

Performance Evaluations and Quality Validation System for Optical Gas Imaging Cameras That Visualize Fugitive Hydrocarbon Gas Emissions

Tracey L. Footer¹, Jason M. DeWees², Eben D. Thoma³,

¹ Eastern Research Group, Inc., 601 Keystone Park Drive, Suite 700, Morrisville, NC 27713, USA

² Office of Air Quality Planning and Standards, U.S. EPA, 109 TW Alexander Drive, E143-02, RTP, NC 27711, USA

³ Office of Research and Development, National Risk Management Research Laboratory, U.S. EPA, 109 TW Alexander Drive, E343-02, RTP, NC 27711, USA

Principal Contact: Tracey L. Footer, Environmental Scientist, Eastern Research Group, Inc., 601 Keystone Park Drive, Suite 700, Morrisville, NC 27713, 919-468-7952, Fax: 919-468-7803, tracey.footer@erg.com.

Abstract

Optical gas imaging (OGI) cameras have the unique ability to exploit the electromagnetic properties of fugitive chemical vapors to make invisible gases visible. This ability is extremely useful for industrial facilities trying to mitigate product losses from escaping gas and facilities with leak detection and repair (LDAR) programs that are required to find and estimate the emission rate of any fugitive gas releases to the atmosphere. How well an OGI camera can image a gas leak is dependent on many different variables. The efforts presented here attempt to define what some of those variables are and how much impact they are likely to have on leak detection of hydrocarbon gases with a hydrocarbon gas-specific OGI camera. By developing testing platforms and leak generation systems in a laboratory setting, we were able to observe and isolate some of these variables in order to measure the OGI camera response. This presentation will discuss the tests performed, the results obtained, and work to be conducted in future studies.