



Sewer Sentry Gas Study

Passive Ventilation Pilot - Hydrogen Sulfide (H₂S) Reduction | Laredo, Texas

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Executive Summary

A passive ventilation pilot using Sewer Sentry was conducted in Laredo, Texas to evaluate the impact of controlled airflow on hydrogen sulfide (H₂S) concentrations within the sanitary sewer system. Gas logging demonstrated that enabling airflow through Sewer Sentry resulted in approximately 80-85% sustained reduction in H₂S concentrations and up to 95% reduction in extreme gas events, confirming Sewer Sentry as an effective, passive solution for sewer gas, odor, and corrosion control.

Site Location & Significance

Gas logging was performed at manhole WWC-SMH-008573, located at the downstream end of the basin immediately upstream of the wastewater treatment plant along the interceptor. This location represents one of the most severe environments in a collection system because:

- Multiple upstream basins converge
- Wastewater age is highest
- H₂S generation potential is greatest

Only 12 Sewer Sentry units were installed upstream in this basin during the study, making the magnitude of reduction especially significant.

(See attached system map for interceptor alignment and manhole reference.)

Test Configuration

The site was intentionally operated in three phases to demonstrate H₂S buildup when airflow is restricted and recovery once ventilation is restored.

Phase 1	Jan 16-22	Airflow enabled (Sewer Sentry vents open)
Phase 2	Jan 22-29	No airflow (Sewer Sentry vents plugged)
Phase 3	Jan 29-Feb 5	Airflow restored (vents reopened)

Observed H₂S Concentrations

Phase	Typical sustained range	Peak activity
Phase 1 - Airflow	~15-40 ppm	Occasional spikes <100 ppm
Phase 2 - Plugged	~120-250 ppm	Repeated peaks 400-650 ppm
Phase 3 - Airflow restored	~20-50 ppm	High spikes largely eliminated

Reduction Results

Sustained reduction: From ~200 ppm (plugged) to ~35 ppm (airflow) → ≈ 80-85% reduction
Peak event reduction: From ~600 ppm peaks to ~35 ppm baseline → ≈ 90-95% reduction
The similarity between Phase 1 and Phase 3 confirms the reduction is repeatable and directly attributable to restored ventilation.

Why Sewer Sentry Works

- Restores natural convection between sewer and atmosphere.
- Prevents anaerobic stagnant zones where H₂S forms.
- Continuously releases gas before it can concentrate.
- Passive, non-powered, and maintenance-free.

Benefits to the Utility

- Reduced odor complaints.
- Reduced corrosion of manholes and downstream assets.
- Improved worker safety.
- Reduced reliance on chemical dosing and powered odor-control systems.
- Scalable basin-wide solution.

Conclusion

The Laredo Gas Study demonstrates that Sewer Sentry provides a robust, passive, and repeatable reduction of hydrogen sulfide, even at a worst-case downstream interceptor location immediately upstream of the treatment plant. Achieving these results with only twelve installed units highlights Sewer Sentry as a highly effective and scalable solution for sewer gas, odor, and corrosion control.

Figure 1 - Hydrogen Sulfide Gas Logging Results

Phase labels: Phase 1 (Jan 16-22) - Airflow Enabled | Phase 2 (Jan 22-29) - Plugged / No Airflow | Phase 3 (Jan 29-Feb 5) - Airflow Restored

