

# Improved Control Rod Drive Shaft Unlatching Tool Valve Station

## Background

Westinghouse, through continuing efforts to optimize the refueling services window and consequently the overall outages, has identified available improvements for the control rod drive shaft (CRDS) unlatching tool.

## Description

Difficulties have been encountered at power plants during CRDS unlatching operations. The existing plant CRDS unlatching tool is operated with house air or nitrogen. The force exerted by the tool may not be sufficient at times to unlatch drive shafts for the rod cluster control (RCC) assemblies, thereby requiring a higher supply pressure to the disconnect cylinder.

Westinghouse has developed an improved valve station for the CRDS unlatching tool. The valve station permits the supply pressure to be set at a higher pressure for operating the CRDS disconnect button, while simultaneously maintaining a lower pressure for latching or unlatching the tool from the CRDS.

During reactor disassembly, the control rod drive assemblies are removed from and assembled to the RCC assembly by means of the CRDS unlatching tool.

The existing standard design CRDS unlatching change tool is an effective portable tool specifically designed for this function.

The fact that the higher pressures required to operate the disconnect button on the CRDS can shorten the operational life or damage the latching cylinders in the tool was one of the driving forces behind our development of the new unlatching tool. The improved valve station saves time during the CRDS unlatching activity by eliminating the need to repetitively adjust the supply pressure for the tool.

The tool uses two sets of cam-actuated latching fingers that grip the control rod drive assembly and the disconnect button respectively. The cams are actuated by air cylinders controlled by valves mounted on a valve station attached to the refueling machine handrail.

The valve station is designed to operate with existing standard-design CRDS unlatching tools. Tool functionality and operation is unchanged; therefore, existing operating instructions can be utilized. There is no risk of damaging the CRDS unlatching tool or CRDS during implementation.

## Deliverables

The deliverables include:

- Replacement CRDS unlatching tool valve station
- Revised CRDS unlatching tool drawing package documenting the modification
- Certificate of Compliance to customer order requirements

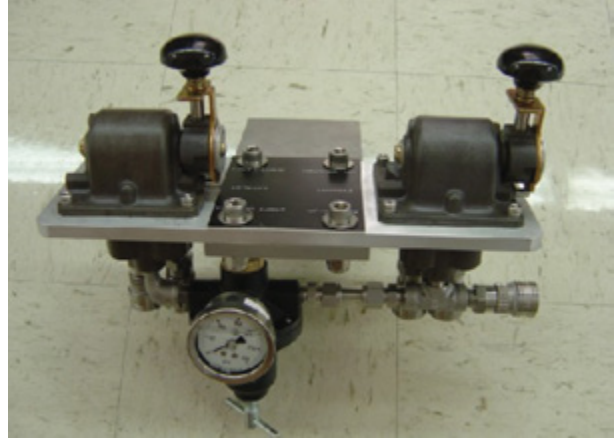
## Customer Scope

Customer scope is limited to minor procedural changes to applicable refueling procedures so the new valve station can be utilized.

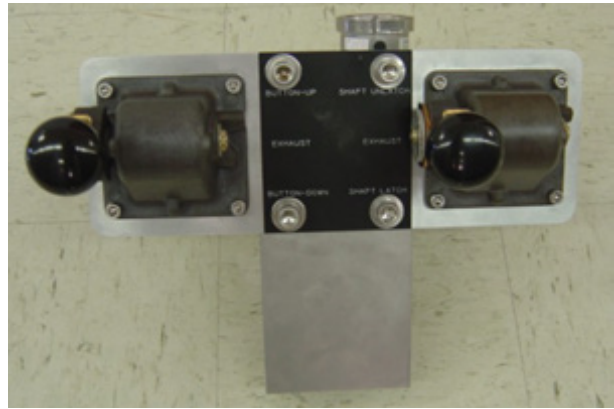
- Verification of the existing tool Westinghouse drawing number
- Provision of details of customer-installed modifications on the existing tool or valve station
- On-site implementation of the replacement CRDS unlatching tool valve station

## Experience

Westinghouse has performed design verification and tested the modification, which has been successfully installed and is currently operating at the following customer sites: Callaway, Comanche Peak and South Texas.



CRDS unlatching tool valve station – front view



CRDS unlatching tool valve station – panel view