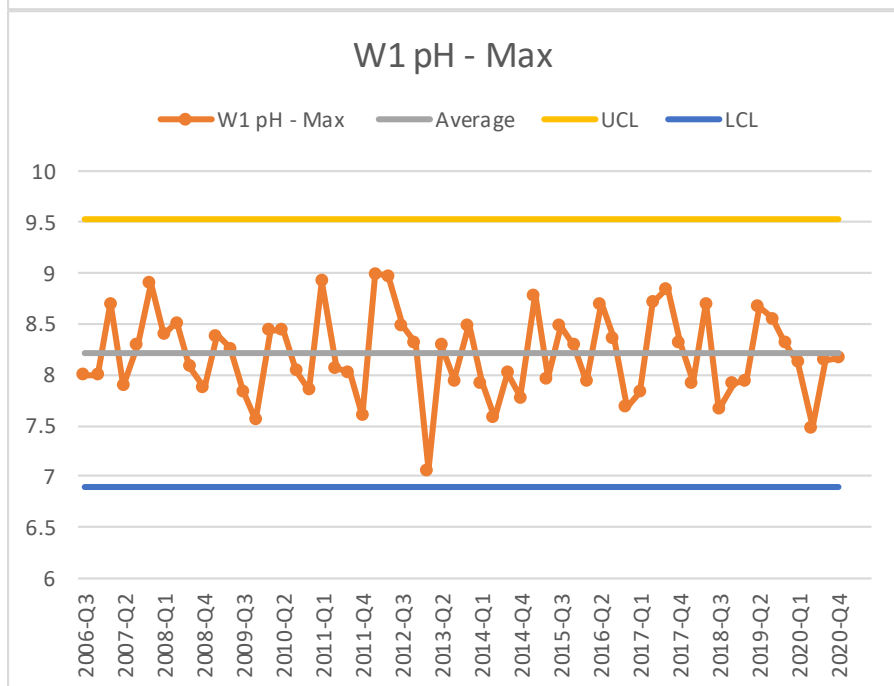
Results in control and within permit limit (11,000 m³/day)

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

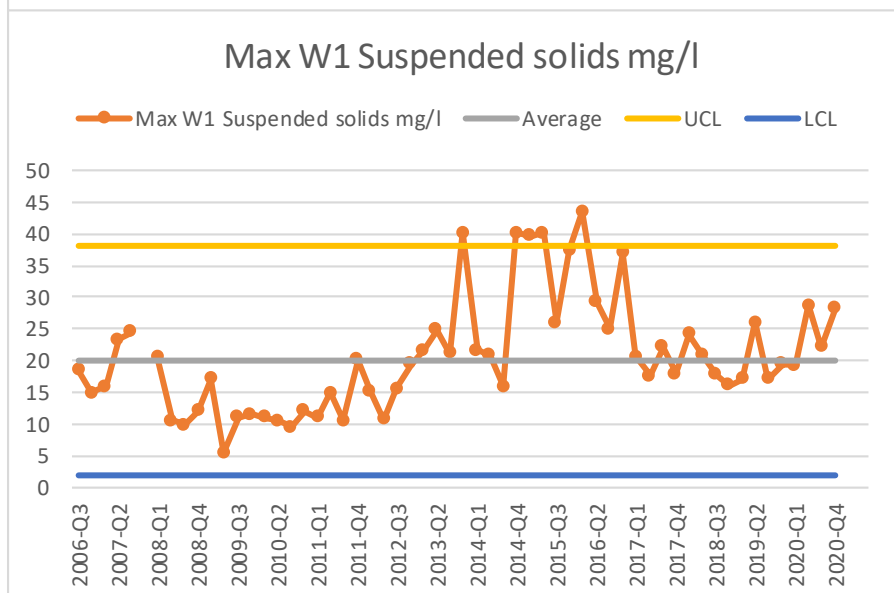
Results in control and within permit limit (40°C)



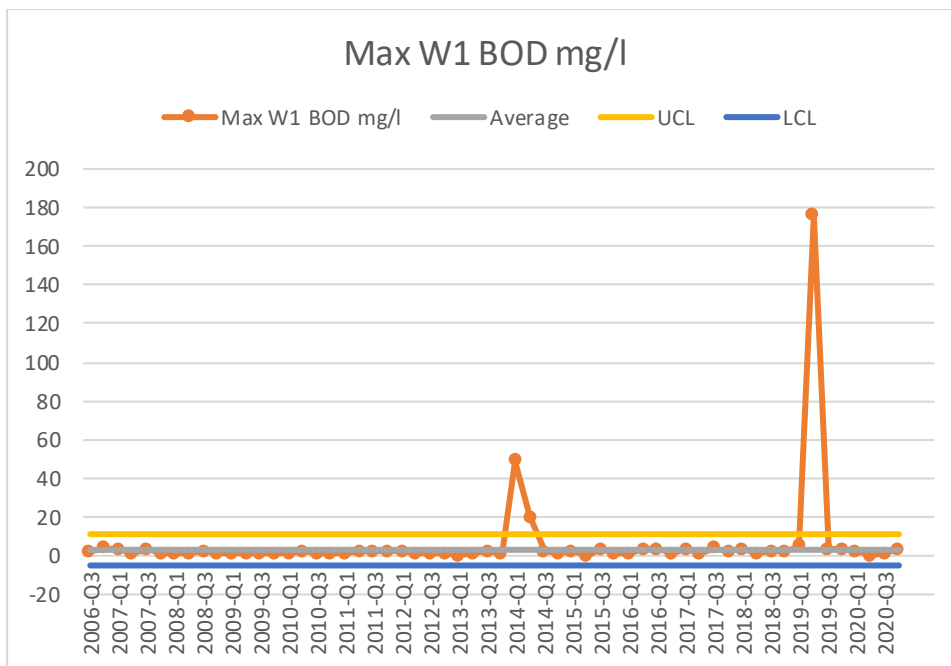
Results in control and within permit limit (>6)



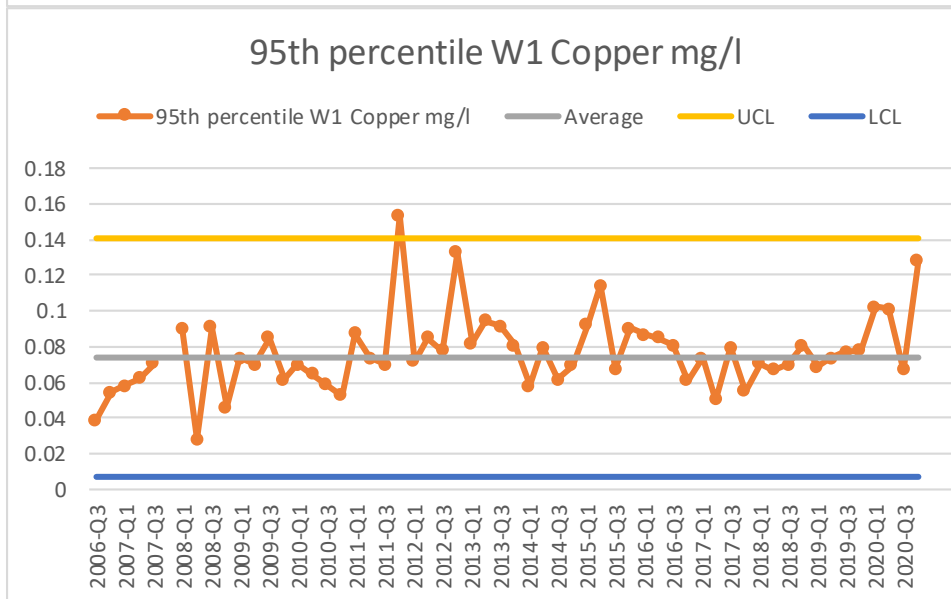
Results in control and within permit limit (<9)



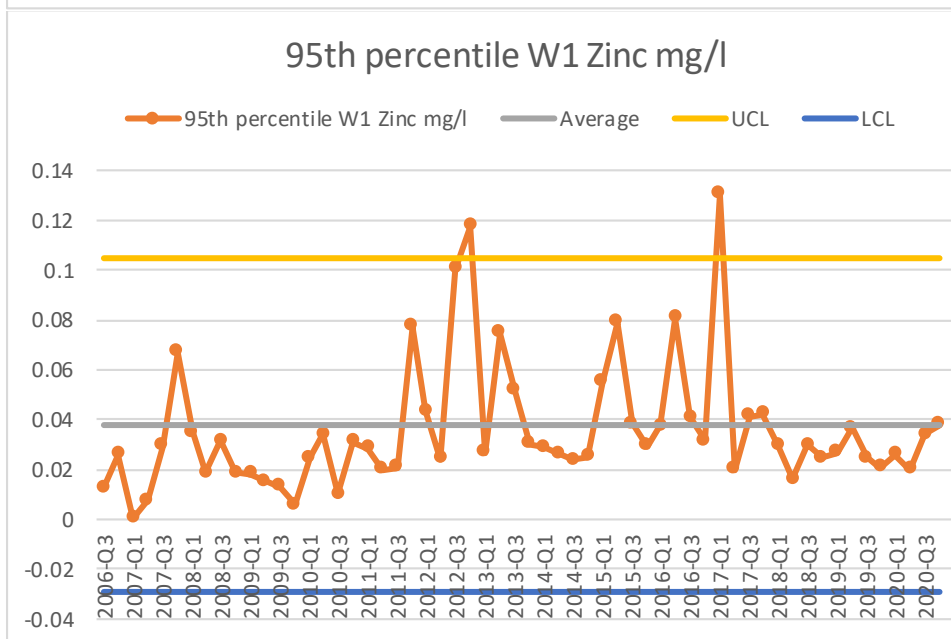
Results in control and within permit limit (30 mg/l)



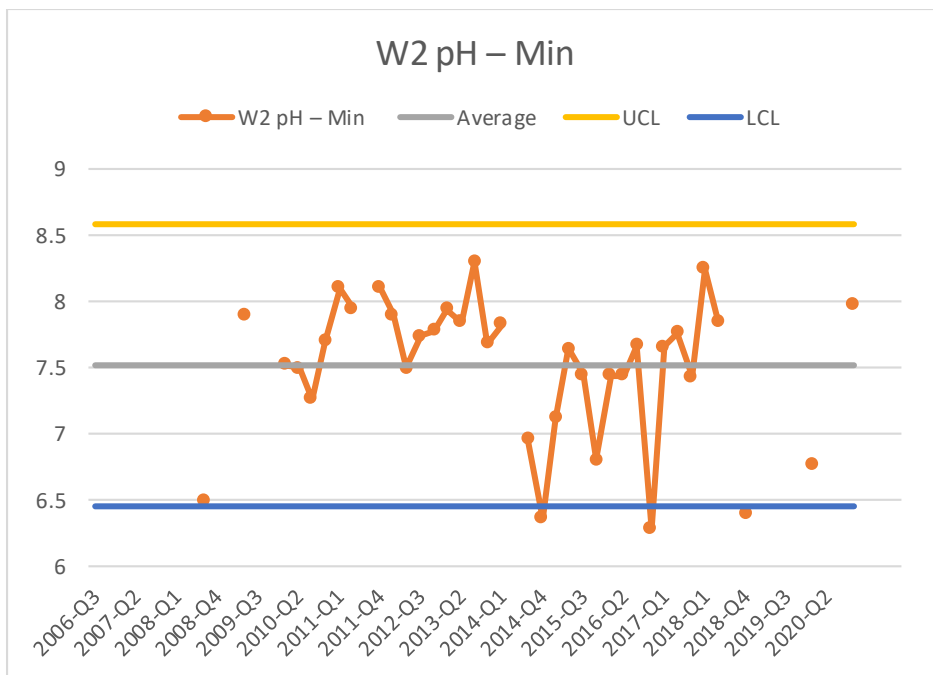
Results in control and within permit limit (20 mg/l)



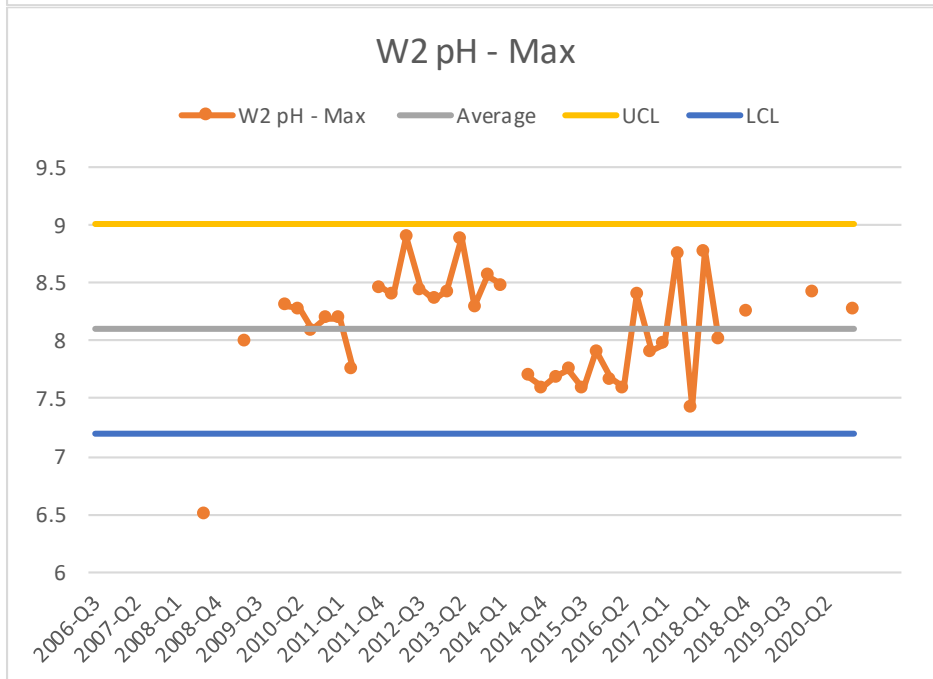
Results in control, but 3 quarters the 95th percentile value was just above the permit limit (0.1 mg/l)
Work continues on the SWWT process to improve these excursions



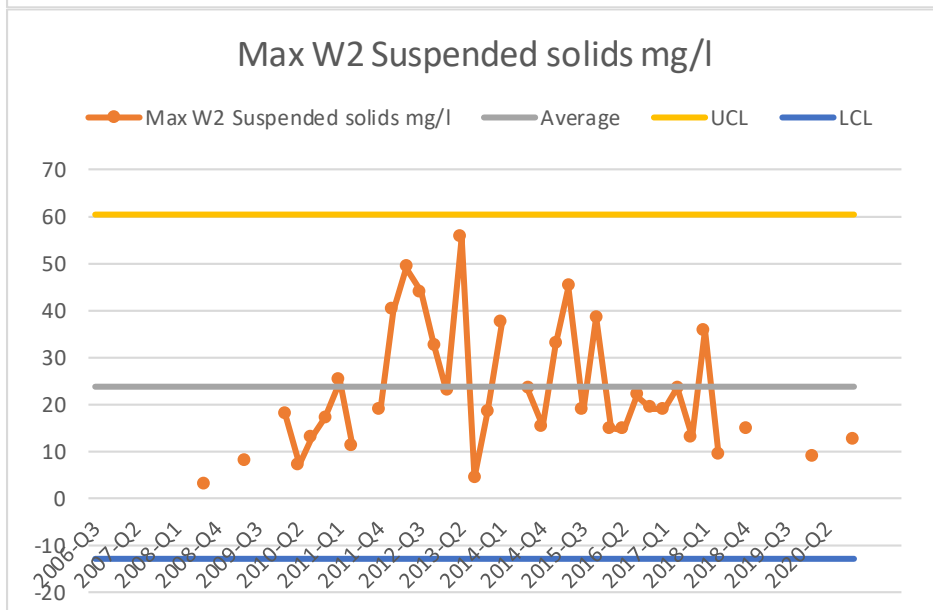
Results in control and within permit limit (0.5 mg/l)



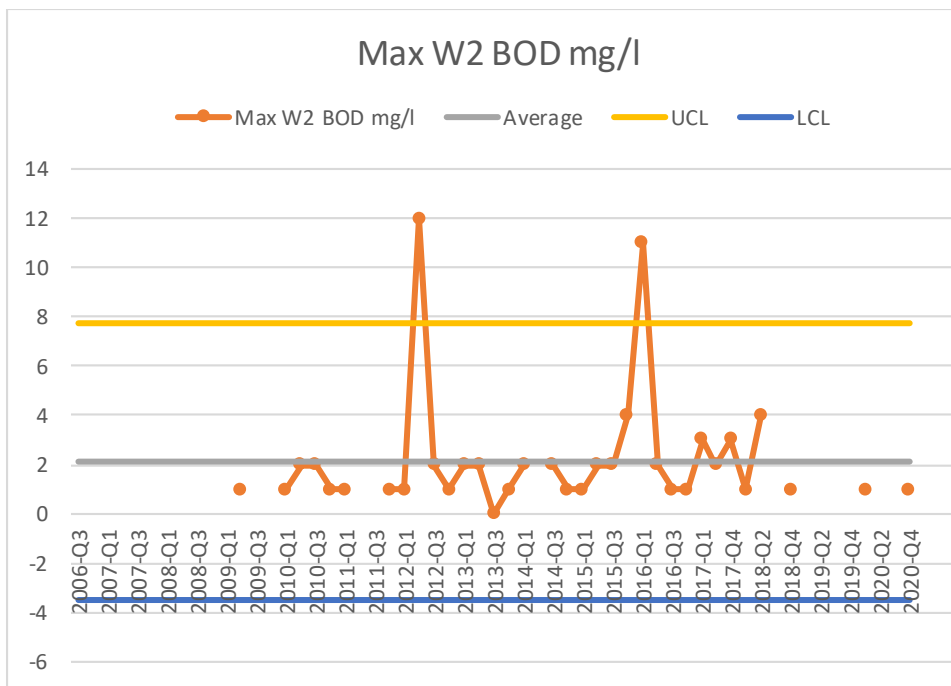
Releases to river in Q1 and Q4 2020.
Results in control and within permit limit (>6)



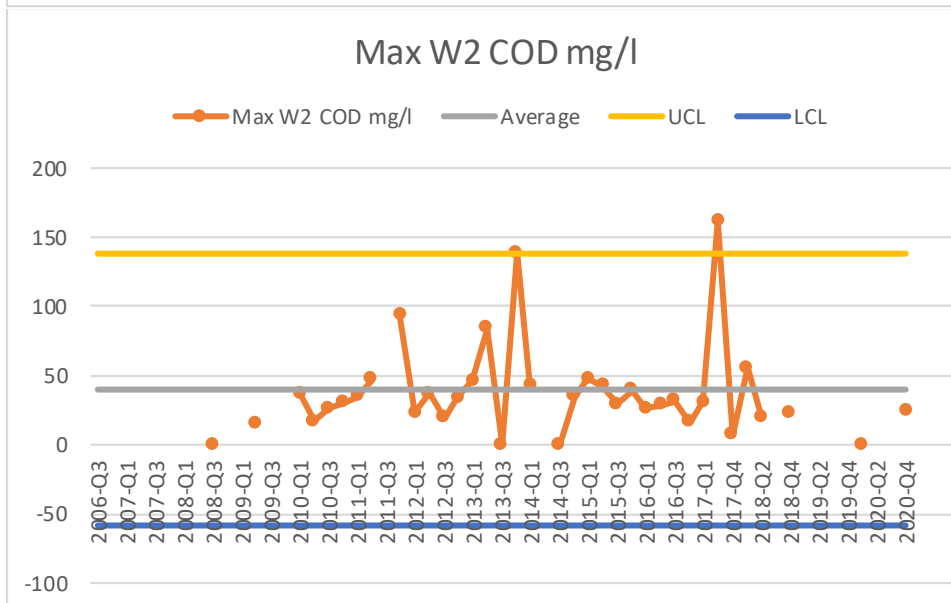
Releases to river in Q1 and Q4 2020.
Results in control and within permit limit (<9)



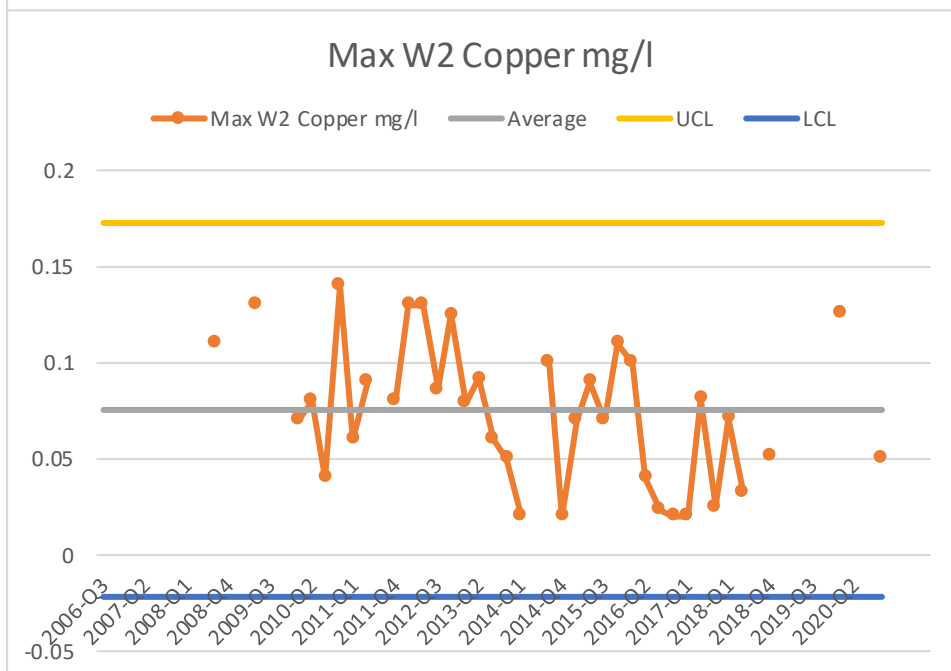
Releases to river in Q1 and Q4 2020.
Results in control and within permit limit (30 mg/l)



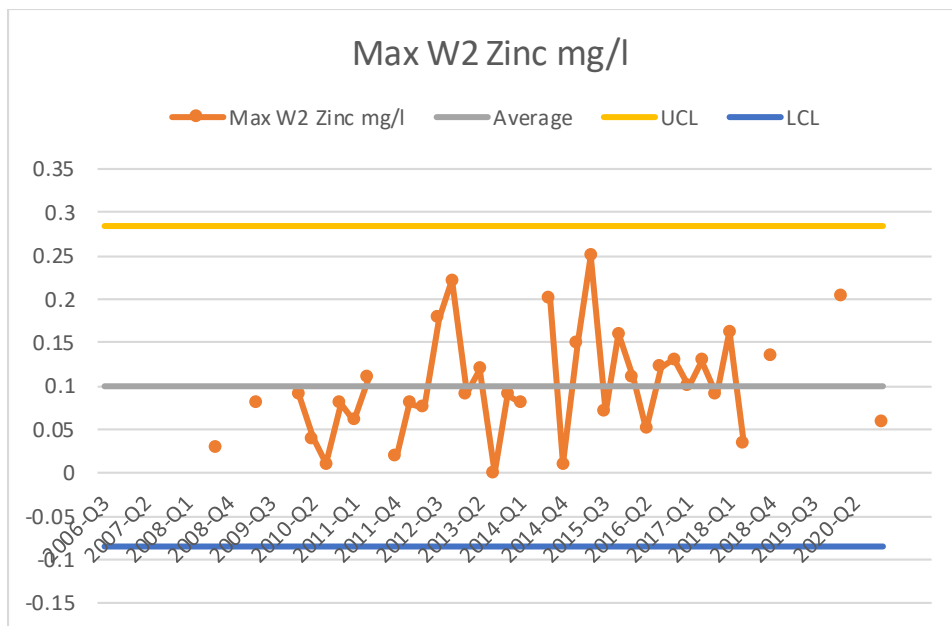
Releases to river in Q1 and Q4 2020.
Results in control and within permit limit (20 mg/l)



Releases to river in Q1 and Q4 2020.
Results in control and within permit limit (125 mg/l)



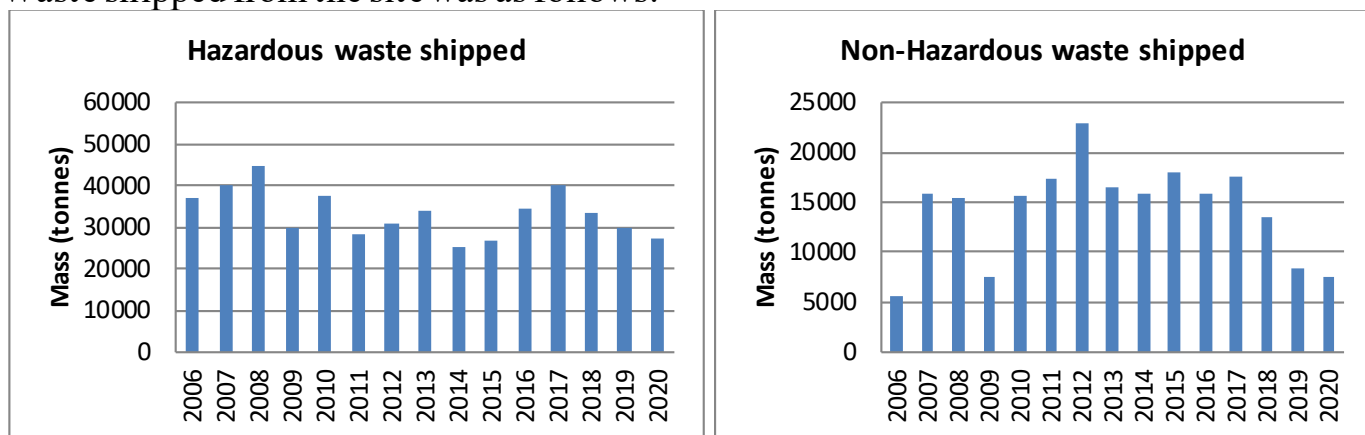
Releases to river in Q1 and Q4 2020.
Results in control and within permit limit (0.15 mg/l)



Releases to river in Q1 and Q4 2020. Results in control and within permit limit (0.25 mg/l)

Waste

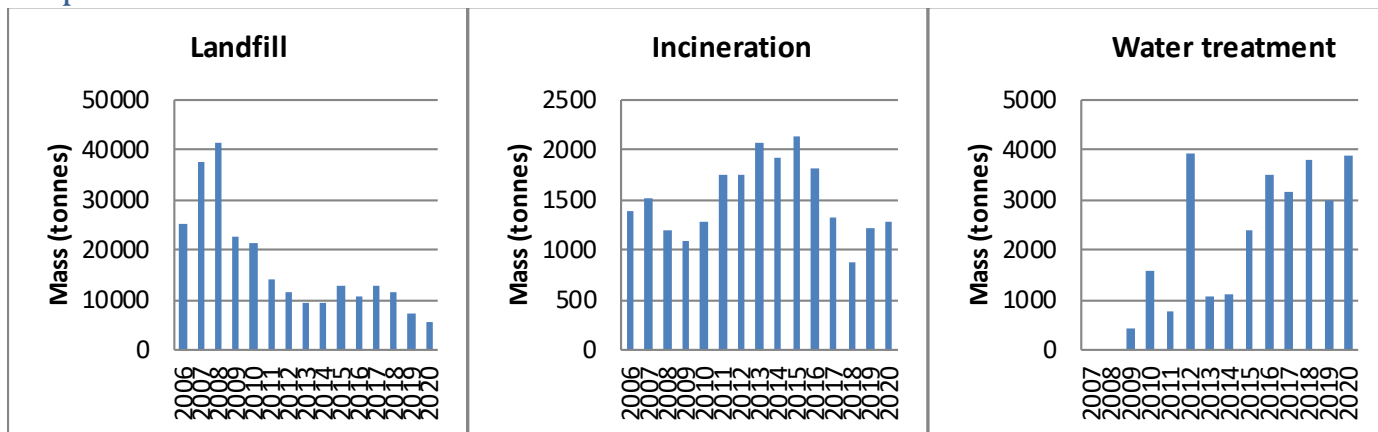
Waste shipped from the site was as follows:



The decrease in hazardous waste was a small percentage across many of the wastes due to similar production rates 2020 vs 2019, but lower inventories at the beginning of the year, so minimal backlog shipped. Spent bed generation does seem to have decreased over 2019 production rates.

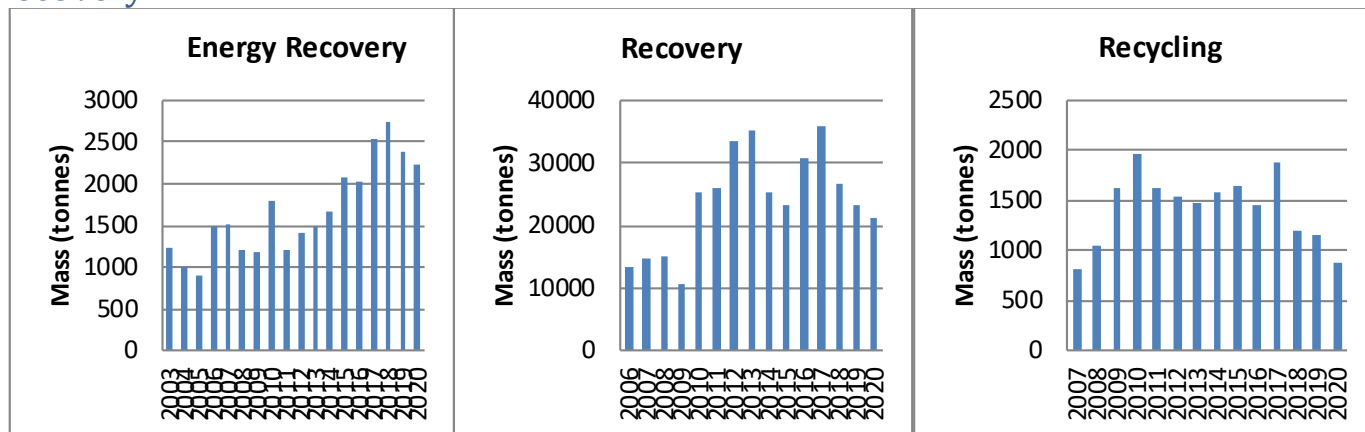
The decrease in non hazardous waste is due to less DPR gels being produced, showing increased running of the waste reduction process. At the end of 2020 there was an inventory of DPR gels being held on site, which was not disposed of during the year.

Disposal



- There was a decrease in landfill in 2020 due to not producing as much DPR gels and wastewater filter cake. The reduction in wastewater filtercake is mainly due to the decrease in water content due to improved filtration.
- Incineration levels in 2020 were very similar to 2019
- Water treatment in 2020 has increased due to removal of more sludge from the wastewater process to improve the operation.

Recovery



- Energy recovery decreased again from last year due to a reduction in specific waste streams. This shows an improvement in a couple of the processes. Also less general waste was created due to a substantially reduced presence on site due to Covid 19.
- Recovery decreased a small amount this year. Spent bed generation rate has decreased over 2019 production rates. Lower inventories at the beginning of the year, so minimal backlog shipped.
- Recycling was less in 2020 due to a reduction in scrap metal and shot blast, likely due to reduced on site demolition during 2020.

Complaints

There were 10 complaints to the Barry Industrial complex helpline in 2020

- 1 was for odour –
 - Video evidence provided by Dow to NRW from the South gate regarding this complaint on Hayes Road to help with investigation.
- 9 were for noise:
 - 3 complaints were was unsubstantiated
 - 5 complaints were attributed to process equipment at the Dow site and adjustments made to rectify
 - 1 complaint was attributed to fireworks off site.