

Case 410. 56-year-old truck driver transporting non-hazardous neutralized sulfuric acid and water waste died when he was overcome by hydrogen sulfide while rinsing his tanker car.

A 56-year-old male truck driver transporting non-hazardous sodium sulfide and water died when he was overcome by hydrogen sulfide while rinsing his tanker car. The decedent had unloaded the approximately 7,350 gallons of the waste liquid into an underground treatment pit at the treatment site; the unloading site was inside of a building with overhead doors on each end for ventilation. The treatment site required respiratory protection while working in the building. The decedent wore a full face piece respirator equipped with organic vapor cartridges. Per company procedure, the decedent was preparing the tanker for his next load. He climbed to the top of the tanker and opened the center dome lid. A waste treatment site witness indicated that the decedent looked down near the open hatch and when he raised his head, the witness thought the face piece looked foggy. The decedent removed the respirator and placed it on top of the tanker near the walkway. He was not wearing fall protection; the fall protection was located in the cab of his truck. Positioned near the open dome hatch, the decedent intended to use a hose from a water truck to rinse the walls of the tanker. The witness indicated his head was close to the hatch opening, perhaps to look inside the tanker. He took a couple of breaths and then the decedent lost consciousness and fell from the top of the tanker 10-15 feet to the ground. The witness tried to catch him but was unsuccessful. The decedent was moved by the waste treatment site personnel to fresh air outside of the building. They performed CPR until medical response personnel arrived. The decedent died the next day at the hospital. Waste treatment site personnel conducted air monitoring at the hatch opening using a 4-gas monitor approximately 30 minutes after the incident. The equipment's maximum level of detection for hydrogen sulfide was 100 ppm, which is the immediately dangerous to life and health (IDLH) for hydrogen sulfide; the monitor spiked quickly to 100 ppm.

MIOSHA General Industry Safety and Health Division issued the following Serious citation to the employer at the conclusion of its investigation.

SERIOUS: AIR CONTAMINANTS FOR GENERAL INDUSTRY, OH PART 301, RULE 325.51103(a)(iii): An employee's exposure to any substance listed in table G-1-A shall not exceed the time-weighted average (TWA) limit, short-term exposure limit (STEL) and ceiling limit specified for that substance in table G-1-A.

A fatality occurred when an employee working inside the *treatment site* was exposed to hydrogen sulfide above MIOSHA limits. *MIFACE removed the location of the incident.*

SERIOUS: RESPIRATORY PROTECTION [REF 325.60052], OH PART 451:

- RULE 1910.134(c)(1): In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by the employer, the employer shall establish and implement a written respiratory protection program with

worksite-specific procedures, which includes the provisions, as applicable, of paragraph (c)(1)(i) through (ix) of this section.

- (i) Procedures for selecting respirators for use in the workplace;
 - (ii) Medical evaluations of employees required to use respirators;
 - (iii) Fit testing procedures for tight-fitting respirators;
 - (iv) Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations;
 - (v) Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators;
 - (vi) Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators;
 - (vii) Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations;
 - (viii) Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance; and
 - (ix) Procedures for regularly evaluating the effectiveness of the program.
- **RULE 1910.134(k): Training and Information:** This paragraph requires the employer to provide effective training to employees who are required to use respirators. The training must be comprehensive, understandable, and recur annually and more often if necessary. This paragraph also requires the employer to provide the basic information on respirators in Appendix D of this section to employees who wear respirators when not required by this section or by the employer to do so.

Employees who were required to wear respiratory protection were not provided adequate training. The written program was generic and training did not detail various work-site requirements.

SERIOUS: PERSONAL PROTECTIVE EQUIPMENT, GI PART 33, RULE 408.13390:

An employer shall ensure that each employee whose fall protection is not covered by another MIOSHA safety standard and the employee's work area is more than 6 feet above the ground, floor, water, or other surface, shall be protected as prescribed in Construction Safety Standard Part 45 "Fall Protection", as referenced in R 408.13301a. The following systems are included in CS Part 45 "Fall Protection:"

- (a) Guardrail systems
- (b) Safety net systems
- (c) Personal fall arrest systems

An employee that was working inside the *incident site* fell from the top of a tanker truck while working more than 6 feet above the ground. The employer did not ensure that the employee was protected from falling.

SERIOUS: HAZARD COMMUNICATION [REF 325.77002], OH PART 430

- RULE 1910.1200(e)(1): Employers shall develop, implement and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g) and (h) of this section for labels and other forms of warning, safety data sheets, and employee information and training will be met, and which also includes a the following:
 - (i) A list of the hazardous chemicals known to be present using a product identifier that is referenced on the appropriate safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas); and,
 - (ii) The methods the employer will use to inform employees of the hazards of non-routine tasks, for example the cleaning of reactor vessels), and the hazard associated with chemicals contained in unlabeled pipes in their work areas.

The written hazard communication program submitted was generic and did not address site or task-specific information as required.

- RULE 1910.1200(h)(2): Employees shall be informed of:
 - (i) The requirements of this section,
 - (ii) Any operations in their work area where hazardous chemicals are present; and,
 - (iii) The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and safety data sheets required by this section:

Training provided to employees was not adequate or work-site specific, did not fully address global harmonization 2012 changes, and did not address chemicals employees would be exposed to.