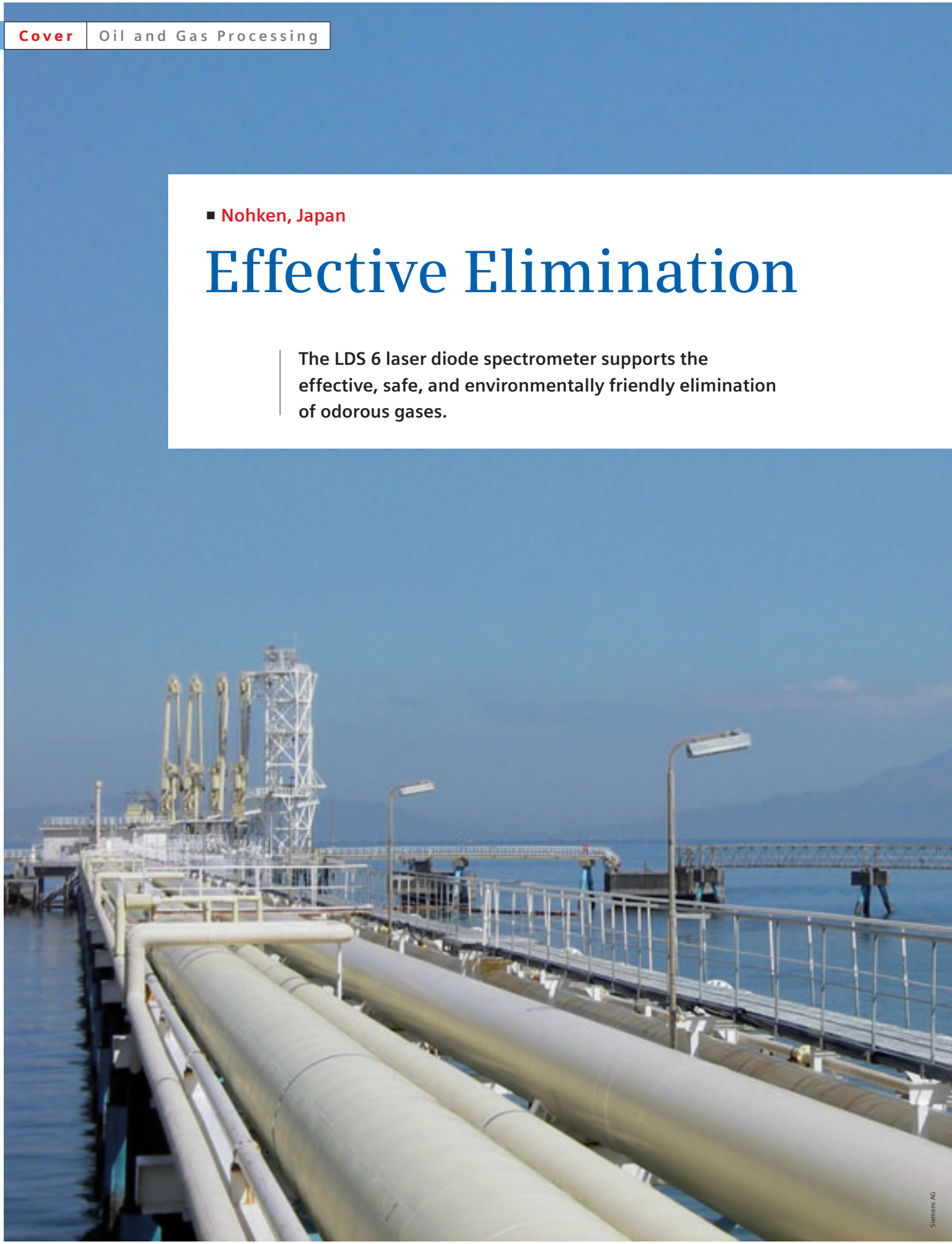
■ Nohken, Japan

Effective Elimination

The LDS 6 laser diode spectrometer supports the effective, safe, and environmentally friendly elimination of odorous gases.



Siemens AG

Applications in the oil and gas industry are exactly the type of challenge the LDS 6 laser diode process gas analyzer was designed for: sites where high performance and ease of use rank on a par with increased productivity and safety. Those were the requirements of a world-class transshipment and storage facility in Kiire, Japan. The Kiire facility maintains 46 million barrels of crude oil in 57 storage tanks, a supply equal to Japan's two-week demand. Traditionally, keeping Kiire's massive containers topped off has required continuous loading and unloading of cavernous bulk oil tankers. This generates odorous gases and results in losses of LPG (liquefied petroleum gas) components into the surrounding environment.

Recently, the terminal operator decided to implement a new tanker vapor recycle (TVR) plant that treats the malodorous vapors exhausted from the hold of a carrier during loading. The plant improves the facility's environmental profile by ensuring the reliable elimination of malodorous vapors, collecting previously lost LPG constituents, and helping to retrieve the equivalent of 17 million liters of crude oil per year. This project was also one of the first installations of LDS 6 in Japan by Nohken Inc., which recently signed a distribution agreement with Siemens for laser diode spectrometer technology. Nohken believes that the collaborative relationship provides further evidence of its commitment to offer new ideas and improved products that will better meet customers' needs.

Many challenges

Nohken initially considered Oxymat 6 process analyzers for the Kiire site to determine oxygen. However, with safety demanding a rapid response, an in-situ solution proved preferable, as the analyzer system has to monitor the TVR process for explosion-hazardous conditions in real time. The rugged, reliable, and flexible LDS 6 laser diode spectrometer offered an ideal solution to monitor critical oxygen concentration levels. The LDS 6 is suitable for rapid, non-contact measurements of gas concentrations or temperatures in process or flue gases. The measurement principle of the LDS 6 analyzer is based on the specific light absorption of different gas components, where the laser supports single-line spectroscopy free of interference. Easy to install, the LDS 6 delivers long-term stability resulting from a built-in maintenance-free reference gas cell and does not require field calibration. The measurement can be performed in-situ and delivers real-time values so that explosion-hazardous conditions are detected immediately, triggering a nitrogen flow to ensure plant safety.

With their focus on LDS 6 deployment, Nohken and Siemens assembled an expert team including both experienced staff from Nohken and Siemens analyzer specialists from Germany and Siemens Laser Analytic AB in Sweden. The application required an explosion certificate issued by the Technology Institution of Industrial Safety (TIIS) for the devices, and the team obtained the required documents for the LDS 6 without problems. Additionally, Nohken and Siemens set up an on-site test assembly to demonstrate that the LDS 6 is not affected by the varying hydrocarbon concentrations in the TVR unit, which can reach up to 20 percent. The LDS 6 excelled in these tests, delivering reliable measurements with an error of just 5 percent of read value.

Facts & Figures: LDS 6

- Provides rapid, non-contact measurement of gas concentrations or temperatures in process or flue gases
- Accommodates continuous emission monitoring for oil, gas, coal, and other fuels
- Serves up to three measuring points simultaneously
- Connects an in-situ sensor to an analyzer up to 1 kilometer away
- Operates with a minimum of electrical components, is highly selective, and accommodates high dust levels
- Is easy to install, requires little maintenance and no field calibration, and delivers long-term stability

Minimizing the ecological footprint

Nohken and Siemens supplied the entire transshipment terminal with a total of 12 analyzers. All instruments were delivered according to specifications and schedule and are already installed in the Kiire terminal. The TVR facility operates reliably and effectively, making the Kiire terminal more environmentally friendly and more economical at the same time. ■

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The LDS 6 spectrometer provides a reliable and extremely fast measuring option at the Kiire terminal