Leading Ethanol Operation Improves Production, Safety and Achieves OSHA Excellence with Plant-Wide Gas Detection System

In light of the many safety-related incidents at industrial facilities making national news every day, industrial workers are more cautious than ever about pursuing or accepting employment where accident risks are more prevalent, and where plant safety programs are not stellar. For Pacific Ethanol, a leading marketer and producer of low-carbon renewable fuels in the Western United States, employee safety is king.

• Pacific Ethanol found that their safety record is important to employees. And as a company, it takes great strides to follow the rules through their safety program and invites employees to participate in this effort.

• Pacific Ethanol specifically references their safety record in their employment recruiting efforts, and employees are quick to validate their safety record to ensure they are as safe as they claim.

• Using RAE Systems detection equipment has contributed to the increased safety reputation of their plants.

“If a seat belt wasn’t easy to use, people wouldn’t use it, and there would be a lot more deaths in accidents,” says Lyndon Jones, Plant Manager of Pacific Ethanol’s Boardman, Oregon, facility.

“My job as manager is to give my people the best tools, so when they go to use them, they work, they want to use them, and they know how to use them. Ultimately they’ll be safer.”

Ethanol production is a competitive business with inherent safety risk that includes explosive and toxic gases generated in the production process. Plant managers are challenged to stay on tight schedules to meet overall output objectives and efficiency in a strong plant safety environment.
The best safety tools to detect harmful gases also help to reduce downtime and bring great value to overall production output, as well as produce a desirable and safe working environment.

Pacific Ethanol understands the importance of accurate and reliable gas detection equipment and the value it provides. In the past, ammonia was detected at their facilities by smell, when it should have been signaled by a fixed monitoring system. Whenever ammonia was smelled, the plant management would need to retrieve a portable meter, start it up, confirm that a hazardous ammonia level was present, and then take corrective actions to mitigate it. This took time and additional labor that the company could not afford.

Pacific Ethanol procured RAE Systems portable monitors and used them in addition to RAE Systems fixed ammonia monitors. They found that they were accurate and detected ammonia early, avoiding time and effort to retest.

RAE Systems gas detection systems have helped positively affect the Pacific Ethanol workplace and workforce.

When a safety culture is proactive and positive, it attracts prospective employees to work at the plant. This allows the company to find and select the most highly-skilled candidates to fill job vacancies. Pacific Ethanol’s attention to safety also enables its employees to perform their jobs better – they can concentrate on their work, without having to worry about gas exposure or monitoring.

**WIRELESS GAS DETECTION HELPS REDUCE DOWNTIME, INCREASE PRODUCTION**

Safe reduction in maintenance downtime is always a goal in ethanol production. This brings efficiency to overall production output, but its achievement requires a motivated safety workforce using accurate and reliable tools and resources.

Accuracy and reliability are signature strengths of RAE Systems gas monitors, and for Pacific Ethanol, these products contributed to their downtime reduction. Every hour saved per vessel access, every six months or so, translates into bottom-line benefits. It means that production downtime is safely minimized and the overall output is increased.

Pacific Ethanol eventually procured new RAE Systems portable monitors... they were accurate and detected ammonia early, avoiding time and effort to retest.
Pacific Ethanol is one of a few facilities of its kind to adopt wireless technology as their configuration for ammonia detection. Such technology is a reliable and efficient way to monitor dangerous gases. Their wireless installation provides them the capability to also remotely monitor gas levels from portable units that workers carry with them to various points throughout the facility. These monitors also include built-in man-down alarms. Should an employee become disabled or unconscious because of an elevated gas level, someone would be able to immediately detect the location and take action.

“When you have a tank open, you need to have the [gas detection] instrument charged, read accurately, and be functional,” explains Jones. “If you have to take time away because of any shortfall of these, which we were with our other devices, then the downtime doesn’t go as smoothly. The other brand [of gas detector] we had provided false readings.

“Since we switched to RAE Systems meters... we get in and out in the time we scheduled”

We typically have a 24-hour downtime every time we do maintenance. If we can reduce an hour or more—and we do these every six weeks, or ten times a year—we can reduce just an hour every shut down. This can amount to as much as $100,000 per year in cost avoidance, all because we have a good instrument.”

Jones further explains that whenever a dangerous reading is taken, the person inside the tank or vessel must vacate it. This takes approximately 20 to 30 minutes for them to climb about 70 feet of ladder. Then the reading must be validated to ensure whether it is, in fact, unsafe, or it was a false reading due to instrument inaccuracies. In the past, when false readings were discovered, the downtime would resume. The worker then had to climb the ladder again. This resulted in wasteful downtime, which translated into lost production time.

“...it’s great to use RAE Systems tools and technology because he [Jones] knows they’re reliable...”
“You always err on the side of safety when you have a person in a tank,” explains Jones. “You get a false reading, but you don’t know it’s a false reading. Then you discover that it’s just your meter. Since we switched to RAE Systems meters, our shutdown efficiency is better. We get in and out in the time we scheduled — rather than being delayed because the meter is not properly functioning, and you’re climbing up and down a ladder.”

**COLLABORATING WITH OSHA**

Not only has the technology aided their uptime, but it has also contributed to their safety record and accountability. Several years ago, Pacific Ethanol began to work with Oregon’s OSHA office on entrance into one of OSHA’s programs: OSHA Oregon’s Safety and Health Achievement Recognition Program (SHARP), a self-enforcing program that is set in motion as a joint effort with OSHA, whereby they help the plant run its own safety compliance program and then audit the plant to ensure it meets the OSHA standards.

Pacific Ethanol recently achieved entrance into this program. This took some effort, but the plant achieved a status that very few of their peers have attained. “From the Oregon OSHA standpoint, we are regulating ourselves,” says Jones. “We are one of three ethanol plants in the country who have gotten to that status.”

In ethanol production, any safety program has gas detection as a significant part of its overall program. For SHARP, however, gas detection was a great contribution, bringing reliability and accuracy to detection of harmful gases when and where it was needed.

Jones notes that a facility has to be operational under the program for three years before qualifying for the status. Pacific Ethanol was able to achieve this in spite of their few years of operation. “We have only been open for six years and have achieved it,” he says. “Some of the plants to achieve this status have been around a lot longer. It’s a great accomplishment by our group of employees.”

OSHA closely looks at the degree of employee participation in qualifying companies for this program, but employee participation in such a safety program is a best practice in cultivating a culture of safety. “It makes my job easier if my employees want to be safe, because then I don’t have to worry about them as much,” he says. He also says that’s why it’s great to use RAE Systems monitors and technology because he knows they’re reliable; they can grab them and know that they’re getting an accurate reading, greatly adding to overall safety.
“Entrance to the SHARP program has spotlighted Pacific Ethanol locally among their peers who are emulating their safety practices and achievement record. Jones also notes that Pacific Ethanol is working with RAE Systems to adequately train their personnel in the maintenance and use of their technology. “We’re able to send some of our maintenance people down to their classes [in San Jose, California],” he says. “They have a tool [bump test and calibration station] so we can perform basic maintenance ourselves and don’t have to go to the shop and back.”

SUMMARY

The environment of ethanol production can be dangerous to personnel. Specifically, dangerous gases from the production process can be harmful, and even lethal, if operations are not managed properly. In addition, industrial plants are challenged to build efficiency in production to stay competitive, while also ensuring the highest safety standards.

By using RAE Systems monitors, Pacific Ethanol has been able to reduce their downtime, minimize safety incidents, achieve nationally recognized safety status, and build morale in its facility workforce where safety of personnel is created by the personnel themselves to achieve desired results and objectives of the plant.

“When the safety culture is proactive and positive, it attracts [the] most highly skilled candidates to fill job vacancies.”
RAE Systems is a global gas and radiation-detection wireless-system innovator. The company develops and delivers a wide range of rugged, reliable, connected, intelligent yet easy-to-use gas and radiation detection instruments and systems. RAE Systems safety solutions help save lives, protect workers, contractors, emergency responders and the public, provide plant asset protection, and deliver regulation compliance.

RAE Systems combines field-proven wireless functionality with its best-in-class detection capabilities to deliver integrated wireless gas monitoring capabilities that help deliver unsurpassed safety. The company offers a full line of fixed and portable gas detection solutions, including handheld and personal chemical, compound and radiation detection instruments that are widely recognized for their performance and reliability.

RAE Systems’ real-time safety and detection systems have been deployed in more than 120 countries by leading organizations in the oil and gas, fire and HazMat, industrial safety, national security, public event safety and environmental markets.

RAE Systems’ wirelessly connected systems provide the reliability, advanced capabilities and easy operation that response, security and safety professionals demand.

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