

Confined Space Accident-Chemical Safety Board releases report

Denver, Colorado, August 25, 2010—The tragic accident that took the lives of five industrial painting contractors deep inside an Xcel Energy hydroelectric plant tunnel in Georgetown, Colorado, was the result of several vital safety failures, the U.S. Chemical Safety Board (CSB) determined in a final investigation report issued today in Denver. Nationally, the investigation identified 53 serious flammable atmosphere confined space accidents that occurred from 1993 to April 2010, causing 45 fatalities and 54 injuries, the majority since 2001.

The accident occurred in the water tunnel, or penstock, of the hydroelectric plant, located 45 miles west of Denver. The penstock carries water from an upper reservoir to a lower one, driving power turbines. The painting contractors, from RPI Coating, Inc., were recoating a 1,530-foot steel portion of the 4,300-foot penstock when a flash fire suddenly erupted as the vapor from flammable solvent, used to clean the epoxy spraying wands, ignited, probably from a static spark in the vicinity of the spraying machine. The initial fire quickly grew, igniting additional buckets of the solvent, methyl ethyl ketone (MEK), and other combustible epoxy materials stored nearby.

The CSB concluded the causes of the accident included (1) a lack of planning and training for hazardous work by Xcel and its contractor, RPI Coating, Inc., (2) Xcel's selection of RPI despite its having the lowest possible safety rating (zero) among competing contractors, and (3) allowing volatile flammable liquids to be introduced into a permit-required confined space without necessary special precautions.

The CSB report found that the permit-required confined space rule set by the U.S. Occupational Health and Safety Administration (OSHA) does not prohibit entry or work in confined spaces where the concentration of flammable vapor exceeds ten percent of the chemical's lower explosive limit, or LEL. (The LEL is the concentration of vapor in air below which ignition will not occur.)

OSHA's rule does state that an atmosphere exceeding ten percent of the LEL creates an atmosphere "immediately dangerous to life and health" and that steps should be taken to define safe entry conditions; however, the rule does not define what those safe entry conditions should be or specifically prohibit entry into such hazardous atmospheres, the report notes. The CSB recommended OSHA establish a fixed maximum percentage of the LEL for entry so that work in potentially flammable atmospheres would be prohibited.

Additionally, the Board made recommendations to the company, the governor of Colorado, the Colorado Public Utilities Commission, trade groups, and other organizations. CSB Board Member William B. Wark said, "This tragedy should never have happened. The companies did not effectively plan for the dangers of bringing significant amounts of flammable liquids into

the tunnel, which was a hazardous confined space. Doing so was an unacceptable deviation from good safety practices.”

There were ten workers in the tunnel and one at the entrance at the time of the fire. Five were unable to get around the fire on the painting platform to get to the only available exit - the improvised tunnel entrance. Five workers on the other side of the platform made it to safety, although three of those workers sustained injuries.

The CSB found that Xcel and RPI failed to have technically-qualified confined space rescue crews immediately standing by at the penstock in case of emergency, as required by regulations. Workers called 911 for help but responders entering the penstock had to retreat in the thick smoke, as did workers who had approached the fire with extinguishers.

The closest confined space technical rescue unit - equipped and trained to enter the smoke-filled tunnel - was approximately one hour and 15 minutes away. The trapped workers died about one hour before this response unit arrived, their escape blocked by a steep vertical section of the tunnel deep inside the mountain.

CSB Investigations Supervisor Don Holmstrom, who led the investigation, said, “The five trapped workers communicated with co-workers and emergency responders using handheld radios for approximately 45 minutes, desperately calling for help, before succumbing to smoke inhalation. Their lives likely could have been saved had qualified, company-provided rescuers been in a position to respond immediately to a fire or other emergency.” Board Member Mark Griffon, joining Mr. Wark and Mr. Holmstrom at the news conference, said, “Even before the operation began, the stage was set for disaster. Xcel not only did not adequately plan for the operation, but it selected the painting contractor with the lowest possible safety rating among the bidders, and it did so mostly on the basis of cost - it was the lowest bid.”

The investigation found that Xcel hoped to compensate for RPI’s safety record by closely supervising the contract work, but did not do so even when the company learned of safety issues during the initial penstock work.

The CSB investigation found Xcel and RPI managers were aware of the plan to operate the epoxy sprayer in the tunnel and to use flammable solvent to clean the sprayer and other equipment.

Mr. Holmstrom said, “As a result of not performing a hazard evaluation of the work to be done, the companies failed to identify serious safety hazards involving use of flammable liquids within the confined space. Use of safer, nonflammable solvents was not evaluated, continuous air monitoring was not required, and key policies and permit forms did not establish a percentage limit for flammable vapor in the tunnel atmosphere.”

Board Member Wark noted the lack of planning for escape in an emergency. “The penstock had only one egress point - the tunnel entrance,” he said. “Xcel and RPI did actually identify this as a major concern in their planning. But despite this, no plans were made for prompt rescue in an emergency, and no rescuers qualified to enter this confined-space environment were standing by.”

The CSB investigation determined that while companies are required to perform a hazard analysis prior to issuing permits for work in confined spaces, regulatory standards pertaining to the use of flammables within confined spaces are inadequate.

Board Member Griffon stated, “Other OSHA regulations on confined and enclosed spaces - for example in the maritime industry and other sectors - prohibit work in such confined spaces above a specific percentage of the LEL, often ten percent. We are recommending that OSHA adopt such enforceable limits for all industry.”

The CSB recommended that OSHA amend its confined space rule to establish a maximum percentage substantially below the lower explosive limit for any given flammable for safe entry and occupancy while working.

The CSB made recommendations to nine other entities. These included that the governor implement an accredited firefighter certification program for technical rescue with specialty areas including confined space rescue; that the Colorado Public Utilities Commission (PUC) require regulated utilities to adopt provisions for selecting contractors based on safety performance measures and qualifications; and that the PUC require utilities to investigate all incidents resulting in death, serious injury or significant property damage and submit and make public written findings and recommendations within one year of the accident. Numerous recommendations were made to RPI Coating, particularly aimed at revising its confined space entry program and guidance.

CSB investigators and board members cited difficulties encountered in the investigation resulting from efforts by Xcel Energy and RPI Coating to impede the investigation and prevent the release of the investigation report.

Citing a formal Letter of Admonishment sent to the Xcel chief executive officer earlier in the week, Board Member Wark said, “The lack of cooperation and efforts by Xcel to impede our investigation are unprecedented. Mr. Griffon and I join our chairman in criticizing these actions in the strongest terms.”

The letter, signed by CSB Chairperson Rafael Moure-Eraso, states Xcel Energy did not fully comply with CSB requests for documents or answers to questions in formal interrogatories. This required the CSB to seek assistance from the U.S. Attorney’s office in Denver, resulting

in delays to the investigation and additional costs to taxpayers. In May, Xcel took the extraordinary and unprecedented step of going to federal court seeking to block release of the CSB report and the safety video. The court sided with the CSB in favor of release. Xcel was given an advanced draft copy of the report last April for review for accuracy and for confidential business information in accordance with CSB review protocols. Xcel never responded, but in August 2010, contrary to the conditions of confidentiality attached to their receiving this preliminary copy, released it to a news organization.

The letter from Chairperson Moure to Xcel's CEO concludes, "In light of this disappointing pattern of corporate conduct, I am writing you directly to ensure that you are personally aware of the actions taken by Xcel to delay the CSB investigation, block publication of the CSB final report, and distort the conclusions of the investigation by releasing an unauthorized draft copy of the CSB report. The CSB will issue a formal recommendation that Xcel shareholders be directly notified by management of the significant findings and recommendations of the CSB report, and of the actions Xcel management intends to take to implement needed safety improvements. In the wake of the corporate responsibility concerns raised by the Big Branch Mine accident in West Virginia and the disaster in the Gulf of Mexico, I strongly urge Xcel to renew its focus on safety and to swiftly implement the CSB's recommendations."