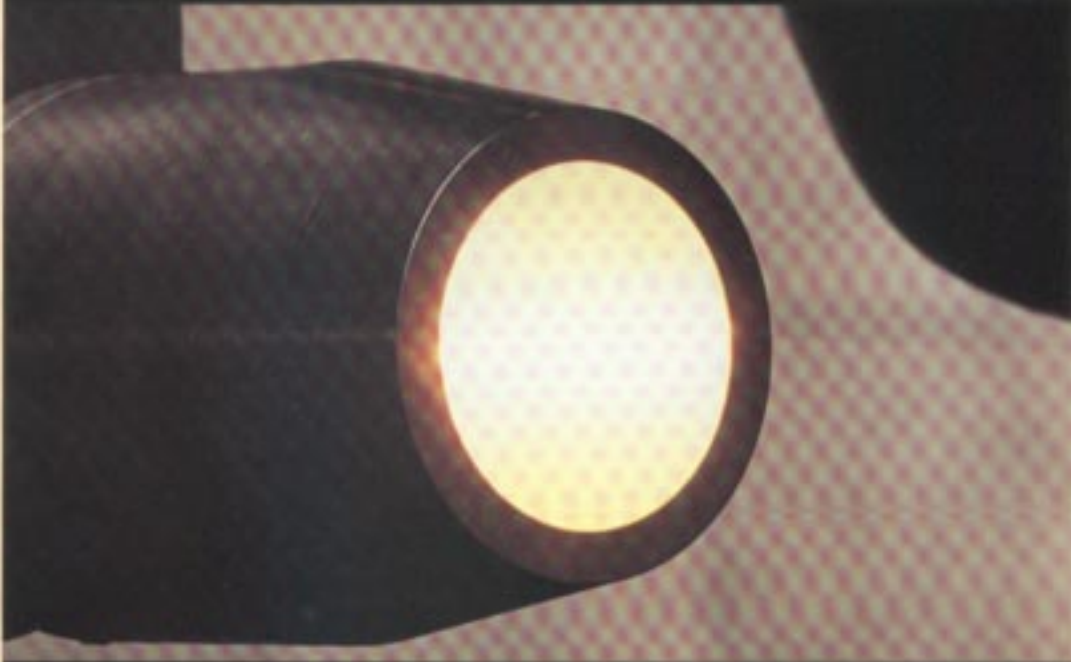


GAS COMPANIES FINDING LEAKS FASTER WITH THE

# OMD



REPRINTED FROM

**grid**

Volume 22, Number 3  
Fall 1999



1-800-HEATH US  
[www.heathus.com](http://www.heathus.com)

# grid

Editor: Cheryl G. Drugan

Art Director: Kathleen C. Collins

Contributing Editors: James E. Albrecht,  
Jeffrey J. Gavin, Jayne D. Herring, Joseph F. Hilyard

Publications Assistant: Janet M. Sagmeister

Circulation: Carrie L. Holmes

♦

*GRID is a quarterly publication of  
GRI's™ Shared Services Group.  
GRID is intended to keep GRI's members, the  
gas industry, and the interested public informed  
of the progress and results of gas R&D  
being sponsored by GRI.*

Vice President and Chief Financial Officer,  
Business Administration and Shared  
Services Division: Robert G. Eady

Group Manager, Shared Services Group:  
Joseph F. Hilyard

♦

*©1999 by GRI. GRI and GRID are registered  
trademarks of GRI. Information in  
GRID may be reproduced for publication  
with acknowledgement to GRI. Permission  
for reprints should be arranged with the GRID Editor.  
Subscriptions to GRID are free. Address correspondence,  
subscription requests, and changes of address to:*

Editor, GRID

GRI

8600 West Bryn Mawr Avenue

Chicago, Illinois 60631-3362

U.S.A.

Voice: 773/399-8100

FAX: 773/399-8170

Telex: 253812

E-mail: [cdrugan@gri.org](mailto:cdrugan@gri.org)

♦

*GRI information is available on-line. GRI/Net® is the  
electronic link to information about GRI programs.  
Access GRI/Net by connecting to  
<http://www.gri.org>*



1-800-HEATH US  
[www.heathus.com](http://www.heathus.com)



Public Service Electric & Gas Co. uses the van-mounted Optical Methane Detector to locate gas leaks rapidly. Paul Beckendorf (center), GRI Principal Product Development Manager, examines the OMD with Don Kunze (left), Practice and Procedures Specialist, and George Ragula, Distribution Technology Manager, both with PSE&G.



1-800-HEATH US  
[www.heathus.com](http://www.heathus.com)





FOLLOW-UP  
RESEARCH  
IS SHOWING  
T H A T  
REAL-LIFE  
USE OF THE  
OPTICAL  
METHANE  
DETECTOR™  
IS MATCHING  
THE SUCCESS  
OF FIELD  
T R I A L S .



1-800-HEATH US  
[www.heathus.com](http://www.heathus.com)



In Minneapolis, Chicago, Philadelphia, Brooklyn, San Francisco, Toronto, and other areas of North America, crews are speeding up the process of natural gas leak detection with the advanced technology built into the Optical Methane Detector™ (OMD), a product from the GRI program that entered the market in 1998.

With the OMD mounted on the front of utility vehicles, crews are accurately detecting methane leaks while traveling at normal traffic speeds. Field demonstrations—and, now, studies of real-life practice—show that mobile leak surveys using the OMD can be conducted up to four times faster than surveys using traditional methods (e.g., flame ionization detection, which limits speeds to 3 to 7 mph). The results are overall productivity improvements of 20 to 50 percent or more. Even at higher speeds, the OMD has shown the ability to respond to one-part-per-million (ppm) of methane or less.

Development of the OMD began at GRI in 1988, and, over the years, has involved the expertise of Westinghouse Science & Technology Center, Carnegie-Mellon Research Institute, and a host of utility participants. The product is now under license to Heath Consultants Incorporated, which manufactures and markets the OMD throughout the world.

Although the OMD is a relatively new product, GRI's post-commercialization research indicates that utilities are already reaping significant benefits by adding the OMD to leak survey fleets.

Says Paul Beckendorf, GRI Principal Product Development Manager: "Every once in a while a technology comes along that yields a huge gain in productivity. The OMD is

one of these. It is literally changing the way utilities conduct their leak survey activities. GRI's involvement in the entire process, from concept development through commercialization, helped assure the success of this radically different technology."

As of December 1999, nearly 60 OMDs had been shipped to utilities. Interviews with users confirm the predicted productivity increases.

"Post-commercialization research shows the capability for companies to eliminate one out of every three leak survey vehicles," asserts Beckendorf. "In addition, users are reporting a potential 90 percent decrease in maintenance costs by using the OMD over flame ionization units."

**"USERS  
ARE REPORTING  
A POTENTIAL 90  
PERCENT DECREASE  
IN MAINTENANCE  
COSTS BY USING  
THE OMD OVER FLAME  
IONIZATION UNITS."**

Paul Beckendorf  
Principal Product  
Development  
Manager  
GRI



#### how it works

**T**he OMD is based on the ability of methane gas to absorb specific wavelengths of infrared (IR) light. An IR light source, mounted on one side of the vehicle's front bumper, directs a beam of light at an optical detector mounted at the other end of the bumper. If the vehicle encounters a gas leak plume that intrudes into the IR light beam, the detector responds to the presence of methane and sends a signal to a display panel inside the vehicle. The OMD performs 14,000 measurements per second, which provides an instant response to a gas leak over a wide range of vehicle speeds. The OMD is simple to use, lightweight, and can be quickly mounted on a variety of vehicles.



"One of the unit's characteristics that stands out is the reduced maintenance requirement," notes Anton Kacicnik, Project Supervisor, Enbridge Consumers Gas. "The OMD does not have any parts that would require daily maintenance and calibration. There are no parts to clean, filters to clean and/or replace, fuels to replenish, or batteries to change. The field use showed that the only consumable item for the OMD is an occasional tissue to clean the lenses. No other field leak detection equipment comes to mind that would require that little maintenance."

Most of the companies indicated that they are not changing business practices when switching from flame ionization to OMD mobile units. However, some of the companies are making significant improvements to take advantage of the OMD's capabilities:

- One company is reducing the number of surveyors in the vehicle from two to one.
- Other utilities are considering using OMDs in areas not now "mobile surveyed." One company that previously had to do walking surveys because of high traffic speeds estimates its use of the mobile OMD yields a productivity increase of 2,000 percent.



- Chevron Production is attaching the OMD to all-terrain vehicles to survey gathering lines not accessible with conventional survey vehicles. "Typical leak detection surveys of our gathering lines require a man and a truck, plus a field guide—and the survey is usually conducted on foot," explains Chevron's Ron Drymon, Head Oilfield Operator. "With our OMD, it requires only the vehicle and driver."
- Overtime work on special surveys conducted by northern utilities during the winter when frost is in the ground is being eliminated or reduced due to the increased productivity of the OMD units.

"We liked the concept from the beginning," reports Jerry Freeman, Leak Survey Technician with Reliant Energy Minnegasco. "We were impressed by how small of a leak the OMD could find compared to flame ionization equipment. We also like the idea of no maintenance except for the calibration and the light bulb. There isn't any noise from a pump pulling in an air sample and the worries of a tubing line not being connected."

Reliant Energy Minnegasco is taking the initiative to advance the OMD technology by developing an automated leak detection system using an onboard computer linked with a Geographic Information System (GIS). Leak survey

area maps from the GIS are loaded in the truck computer to track the survey area. Information is then imported back to the GIS and stored as a permanent record.

"The Office of Pipeline Safety from the state of Minnesota is very excited about our moving ahead with this part of the project," Freeman adds. "This will eliminate the possibility of missed surveys or incomplete data. We believe combining the OMD with the automatic leak detection system will make us better at serving our customers safely, along with our responsibility to the general public."

#### Contact:

For more information, **Paul Beckendorf**, GRI Principal Product Development Manager, Distribution and End-Use Business Unit (773/399-8220; FAX: 773/864-3476; E-mail: pbeckend@gri.org).

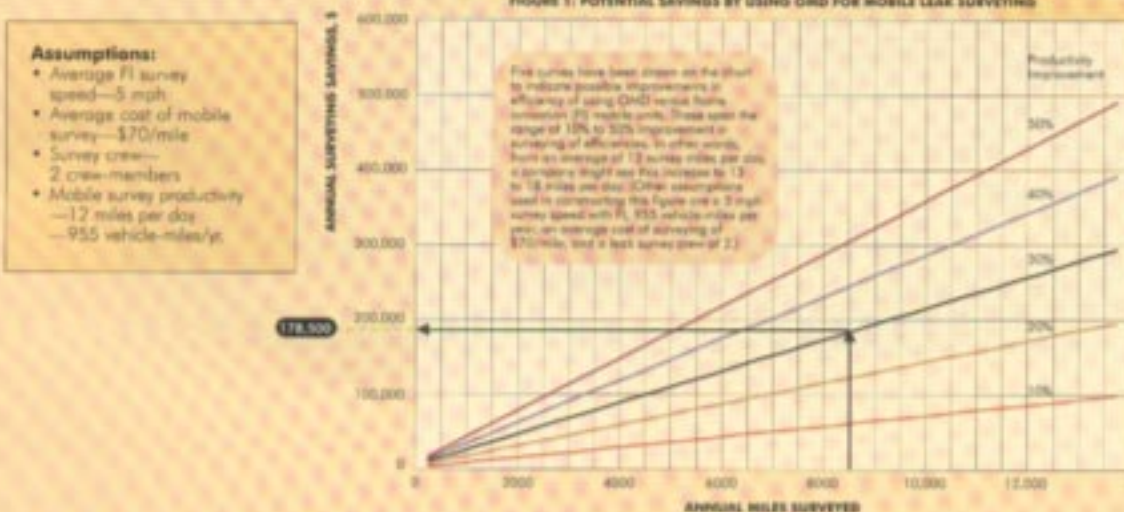


This article was written by James E. Albrecht, GRI Distribution and End-Use Business Unit.

### calculating the benefits

Most of the benefits to be gained from using the OMD are based on the increase in speed at which the vehicle can be driven and, consequently, the increase in efficiency of surveying. This will be affected by the traffic conditions, general survey environment, and the number and nature of the leaks identified. In addition, benefits vary based on the use of the OMD and miles driven.

To assist companies in estimating the potential benefits of the OMD, GRI researchers developed Figure 1. As shown in the chart, based on assumptions for 8,500 annual survey-miles and a 30 percent improvement in productivity, a company can expect \$178,500 in annual savings.



**gri.**

**GRI**



8600 West Bryn Mawr Avenue  
Chicago, Illinois 60631-3562  
773/399-8100  
FAX: 773/399-8170

**[www.gri.org](http://www.gri.org)**

GRI-99/0256-0003  
1299ABS1000

1-800-HEATH US  
[www.heathus.com](http://www.heathus.com)

