

Executive Summary

Synopsis: The Sewage from the Network is collected in the lifting station for processing at the Sewage Treatment Plant. The constant flow of influent to the plant in the form of Network results in water being held up at Lifting station. Water being filled due to surcharge flow of sewage causes Anerobic Reaction to the water. The sewage water contains Sulphur from the Human waste in the form of Organic Sulfides. With no agitation or constant mixing of water, Anerobic reactions occurs in the lifting station. The combination of Organic Sulfides along with the Anerobic reaction results in the formation of the lethal H₂S Gas. The H₂S can start to form Sulfuric acid in the lifting station and the wastewater treatment facilities which will corrode the cement and steel structures over a period. Hydrogen sulfide gas in the sewer atmosphere may be adsorbed in the thin film of water that normally covers the sewer walls and may be partially oxidized to sulfuric acid by bacteria of the genus Thiobacillus.

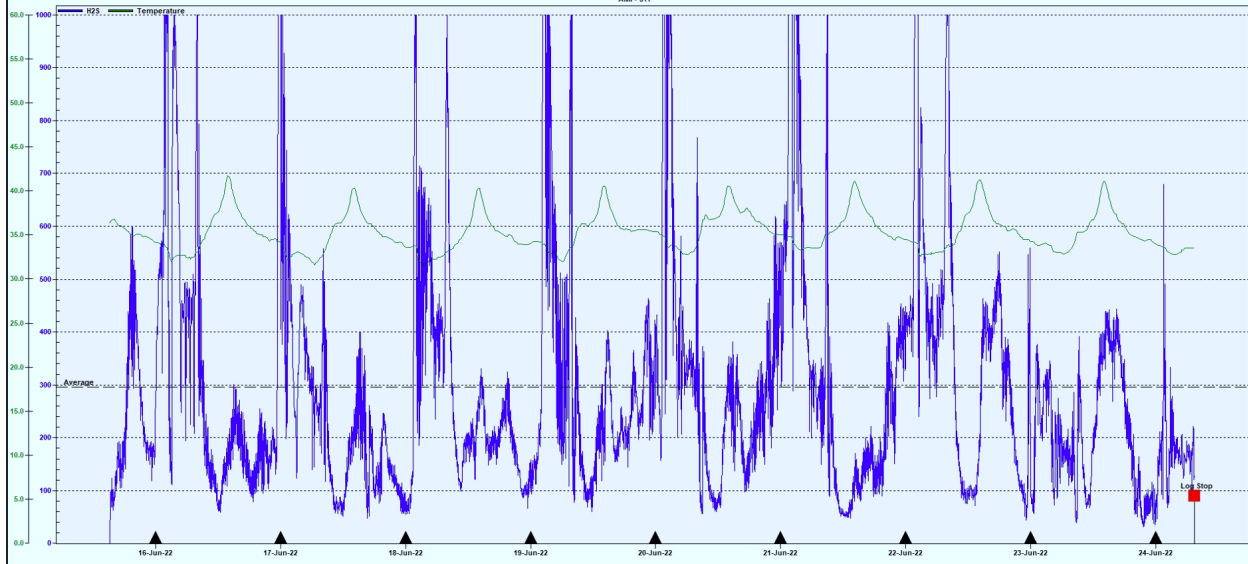
Methodology: Oda Logger was installed at the STP inlet for a period of 1 week to understand the trends of readings for Hydrogen Sulphide which was raising odor complaints and also was a HSE concern for the personnel that were operating the plant. The presence of Hydrogen Sulphide (H₂S) had also impacted the compliance and regulatory requirements for operating the plant. The trends in the occurrence of H₂S was recorded and it was compared with the results to provide conclusion on the impact and performance of Bio Organic Catalyst (BOC)

Dosing Plan: It was observed that a dosing of 1ppm to the plant capacity and biological loading (BOD), Biological Oxygen Deamand was estimated. The first 2 weeks the dosing was done for 2 ppm to ensure that all the organic loading in the Sewage Treatment Inlet tank present is remedied and post it the dosing was continued with 1ppm and reduction of H₂S was recorded. After Continous dosage of 3 months the plant had stabilized with the reading at the STP Inlet being reduced to over 95% and the occurrence of spike's with the additon of inlet was completed negated within controllable limits.

Results:

- ✓ There has been reduction of over 95% of H₂S at the STP inlet
- ✓ The occurrence of Spikes has been curtailed with the continous Usage of Bio Organic Catalyst

H2S Trends at STP Inlet Before BOC



Daily Peaks for the Week

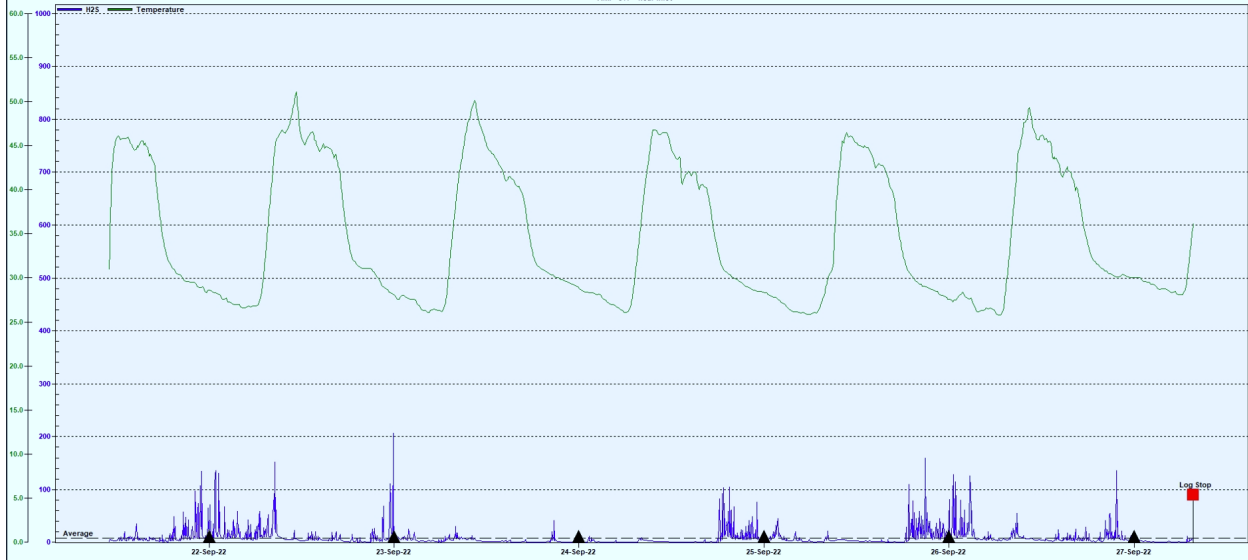
Date	H2S above 500
15-Jun-22	18 Counts
16-Jun-22	282 Counts
17-Jun-22	284 Counts
18-Jun-22	187 Counts
19-Jun-22	184 Counts
20-Jun-22	184 Counts
21-Jun-22	267 Counts
22-Jun-22	244 Counts

Average H2S Readings

Date	Average H2S
15-Jun-22	237.9242
16-Jun-22	341.4056
17-Jun-22	232.2597
18-Jun-22	285.6528
19-Jun-22	316.8958
20-Jun-22	327.2021
21-Jun-22	342.3639
22-Jun-22	372.7486

Highest H2S Value Recorded during the Week has been 1497ppm on all days of the week.

H2S Trends After BOC



H2S Peak Trends

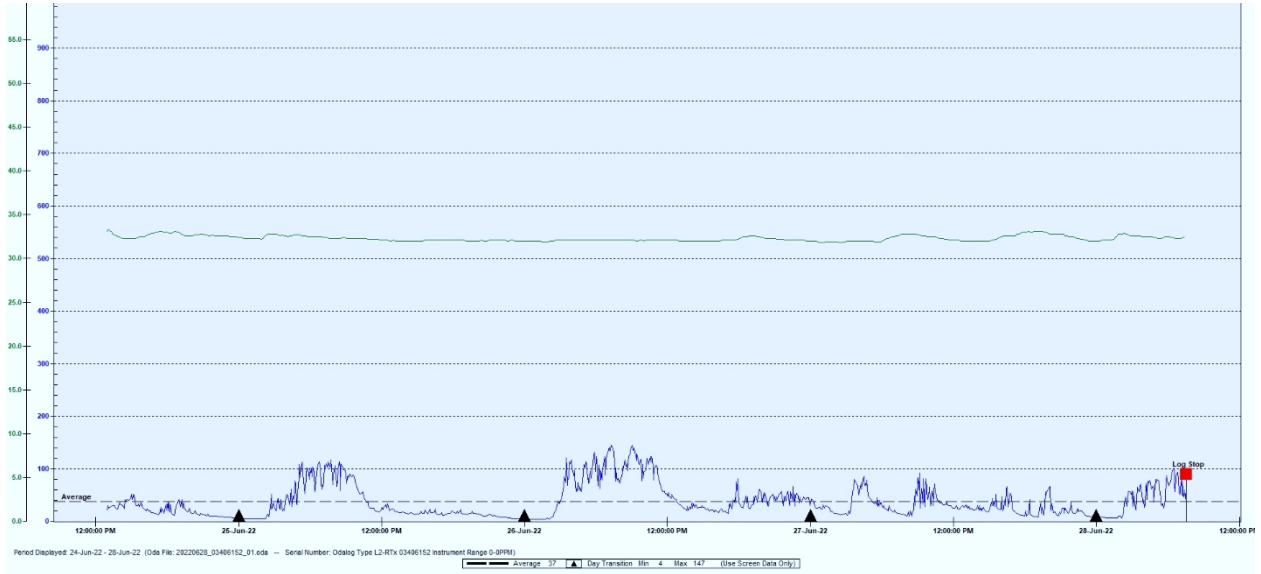
Date	H2S above 100
21-Sep-22	2 Counts
22-Sep-22	7 Counts
23-Sep-22	0 Counts
24-Sep-22	2 Counts
25-Sep-22	2 Counts
26-Sep-22	6 Counts
27-Sep-22	0 Counts

H2S Average Trends

Date	Average H2S
21-Sep-22	10.30385
22-Sep-22	12.23542
23-Sep-22	3.554167
24-Sep-22	5.358333
25-Sep-22	7.86875
26-Sep-22	10.525
27-Sep-22	2.155844

- After continuous usage there has never been a spike of above 200ppm of H2S.
- The average daily reduction has been more than 95% from the baseline trends

H2S Trends at Pumping station Before BOC



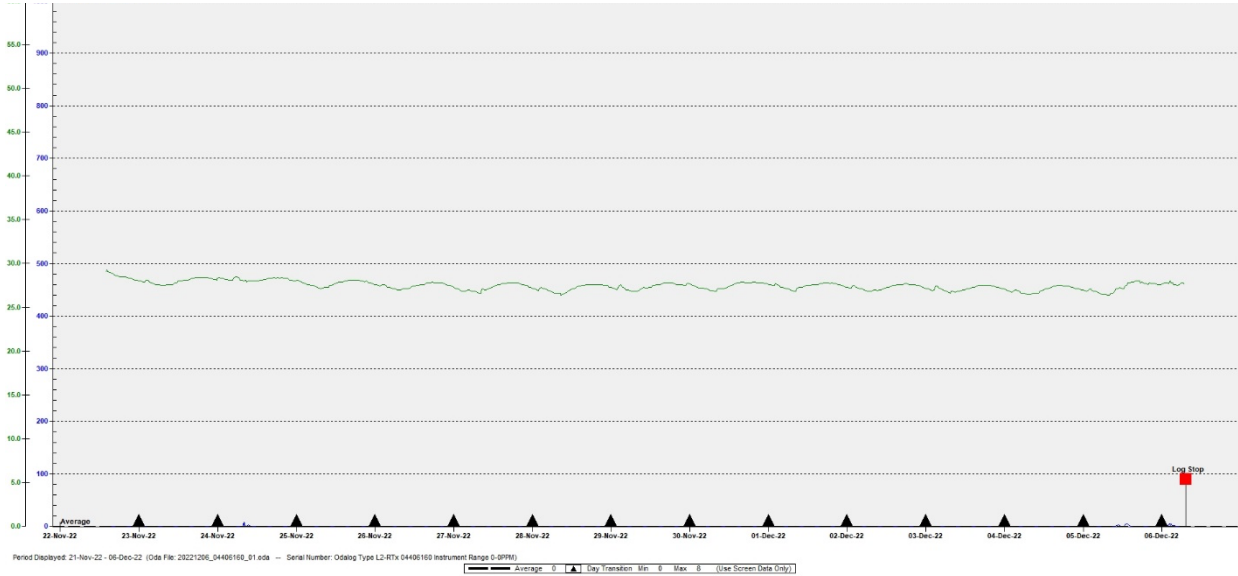
Daily Peaks for the Week

Date	H2S above 25
24-Jun-22	75 Counts
25-Jun-22	170 Counts
26-Jun-22	370 Counts
27-Jun-22	223 Counts
28-Jun-22	101 Counts
29-Jun-22	196 Counts
30-Jun-22	181 Counts

Average H2S Readings

Date	Average H2S
24-Jun-22	21.26
25-Jun-22	33.45
26-Jun-22	55.76
27-Jun-22	28.74
28-Jun-22	43.72
29-Jun-22	26.38
30-Jun-22	31.57

H2S Trends at Pumping Station After BOC



Daily Peaks for the Week

Date	H2S above 5
16-Nov-22	0 Counts
17-Nov-22	0 Counts
18-Nov-22	0 Counts
19-Nov-22	0 Counts
20-Nov-22	0 Counts
21-Nov-22	0 Counts
22-Nov-22	0 Counts

Average H2S Readings

Date	Average H2S
16-Nov-22	0
17-Nov-22	0.022
18-Nov-22	0.029
19-Nov-22	0
20-Nov-22	0.002
21-Nov-22	0.11
22-Nov-22	0

- After continuous usage there has never been a spike of above 5ppm of H2S from the pumping station.
- The average daily reduction has been more than 98% from the baseline trends from the pumping station.