

Oct. 2004 –

## **NYSEARCH Conducts Explorer Field Test in Rochester**

On October 7, 2004, NYSEARCH completed the second field trial of Explorer with a multiple-day field demonstration. The robot was launched and retrieved a total of four times in an 8", 60 psig, steel main in the town of Brockport, N Y, outside Rochester, in Rochester Gas & Electric Company (RG&E) service territory. It covered a distance of over one mile, the longest in one day being over 4,000 ft. It negotiated a 90-deg bend and a 70-deg bend multiple times. Daphne D'Zurko, NGA Vice President of RD&D, observed: "It is worth pointing out that the 70-deg bend had not been tried at CMU in the lab before and was done for the first time in the field!"

The entire field demonstration proceeded smoothly with the robot functioning as anticipated. It provided higher quality images than in the first field trial, due to some adjustments made to the lighting in-between the two deployments. Battery power and wireless range were not a limiting factor at any point during the demonstration. The high pressure vertical launcher was used for the first time in the field and functioned flawlessly.

As per the recently approved extension of the Explorer effort, ULC Robotics participated in the demonstration with two technicians, who worked hand-in-hand with the Carnegie Mellon University (CMU) engineers and technicians for three days, gaining valuable experience in the deployment and operation of the robot. Greg Penza, President of ULC Robotics, also attended the demonstration.

This demonstration concluded NYSEARCH's project with NETL/DOE. A final report is being prepared and will be submitted in mid-November. This submission will officially close this project.

The next field deployment of Explorer is scheduled for the last week of October in New York State Electric and Gas Co. (NYSEG) service territory, and is funded through the extension approved last month.

In conclusion, D'Zurko noted: "CMU did what I believe to be an outstanding job in preparing for and conducting the demonstration. Finally, I want to thank Barry Kachmaryk and Joe Mallia of RG&E for organizing this field demonstration. It took a lot of time, planning and resources to pull this effort together. I believe I speak on behalf of all of us if I say that their contribution is greatly appreciated."

*Below -*

*Photos from the successful field test of Explorer held in the first week of October at RG&E in Rochester*



The screenshot shows the 'Explorer Control Interface' software. On the left, there is a command list with options like 'DM1 UNLAUNCH & VERTICAL', 'ALIGN 90', and 'Deploy SM'. The central part of the interface features a large circular camera feed showing a purple-tinted view of a tunnel or well. To the right of the camera feed are control panels for 'Intensity shift', 'Intensity gains', 'CAM select', and 'Compression select'. Below the camera feed is a 3D model of the module and its launch mechanism. At the bottom, there are several analog gauges and buttons for 'Capture status', 'Zero encoders', and 'Stop'. On the far right, there is a data table with columns for 'Time', 'DM1 (ft)', 'DM2 (ft)', and 'BM1 (ft)'. The table contains a list of time-stamped data points.

Time	DM1 (ft)	DM2 (ft)	BM1 (ft)
10:32:29	45.7	44.8	0.0
10:34:30	45.8	45.0	0.0
10:36:27	44.4	43.7	0.0
10:38:28	46.0	45.3	0.0
10:40:25	44.5	43.8	0.0
10:42:26	46.3	45.7	0.0
10:43:21	21.3	21.0	0.0
10:44:21	22.6	22.2	0.0
10:46:20	45.2	44.7	0.0
10:48:18	44.9	44.3	0.0
10:50:16	45.4	44.8	0.0
10:52:15	0.0	0.0	0.0
10:52:15	45.2	44.5	0.0
10:54:16	45.8	45.1	0.0
10:56:13	44.8	44.1	0.0
10:58:54	61.7	60.7	0.0
11:00:53	45.2	44.4	0.0
11:02:54	46.0	45.2	0.0
11:04:53	45.4	44.6	0.0
11:06:52	45.3	44.7	0.0
11:08:49	45.0	44.4	0.0
11:10:47	45.4	44.9	0.0
11:12:45	45.3	44.8	0.0
11:14:43	45.4	44.8	1.0
11:16:39	44.4	43.8	1.0

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