

EVALUATION OF SENSOR-BASED AIR QUALITY MONITORING STATION FOR EARLY ODOUR DETECTION IN WWTP

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ABSTRACT

Evaluation of the solution for H₂S monitoring in WWTP to **detect critical points** in the process and to recommend optimal locations for **odours early detection** or possible emission sources by using **Kunak Air sensor-based air quality station**.

It was determined that **this technology is suitable for the monitoring of H₂S**, being possible to analyse the concentration of H₂S in different critical points, as well as to evaluate the corrective measures carried out in the WWTP.

INTRODUCTION

- Air quality monitoring and odour emissions from water treatment plants (WWTP) ► presence of VOCs and H₂S emissions.
- H₂S which produces a significant bad odour, not detectable with instruments that have even moderately low detection limits (odour threshold concentration for H₂S - 0.5 ppb).

Evaluation of the performance of sensor-based air quality devices for H₂S monitoring in WWTP to detect critical points, and to recommend optimal locations for early detection of odours or potential hazards to workers.

METHODOLOGY

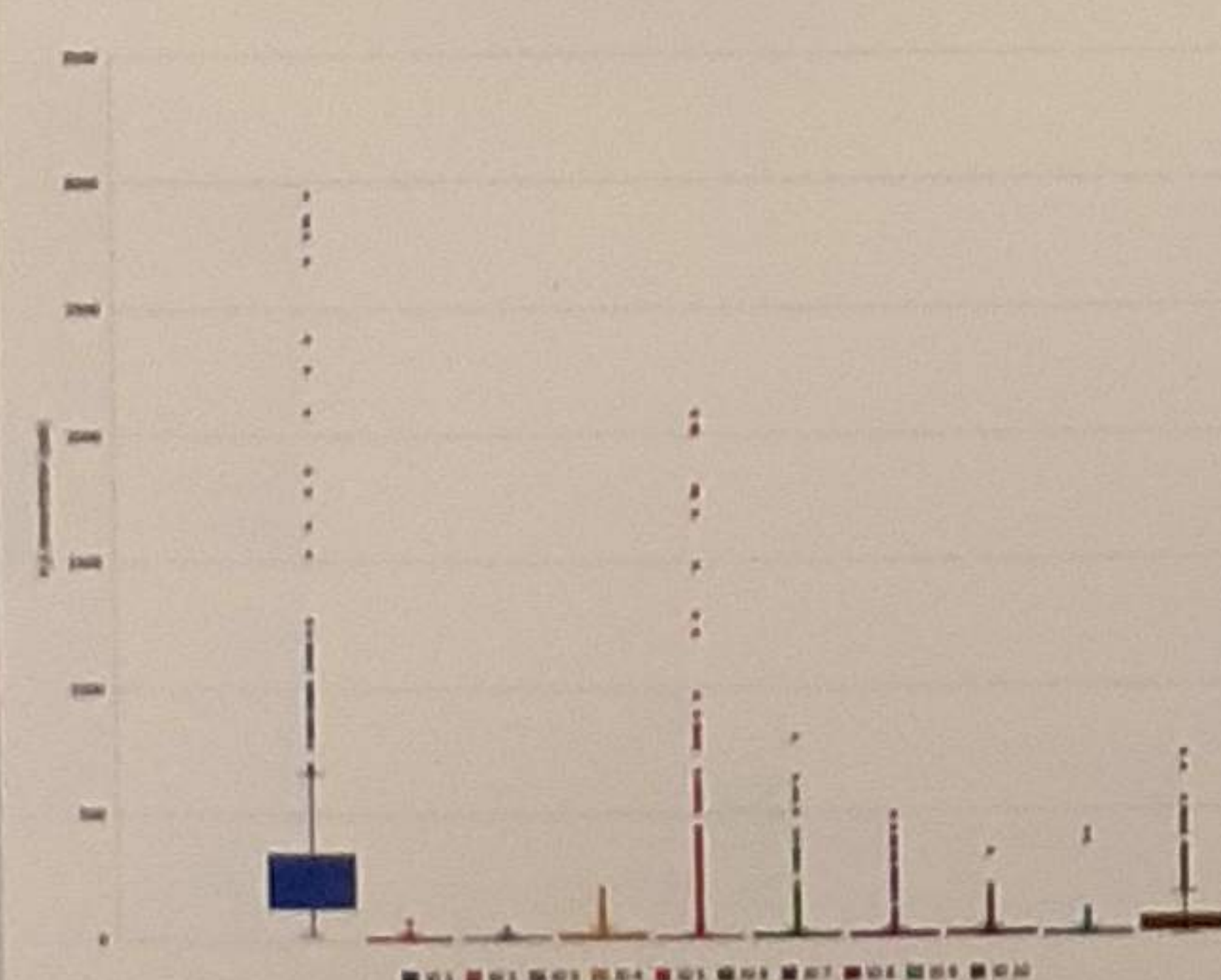
The measurements were obtained using Kunak Air A10 device with sensors for H₂S, temperature, humidity, pressure, and anemometer for the points located outside the buildings to detect any change in H₂S concentration.

Range	Detection Limit	Recommended Limit
0-2,000 ppb	4 ppb	10 ppb

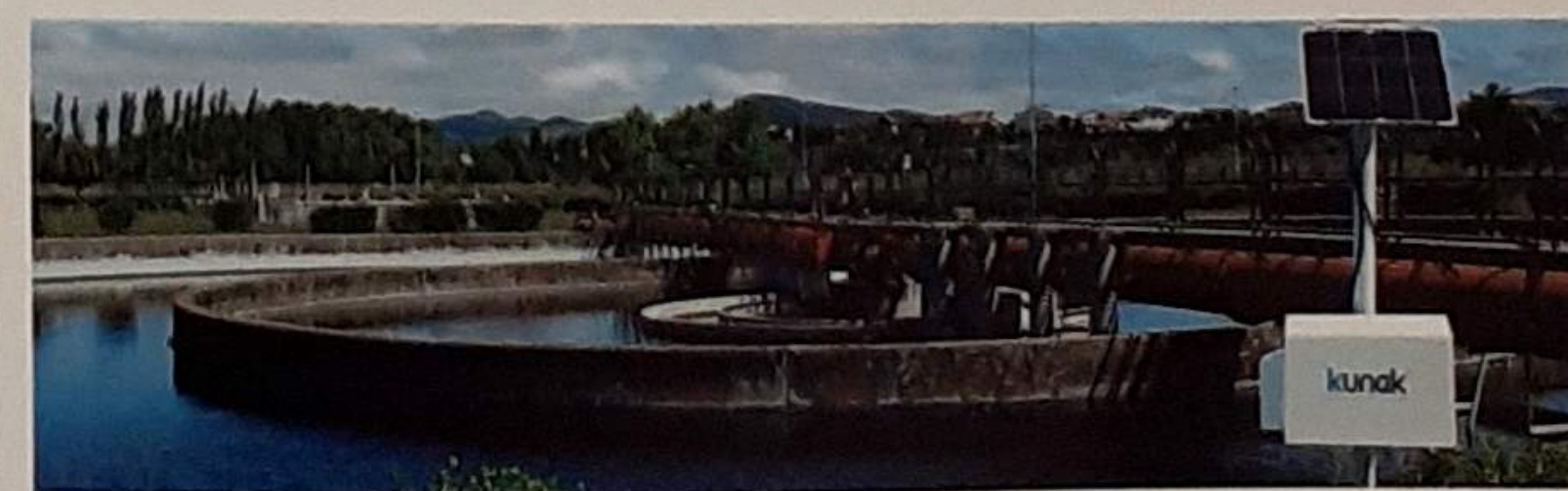
The locations studied include the critical points in order to assess whether they are indeed emission.

ID	LOCATION
1	Sludge distribution tower (before construction)
2	Sieve building
3	Sieve building upstairs
4	Thickener
5	Homogeneizer
6	Sludge distribution tower (after construction)
7	Sludge dewatering plant
8	Control room in sludge dewatering hall
9	Sludge movement tunnel
10	Pre-treatment

RESULTS



Kunak AIR technology is able to measure within the concentration ranges found in the WWTPs being possible to detect early possible odour episodes, monitoring in real-time peaks of high H₂S concentrations and not very high concentrations that are prolonged in time.



CONCLUSIONS

- Good performance of sensor-based air quality devices for H₂S monitoring in WWTP and its value as an early odour detection technology.
- It is highlighted the importance of the air quality and odour continuous monitoring, as well as the detection of H₂S concentrations within the ranges observed in the different processes of the WWTP, to detect any peak that could pose a risk to workers or a bad odour event in nearby populations.



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