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Application of Photographic Visualization and Thermal Detection Techniques for Non-Intrusive Imaging of LNG Leaks and Plumes

Jeff Leake¹, David Furry¹, Michael L. Moore², Aditya Murthi³, and M Sam Mannan³

¹Leake Company, 10920 Switzer Avenue, Suite 101, Dallas, Texas 75238, USA

²Flameout Control, 410 Butterfly Court, Houston, Texas 77079, USA

³Mary Kay O'Connor Process Safety Center, Chemical Engineering Department, Texas A&M University, College Station, Texas 77843-3122, USA

Abstract

This paper presents a description of a new technology that has been developed for the detection and identification of chemical emissions from Liquefied Natural Gas (LNG) leaks and plumes. This technique utilizes a passive camera system for gas imaging wherein natural heat from the background (components tanks, wall, sky etc.) is treated as the infrared source. The resulting radiation is filtered through a cooled optical bandpass filter and provides an image of the gas that is captured by an infrared sensor device. A part of the pass band of the optical bandpass filter is within the adsorption band for the chemical and hence provides the necessary tuning for the components of interest.

The passive camera system represents an easier to operate camera and has shown comparable detectabilities to active systems as seen from preliminary results.