



Improve
Reliability



Reduce
Costs



Reduce
Downtime

TANK LEVEL INSPECTION

USING THERMAL IMAGING TO SEE THE LIQUIDS, SOLIDS, AND FOAM LEVELS INSIDE A TANK

THE CUSTOMER'S CHALLENGE

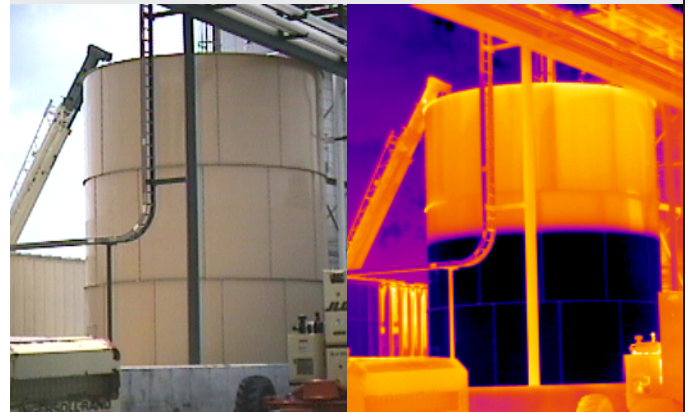
Tank level gauging is a necessity for various applications in the oil and gas industry. Maintenance teams need to ensure there is no overflow, and to know when to empty the tank. In order to do so they must determine the tank's current level. They may also need to identify whether there are interfaces between liquids, liquid/solids (sludge), or emulsions (foams) due to density differences. If they are recovering fracking fluid, they may need to calculate tank flow rates. Tank capacity can dictate the flow rate from a well head. Inspectors may need to estimate the current value of the product, or find out how many trucks are needed to offload it. This requires the maintenance team to calculate the existing volume or remaining tank capacity. Current methods are dangerous, such as strapping or dip-sticking, and they can be inaccurate.

A SOLUTION

Thermal imaging technology can help oil and gas companies gauge tank levels without direct contact, while viewing them from a safe working distance. The thermal camera can identify the interfaces between solids, liquids, foams, and vapors by resolving very small temperature differences between these products due to their varying densities and specific heat characteristics. The compact and affordable FLIR ONE® Pro, which attaches to a smartphone, can be coupled with a mobile app to help calculate the volume of liquid in a tank. When the temperature differential is small or the user cannot get close to the tank, a FLIR E75 may be a better alternative. The FLIR E75 has enhanced thermal sensitivity, higher resolution, and the ability to swap AutoCal™ optics, which is useful when the inspector cannot get close to a tank due to safety considerations.

THE RESULTS

With a thermal imager, users can inspect tanks without contact from a safe distance and accurately determine the level and volume of the products and byproducts inside. Thermal imaging also gives the user the ability to see uneven levels such as sludge accumulation, where traditional level instruments would not give an accurate representation of the sludge's true volume. This has helped companies prevent sludge from getting sucked into pumps that would cause impeller failure, and provided the ability to determine how much tank capacity was lost due to the sludge layer. Identifying the sludge layer allows them to plan for its removal during the next shutdown — reducing downtime, reducing costs, and improving reliability.



Oil and gas companies need to be able to clearly identify various levels within a tank; traditional methods are unreliable and can be dangerous, including strapping or dip-sticking.



Thermal imaging technology can help oil and gas companies gauge tank levels without direct contact, as well as distinguish small changes in temperature between liquids or solids of varying densities and specific heat characteristics.



Equipment described herein is subject to US export regulations and may require a license prior to export. Diversion contrary to US law is prohibited. ©2019 FLIR Systems, Inc. All rights reserved. 05/19 - 18-2923-INS

