Working Safely with Corrosives Fatality File



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A 52-year-old male employee died as a result of being exposed to a hazardous atmosphere of chlorine gas. A chemical transfer hose for Sodium Hypochlorite (bleach) was accidentally hooked up to the fill line for Hydrofluorosilicic Acid; when the chemicals combined it created a chlorine gas. Approximately 5 gallons of bleach was accidentally pumped into a 100-gallon fluoride tank containing approximately 50 gallons of fluoride creating a toxic gas.

The victim and another employee arrived at the Tracy City Water Treatment Plant at approximately 5:45am. On the way in the gate, they discussed what chemicals they had to pump at this location. It was noted that a dog (a device made of PVC piping) would have to be used to pump the chemicals. The dog is used to bleed the fill line into a bucket so there is not air in the line. They decided to pump Sodium Hypochlorite (bleach) first.

The victim grabbed a water hose from inside the facility and washed out the plastic bucket and dog because the bucket had some residual fluoride in it from the last time it was used to bleed a line. The two men donned their PPE (latex gloves, face shield, and a Dupont Tyvek 400 jacket) in addition to the uniforms they were already wearing-short sleeve work shirts and shorts. The victim hooked up the dog at the Hydrofluorosilicic Acid fill line at the building-presumably thinking he was hooked up to the bleach fill line-and came up to the other employee in the truck at that tank and said “bleach?”; “yes, bleach” was the reply. The victim then hooked up the bleach hose to the dog. He went inside and came back out and told the other employee to start the transfer. The pump was turned on and the transfer began. After a short time, the second employee heard the pump change tunes like it was dead ending, most likely because the victim cut off the flow of bleach from inside the facility by turning a valve at the fill line where it came inside the building.

Shortly thereafter, the victim came running out of the plant door and said to turn the pump off and that he messed up-indicating that he realized he had hooked up the bleach hose to the Hydrofluorosilicic Acid fill line. The pump was

unplugged and the valve for the pump at the bleach tote was cut off. The victim was observed going back into the facility through the plant door. At this time, a green gas that was low to the ground was observed to be coming out of the facility.

The victim went through the plant and back to where the TCWTP operator was working in the water quality lab and asked him if the exhaust fans were on. The victim had walked through the area of the facility where the chemical reaction was occurring two additional times after exiting through the plant door initially to initially notify his partner of the reaction. It is unknown why the victim chose to re-enter the hazardous atmosphere rather than going around the outside of the building to the door on the south wall to notify the TCWTP operator.