

FIELD Applications

Crews Use Cameras to Identify Faults

By **Kevin Kinnerk**, *Commonwealth Edison*

Linemen with Commonwealth Edison (ComEd; Chicago, Illinois) once relied solely on visual inspections to evaluate problems inside manholes. Now, if field crews are aware of an unsafe condition, they have the option to send a camera down first inside the manhole rather than an employee. Field crews recently were introduced to the Utility Inspection Video System by Zistos Corp. (Holbrook, New York) to get a visual picture of a manhole.

ComEd, a unit of Chicago-based Exelon Corp., provides service to about 3.8 million customers in the Chicago and across northern Illinois. The company tested the tool last fall and is currently rolling it out in the field. The utility ordered five cameras for its Construction & Maintenance department for use by splicing crews.

While the linemen will not be using the cameras in the field every day, the tool will come in handy in emergency situations. For example, if linemen are aware of an abnormality in a manhole that could lead to an impending fault, an employee could be at risk in entering the manhole. For that reason, sending a camera down first to get a visual picture of the situation in the manhole can reduce the chance of serious injury later.

Although ComEd linemen have all the personal protective equipment and supplies they need for confined spaces, the new video system allows them to be both productive and safe.

Testing Tools

ComEd researched different camera systems and field reviewed the candidates for their utility at the work site. The overall preference was for a tool that was robust enough for the required work but still demonstrated an ease of assembly and operation. One unit reviewed exhibited an impressive breadth of capabilities, but its graphical interface was overly complex for effective field use. Another smaller, lighter tool was reviewed but ultimately declined because of its limited functionality and relative hardness for field use.

The ComEd linemen preferred the Zistos system because it had enough utility and was easy to assemble and use in the field. With just three connections, the system can be up and running in a matter of minutes. The linemen also liked that the camera's field of vision was well lit and featured a 10:1 zoom.

In the Field

To use the product, the linemen hook up the video screen to a tripod and zoom operator. They then hook up the system



Kevin Kinnerk (left) observes as his field supervisor uses the camera during a field demonstration.

to a telescoping stick that can extend 14 ft. The lineman attaches the camera to the end of the stick and positions it inside the hole.

By using the zoom feature, linemen can better identify a defect. In addition, the telescoping stick pivots so they can twist the grip and pan the camera down and across to get the right viewing angle. The system can be fitted with several compact interchangeable cameras including a thermal imager option.

If linemen need to get a line out of service, they must first verify which line by using maps that identify the duct sections where the cable enters the hole. By finding the duct section of the suspect cable, they can then determine the line number in order to get the proper line out of service. If they are aware of a defective cable in a manhole, they have the option of using the video camera to trace it back to the duct section and get the proper line de-energized.

Future Needs

While the system has the option to record footage, the line crews predominantly use the camera to better evaluate problems in confined spaces. The option of expanding to video recording with the Zistos camera system added to its appeal. ComEd expects the product to grow with the company. Once the linemen start using the product more in the field, ComEd anticipates other uses for the device may materialize. By investing in the video inspection system, the utility is helping to protect its field workers, identify problems more rapidly and increase productivity. **TDW**

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