

# Sewer Line Odor and Corrosion Control

## GENER-OX™



## Gener-Ox™ Chemical-Free Sewer Line Odor and Corrosion Control

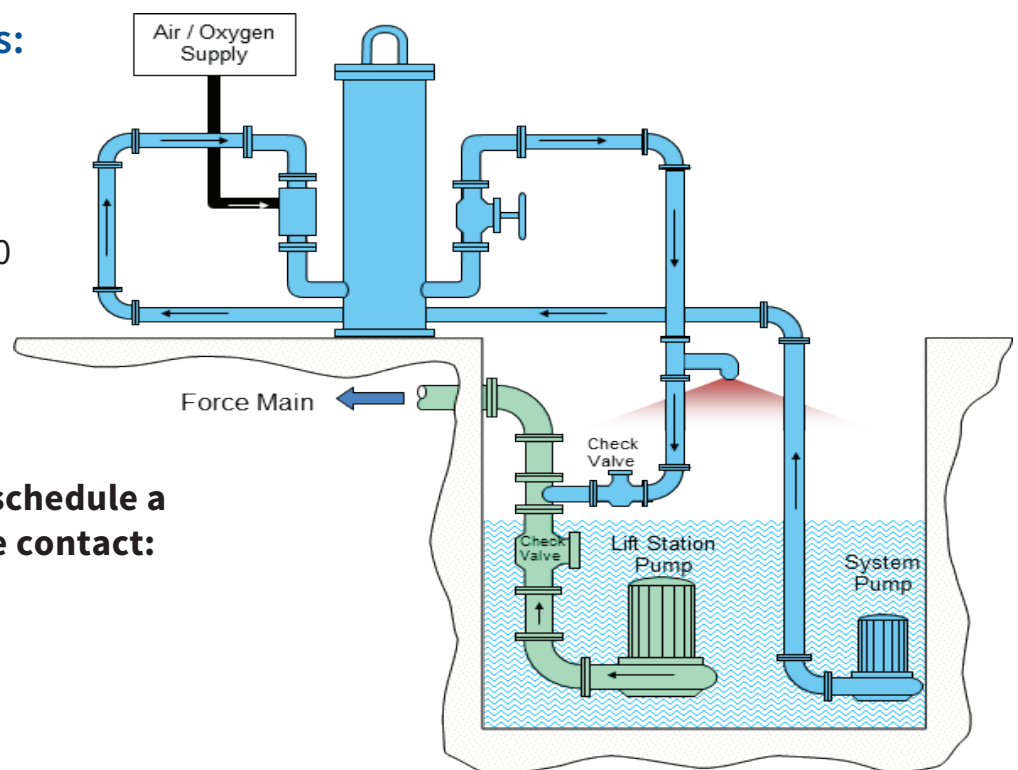
Force mains are nutrient-rich anaerobic environments. In this environment, Sulfate Reducing Bacteria (SRBs) can reduce sulfates to sulfides, while simultaneously depressing the pH. Under acidic conditions, sulfides form hydrogen sulfide ( $H_2S$ ), a common sewer gas that readily volatilizes upon agitation or turbulence of the sewage, leading to odor complaints. At locations within the sewer line where oxygen from air can be present, such as manholes and lift stations, the  $H_2S$  vapor will react with oxygen to form sulfuric acid, which condenses on surfaces, causing accelerated corrosion to concrete and steel.

IER's Gener-Ox™ chemical-free system addresses the root cause of this problem by altering the sewage in the force main from an anaerobic to an aerobic environment, causing the SRBs to encapsulate and eventually die. **No SRBs, no sulfide formation. No sulfide formation, no odor, and no corrosion.**

In a typical installation, the Gener-Ox™ system will draw a side-stream of sewer water from a wet well, pressurize it, aerate it, and dissolve oxygen into the water achieve the required DO level for reinjection in the force main.

### Gener-Ox™ System Benefits:

- Chemical-Free
- Low Operational Cost
- Minimal Maintenance
- Oxygen Dissolution up to 5400 lb/Day/Unit
- Air or Oxygen Feed



**For further information or to schedule a trial of this technology, please contact:**

**Sun Coast Controls Mfg.**

4130 Canal Street North  
Jacksonville, FL 32209

Phone: 904-693-3318

Fax: 904-693-3203

Web: <http://www.suncoastcontrols.com>

# Sewer Line Odor and Corrosion Control

## GENER-OX™



## How the Gener-Ox™ System Works

Hydrogen sulfide is naturally generated by Sulfate Reducing Bacteria in an anaerobic environment. Depending on the chemical nature of the sewer line, a force main can become a sulfate-rich anaerobic environment. Therefore, the sulfide odor problem is a result of chemistry and anaerobic microbiology.

**The chemical-free Gener-Ox™ system works on a very simple principle: change the aerobic environment, change the microbiology, and change the results.**

Most chemical approaches to the sulfide problem attempt to “shock” the anaerobic bacteria using chlorine or caustic, others add sulfide precipitating chemicals, such as ferric chloride. Another popular approach is to feed the force main with a nitrate salt which the anaerobes preferentially reduce to odor-free N<sub>2</sub> gas.

Gener-Ox™ is designed to address the root cause of the problem, **inhibiting the formation of hydrogen sulfide in the first place** by making the force main sewage environment aerobic, rendering all anaerobes and sulfate-reducing bacteria inactive or nonexistent. The key is dissolved oxygen (DO), not just oxygen. Gas phase O<sub>2</sub> may minimize odor, but can greatly accelerate corrosion above the water line.

In order to maintain a significant DO concentration throughout a force main, the initial DO level must often be higher than the atmospheric saturation DO level in the wet well. For example, a lift station pumping 500,000 gpd through a 12-inch, 10,000 foot force main with an oxygen uptake rate of 0.08 mg/L/min will require a DO level at the start of the force main of about 56 mg/L in order to maintain a DO residual upon discharge. This is accomplished by aerating under pressure, driving more oxygen into solution than is possible in an open vessel. The saturation DO level of water depends on temperature and pressure. Sewage open to the atmosphere has a saturation DO level of about 8.5 mg/L at 70°F. However, in a force main under 30 psi pressure aerated with oxygen, the saturation DO level is in excess of 120 mg/L. In this example, the Gener-Ox™ system fed with oxygen **will dissolve 26 SCFH of oxygen into 25 gpm of sewer water** (132 SCFH air into 125 gpm wastewater for air-fed) from the wet well and inject it into the force main, maintaining aerobic conditions throughout the force main.

By aerating under pressure, the Gener-Ox™ system will raise the DO concentration to previously unattainable levels, **enabling a less expensive, cleaner, simpler, and “greener” solution to your sulfide problem.**

**Sun Coast Controls Mfg.**  
4130 Canal Street North  
Jacksonville, FL 32209

Phone: 904-693-3318  
Fax: 904-693-3203

Web: <http://www.suncoastcontrols.com>