

# TECH NOTES

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## SAFETY NET - LOOK TO THE

### *MODEL 400W EMERGENCY PRESSURE RELIEF MANHOLE COVERS*

The Varec Biogas 400W Series Emergency Pressure Relief Manhole Covers are designed to provide emergency pressure venting and vacuum relief in storage tanks and vessels, while allowing easy access for tank inspection and maintenance.

The constant mixing of the biosolids in the digester could potentially create excessive foam build-up, which can clog digester cover equipment. The foam could clog the flame arresters installed with the Pressure and Vacuum Relief (PVR) Valves, especially without proper and routine maintenance. This leaves the PVR valves unable to perform its intended function of emergency pressure and vacuum relief. Without a secondary safety net, the tank is susceptible to explosion and implosion as pressure or vacuum rises in the tank.



Take for instance the Newtown Creek Wastewater Treatment Plant in New York. During the initial testing phase, an overflow of sludge and foam caused clogging of the flame arresters and PVR valves. The digesters were subsequently damaged because the pressures increased above a safe level. New York City Department of Environmental Protection (NY DEP) contacted Varec Biogas for assistance.

The engineers preferred not to use water seals because water seals traditionally require more maintenance. Most importantly, water seals do not really re-seal which could allow excessive amounts of odiferous gas to escape into the atmosphere.

Varec Biogas's proposed solution was to install Emergency Relief Manhole Covers, two on each digester. The covers were set above the PVR relief setting, but were set below the digester design pressure. The eight (8) total Emergency Relief Manhole Covers installed at the plant, have already exhibited reliable performance when the plant once again encountered foam problems. The cover did its job! It relieved pressure to the atmosphere before any damages to the tank occurred.

The dependability of the 400W Series Emergency Relief Manhole Covers stems from its hinged design. It is ideal for relieving vapor, foam, or liquid. The hinge provides a fixed pivot point, which keeps the cover aligned so it reseats properly after venting. The 400W Series also features a teflon seating surface on the pressure side.

The 400W with the vacuum relief option incorporates a spring-loaded vacuum relief valve integral to the cover assembly. Additional features include a weatherhood, a protective screen, and a teflon seat insert on the pallet to minimize leakage.

The 400W is available in 10" (250mm), 12"(300mm), 16"(400mm), 18"(450mm), 20"(500mm), 24"(600mm), 30"(750mm) and 36"(900mm) diameter. An existing manhole cover on the digester can be retrofitted with an emergency pressure and/or vacuum relief manhole cover. Our authorized sales representatives can assist you in determining maximum flow rate for a specified pressure and vacuum relief setting.

Please contact your local sales representative for additional information.



Toll Free 1-866-4BIOGAS