

Successful Createc NV-Explore Deployment

for Providing Accurate Radiation Protection Information

**CURTISS -
WRIGHT**

Nuclear Power Products and Services



PLANT TYPE

CANDU

LOCATION

North America

CHALLENGE

A North American nuclear power plant was looking for a solution to improve accuracy of radiation mapping and source term data used for work planning processes, providing resources during pre-job briefings, and minimizing radiation exposure to workers.

SOLUTION

Deployment of the Createc NV-Explore Gamma Imaging System payload on the existing Boston Dynamics SPOT quadruped. NV-Explore, along with its associated software, NV-Fusion, allows the Customer to generate detailed point cloud maps with overlaid Gamma source term information, then calculate and visually display the gamma dose planes throughout space.

Background

NV-Explore is a modular robot-mounted system for mapping radiation in hazardous environments. The base module collects the sensor data and positions the information in a 3D model. Radiation data, as well as measurements from any additional sensors, can be located in the 3D model.

The NV-Explore system comprises the following:

- Integrated control software, with a user interface on the robot handheld controller
- Hardware sensors payload for mounting on a ground robot, including a certified dose meter to meet radiation protection regulations
- Post processing software application – N-Visage Fusion Lite (Fusion Lite)

The Customer has used NV-Explore to conduct routine scans of various areas of the plant, as well supporting engineering projects during outages.

Results

The Customer is successfully deploying the NV-Explore system to map radiation throughout the nuclear power plant. Accurate 3D models of the plant have been generated with dose visualized as a heatmap plane at waist height in the model. This is a powerful tool for planning work in active areas and ensuring that utilities can meet their ALARA (As Low As Reasonably Achievable) for worker radiation exposure.

The Customer is also using NV-Explore for accurate analysis of source terms in the plant. This allows engineering to understand and characterize contamination in piping and other areas in containment. For example, NV-Explore can be used to survey pipe systems before and after flushes to measure effectiveness in near real-time.

The Customer is also developing a site wide data sharing software system to allow all site stakeholders secure access to the outputs from NV-Explore.

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