

**White paper Report
Little John Digester with A.O.P.**

DO₂E LITTLE JOHN AOP 3-HP DIGESTER H₂S DATA

Here is the data from the Little John AOP units installed in Stockton California. The installation consisted of two three-HP Little John Digesters with standard AOP (advanced oxidation processing) or hybrid ozone. These units are powered by a 3-HP regenerative air pump and have 3 Prozone hybrid ozone generators per unit for a total of 6-HP, and 6 Prozone Generators.

The Little John Digester is a true aerobic digester/mixer. Air, and hybrid ozone is delivered through a combination of fine and coarse air holes into a confined space creating a Venturi effect, essentially an air lift pump. The unit pulls water and solids in thru three intake ports located in the bottom of the digester. As the water and solids travel up through the machine, the water is aerated, ozonized and the solids are mechanically broken down as they travel across a set of stationary ridges located on top of the digester. The digester is weighted with concrete, and sets on the bottom of the wet well, or grease interceptor. The air is confined internally in the digester, and released well above the volute of the pump thereby preventing air entrainment of pumps.

The Little John is very effective at eliminating FOG, H₂S gases, and odors, and will keep H₂S levels down for long distances downstream in force mains provided there are some periodic flows. This will vary depending on H₂S levels, pump run times, number of hybrid ozone generators and other factors. No two stations are the same. Force mains that experience long durations of no flow conditions will still eventually go septic.

SOME EXPLANATION OF THE DATA:

Unit was installed on January 16th. This is a large high-flow station that feeds a 24" force main. The station was designed for a large

build-out that was not completed, which resulted in very low flow rates - especially at night. The low flow rate caused very high H₂S build up in the force main with peaks in excess of 1600 PPM H₂S. The pumps will run on average 15 minutes on 45 minutes off, with significantly less activity at night. These readings were taken 2.5 miles downstream of the LJ units at the discharge point. When they were first installed, there was an initial spike in the readings as the units put the sludge accumulation on the bottom of the well into suspension creating a temporary heavy load. This quickly dropped down to normal levels. As the units were installed mid-month, January median numbers are skewed for that month. February gives the true readings. Note the spikes on Super Bowl Sunday, and a holiday weekend where loading is higher. Median H₂S levels for November, and December combined averaged about 289.5. The median fell to 26.45 for the month of February with Little Johns running normally and AOP turned on. This is over a 90% reduction of H₂S readings at end of pipe! Around March 1st, the AOP was shut off and readings are naturally aspirated plain air. Median increased to 89.10.

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and Environmental Engineer with 30+ years
Experience.**