

N182. Trod Cleans Up At Nine Mile Point 1

The Tethered Remote Operating Device (TROD) was developed to clean up a flooded radwaste area at Niagara Mohawk Power Corporation's Nine Mile Point 1 in the United States. TROD is a master-slave system capable of desludging waste barrels and performing small-scale demolitions. Managers at Nine Mile Point estimate it saved them around 118 person-rem.

Opting for TROD - Estimates comparing manual and remote cleanup methods for this area suggested that manual methods would very likely cause significant exposure of personnel to hazardous conditions and would increase the cost of the effort. As a result, the Niagara Mohawk management decided to use remote equipment to clean the area, and commission RedZone to develop TROD.

The TROD System - All components, except for the console, are incorporated into a single friction-drive carrier that can be driven along the existing conveyor system track in the radwaste handling area to deploy and mobilize the system. If there is a loss of power, the carrier drive wheels and the manipulator motions become free, allowing the system to be manually towed out of the area.

A Schilling Development Remote Manipulator System was selected for TROD. The six degree-of-freedom, 78-inch reach, GAMMA-7F radiation-hardened manipulator system is ideally suited for decontamination, inspection, and manipulation tasks in radioactive environments. Designed to tolerate an accumulated exposure of 10^7 rad with no loss of performance, coupled with titanium construction and a 250 lb. lift capacity at full manipulator extension, the manipulator system is capable of rugged and reliable duty.

The use of remote-controlled, robotic equipment was the most important factor in maintaining radiation doses ALARA on this job. Much of the desludging, decontamination, and equipment removal were accompanied using TROD. As the radwaste operators became more familiar with the TROD's operation and capabilities, it became apparent how important this equipment would be in maintaining radiation doses as low as possible. Project managers soon realized that if tasks were well planned, TROD could do a lot of work that would normally require personnel going into high radiation areas. Use of TROD saved an estimated 118 person-rem. Manual decontamination and recovery would have resulted in excessive radiation doses.

Taken from "TROD Cleans Up at Nine Mile Point," Wesley Gerriets, Nuclear Engineering International, pp. 32-34, March 1992. The author is with Schilling Development, 1632 Da Vinci Court, Davis, CA 95616.