

underground firewater line that fed a sprinkler system covering transformers outside the K-1131 building. The valve listed on the K-1101 building drawing and the lockout/tagout permit did not actually isolate the 8-inch line that entered the building but instead isolated the 6-inch firewater line. Prior to starting actual demolition, the subcontractor methodically verified that all hazardous energy sources had been isolated and applied their locks and/or tags based on the Contractor's lockout/tagout permit. The subcontractor has a procedure that requires employees to conduct the initial break of a line by either opening a valve, carefully unbolting a flange, or drilling a small pilot hole to determine if the line contained residual pressure. These techniques were used successfully numerous times while dismantling process line to detect and relieve residual pressure on process and utility lines inside the building. Since the lockout/tagout permit provided by the Contractor indicated there was only one firewater line on the south side of the building, a pressure gauge on the 6 inch line that read zero was used as verification of the isolation of the water line entering the building. The 8-inch line was thought to be part of the water system and was not identified as a line that needed to be de-energized.

RESOLUTION/RECOMMENDED ACTIONS: The new subcontractor utility company had previously obtained a new drawing and instituted a lockout/tagout procedure that required physical verification of de-energization during permitting. To prevent recurrence:

- * Personal should be cautioned that drawings may not be as-built and may not always reflect system changes.

- * Prior to opening systems with stored or potentially re-accumulated energy, a physical verification, i.e. testing, cracking of valves, loosening of flanges, drilling pilot holes, etc. should be conducted to verify hazardous energy has been eliminated.

- * All electric, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled, outside the building line before demolition work is started.

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PRIORITY DESCRIPTOR: Yellow/Caution

KEYWORDS: lockout/tagout, water line, drawing, demolition, as-built

REFERENCES: Critique Summary CR-99-007

DOE FUNCTIONAL CATEGORIES: Engineering Design and Construction (Non-Nuclear), Fire Protection, Conduct of Operations

BJC FUNCTIONAL CATEGORIES: EC - Engineering and Construction, PC - Planning & Controls, FP - Fire Protection, SC - Subcontracting

HAZARDS: Pressurized Systems

WORK ACTIVITY: Demolition, Heavy Equipment, Power & Utilities

FOLLOW-UP ACTION: Information in this report is accurate to the best of our knowledge. As means of measuring the effectiveness of this report please notify Joanne E. Schutt at (423)574-1248, e-mail at s6u@ornl.gov of any action taken as a result of this report or of any technical inaccuracies you find. Your feedback is important and appreciated.