McAFEE&TAFT
A PROFESSIONAL CORPORATION

Pipelines: Control room management

McAfee & Taft RegLINC - May 2010

By Chris Paul

The Pipeline and Hazardous Materials Safety Administration (PHMSA) published final regulations on December 3, 2009, for control room management (CRM). These regulations were the result of efforts to address concerns of the National Transportation Safety Board related to human factor issues in pipeline control rooms, and in response to specific requirements in the PIPES Act (2006) requiring PHMSA to have pipeline operators establish a human factors management plan. In the preamble to the rulemaking, PHMSA stated the purpose and scope:

"PHMSA is amending the Federal pipeline safety regulations to address human factors and other aspects of control room management for pipelines where controllers use supervisory control and data acquisition (SCADA) systems. Under the final rule, affected pipeline operators must define the roles and responsibilities of controllers and provide controllers with the necessary information, training and processes to fulfill these responsibilities. Operators must also implement methods to prevent controller fatigue. The final rule further requires operators to manage SCADA alarms, assure control room considerations are taken into account when changing pipeline equipment or configurations and review reportable incidents or accidents to determine whether control room actions contributed to the event."

Operators must develop a CRM plan by August 1, 2011, and implement that plan by February 1, 2013. Parts of API RP 1165: "Recommended Practice for Pipeline SCADA Displays" and API RP 1168 "Pipeline Control Room Management" are incorporated into the rulemaking. An API workgroup is developing API RP 1167, which is to provide pipeline operators with recommended practices in the development, implementation, maintenance, and validation for SCADA alarm management. Differences between the regulation for gas pipelines and liquid pipelines mean operators should carefully review the rule and its applications.

According to the rule: "Each operator must have and follow written control room management procedures that implement the requirements of this section." In the CRM plan, operators must:

- Define controller's roles, responsibilities and authorities during normal operations, abnormal operations, and emergency "duties";
- Provide adequate information to the controllers to perform those duties;
- Establish methodology for shift changes;
- Establish shift lengths, schedule rotations and establish maximum hours-of-service to ensure controllers can achieve the requisite hours of sleep (emergency deviations will be permitted in some circumstances); and
- Educate and train on fatigue mitigation.

Operators must subsequently incorporate lessons learned in their CRM procedures and must maintain documentation to demonstrate that any deviation from the procedures was necessary for the safe operation of the pipeline. Operators must ensure that changes to the pipeline equipment and configurations are coordinated between the control room, operations, and field personnel. Each operator

must annually (not to exceed 15 months) test and verify the internal communications plan for manual operation of the pipeline, test any backup SCADA systems, and review the controller training program.

Operators must have a written management plan for alarms, which are defined in this rulemaking as an audible or visible signal to the controller that equipment or processes are deviating from safety-related parameters. Therefore, each operator will need to review their system to determine which alarms pertain to safety-related parameters and make adjustments, since many signals that are commonly referred to as alarms in pipeline parlance related to SCADA systems may not meet this definition of "alarm." Operators must develop a training program to give each controller a working knowledge of the pipeline system and prepare them to carry out the duties defined by the operator, recognize and respond to abnormal operating conditions, and communicate in emergency conditions. To address system changes, operators must "conduct a point-to-point verification between SCADA displays and related field equipment when field equipment is added or moved and when other changes that affect pipeline safety are made to field equipment or SCADA displays." Click here for access to the rule.

LINKS

- Chris A. Paul