

3-D scanner used to expedite PX-1 repairs



BP Texas City's high-tech 3-D laser survey scanner was used after Hurricane Ike to help expedite repairs to the storm-damaged Paraxylene 1 flare at Texas City Chemicals (TCC). The long-range, 3-D laser scanner collected millions of data points on the PX-1 – safely and accurately – to document steel size, elevation and measurements on the 275-foot-tall flare. The scanner was used to determine if the flare was unstable by scanning the flare daily and comparing the dataset to the previous data collected.

The 3-D laser survey scanner is used primarily for measuring pipes but serves other purposes, as it did after Hurricane Ike. The scanner gathers points of reference; one scan can collect up to 50 million points. Designers use this representation to see existing pipe as opposed to going to the field and using a tape measure.

Knowledge Management CAD Coordinator Jerry Marrs said, "The 3-D scanner is a remarkable piece of equipment. It allows us to scan existing pipes and structures from a safe distance. It reduces risk to personnel, gets the job done more quickly and produces remarkably accurate data."

"We were able to capture the data needed for repairs without climbing the structure. We probably saved five working days that would have been involved in pulling permits and building scaffolding. More importantly, no one had to climb the scaffolding and physically measure the structure," said Marrs.

A temporary flare was installed safely at PX-1 on Oct. 15th and 17th; just one month after Hurricane Ike twisted the top of the permanent flare and left the structure listing a few degrees.

Using the scanner eliminates safety risks involved in physically measuring inaccessible and difficult-to-reach areas. Also, scanning is done from a distance, thus eliminating personnel being close to potentially dangerous environments such as thin-walled piping.

Used for training, the scanner gives a more accurate representation of field equipment," said Marrs. "You can study images of a pump, for example, inside without having to go to the field."

The 3-D laser scanner is about the size of a shoebox and weighs about 35 pounds. It may not be impressive in size, but its results are. Marrs said, "We can scan up to 300 feet with a range error of accuracy within 1/8 inch. Again and again, using the scanner saves time and resources and makes BP Texas City a safer place to work."