

# ACCIDENT REPORT FATAL FACTS

## ACCIDENT SUMMARY No. 3

Accident Type:	Explosion	
Weather Conditions:	Clear	
Type of Company:	Removal/Installation/Junking of Gasoline Pumps and Underground Tanks	
Size of Work Crew:	2	
Union or Non-union:	Non-union	
Worksite Inspection Conducted (1926.20(b)(2)):	No	
Designated Competent Person on Site (1926.20(b)(2)):	No	
Employer Safety Health Program:	No	
Training and Education for Employees Designated (1926.21(b)):	No	
Craft of Deceased Employee(s):	Laborer	
Age & Sex	27; Male	
Time on the Job:	2 years	
Time on Task:	1 hour	

### BRIEF DESCRIPTION OF ACCIDENT

A laborer was killed when a gasoline storage tank he was cutting with a portable power saw exploded. The worker's company was involved in installing, removing and junking gasoline pumps and underground tanks.

Although he had experienced working with the saw and scrap materials, the worker did not adequately purge the tank and test for vapors before beginning to cut. The 18 x 6 foot, 3000 gallon tank had been used recently for underground storage at a service station. At the time of the explosion, the mechanic was cutting on the tank with a gasoline powered portable saw equipped with an abrasive epoxy disk for cutting metal. The explosion propelled the worker 10 to 15 feet from the tank into another tank.

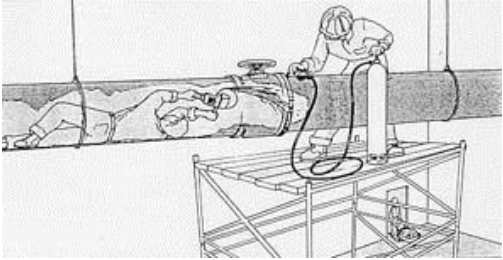
## ACCIDENT PREVENTION RECOMMENDATIONS

1. Train employees to recognize and avoid unsafe conditions when working with tanks that have previously contained flammable liquids (29 CFR 1926.21(b)(2)).
2. Follow recommended procedures set forth in American Petroleum Institute (API) Bulletin 1604, "Recommended Practice for Abandonment or Removal of Used Underground Service Station Tanks".
3. Test atmosphere in tank prior to work or cutting.
4. Establish guidelines for gas-freeing.

**NOTE:** The case here described was selected as being representative of fatalities caused by improper work practices. No special emphasis or priority is implied nor is the case necessarily a recent occurrence. The legal aspects of the incident have been resolved, and the case is now closed.

# ACCIDENT REPORT FATAL FACTS

## ACCIDENT SUMMARY No. 25

Accident Type:	Fire/explosion	
Weather Conditions:	Fair and Cold	
Type of Operation:	Installing water line	
Size of Work Crew:	3	
Collective Bargaining	Yes	
Competent Safety Monitor on Site:	Yes	
Safety and Health Program in Effect:	No	
Was the Worksite Inspected Regularly:	Yes	
Training and Education Provided:	No	
Employee Job Title:	Welder	
Age & Sex:	28-Male	
Experience at this Type of Work:	2 Years	
Time on Project:	2 months	

### BRIEF DESCRIPTION OF ACCIDENT

A welder entered a steel pipe (24 inch diameter) to grind a bad weld at a valve about 30 feet from the entry point. Before he entered, other crew members decided to add oxygen to the pipe near the bad weld. He had been grinding intermittently for about five minutes when a fire broke out enveloping his clothing. Another crew member pulled him 30 feet to the pipe entrance and extinguished the fire. However, the welder died the next day from his burns.

### INSPECTION RESULTS

Following its inspection, OSHA issued three citations one willful, one serious and one repeat. Had the cited standards been followed, this fatality might have been prevented.

### ACCIDENT PREVENTION RECOMMENDATIONS

1. Do not use oxygen for ventilation, cooling or cleaning in welding operations (29 CFR 1926.353(a)(b)).
2. Comply with OSHA's required confined or enclosed space entry program (29 CFR 1926.21(b)(6)(i)).

3. Train employees to recognize and avoid unsafe conditions associated with their work and make sure they understand the confined space entry program and follow its procedures (29 CFR 1926.21(b)(2) and 1926.20(b)(1)).

#### SOURCES OF HELP

- "Occupational Fatalities Related to Fire and/or Explosions in Confined Work Spaces as Found in Reports of OSHA Fatality/Catastrophe Investigations," available from the National Technical Information Service, 5285 Port Royal Rd., Springfield, Va. 22161, (703) 587-5650, publication no. PB 82-237-314, \$13.00, pre-paid.
- Construction Safety and Health Standards (OSHA 2207) which contains all OSHA job safety and health rules and regulations (1926 and 1910) covering construction.
- OSHA-funded free consultation services. Consult your telephone directory for the number of your local OSHA area or regional office for further assistance and advice (listed under U.S. Labor Department or under the state government section where states administer their own OSHA programs).

**NOTE:** The case here described was selected as being representative of fatalities caused by improper work practices. No special emphasis or priority is implied nor is the case necessarily a recent occurrence. The legal aspects of the incident have been resolved, and the case is now closed.

# ACCIDENT REPORT FATAL FACTS

## ACCIDENT SUMMARY No. 36

Accident Type:	Asphyxiation	
Weather Conditions:	Warm, partly cloudy	
Type of Operation:	Sandblasting/painting contractor	
Size of Work Crew:	4	
Collective Bargaining	No	
Competent Safety Monitor on Site:	Yes	
Safety and Health Program in Effect:	Limited	
Was the Worksite Inspected Regularly:	Yes	
Training and Education Provided:	Inadequate	
Employee Job Title:	Sandblaster/Painter	
Age & Sex:	56-Male	
Experience at this Type of Work:	5 years on a permanently assigned crew	
Time on Project:	45 minutes	

### BRIEF DESCRIPTION OF ACCIDENT

A contract employee was assigned to sandblast the inside of a reactor vessel during turnaround activities at a petrochemical refinery. Instead of relying on the contract company's own air compressors in accordance with the contractor's policy, the contract foreman connected the employee's supplied air respirator to a hose containing what he thought was plant air. Instead it was nitrogen. Both hoses were identical except for markings at the shutoff valve. The sandblaster entered the vessel, descended to the bottom, placed the respirator hood on his head and was overcome.

### ACCIDENT PREVENTION RECOMMENDATIONS

1. Employers must instruct employees to recognize and avoid unsafe conditions associated with their work (29 CFR 1926.21(b)(2)).
2. Contractors should follow a policy of using only their own air compressors or breathing air cylinders for their employees.
3. Middle and/or upper management personnel should routinely check first line supervisors to insure they are following established company safety policies.

## SOURCES OF HELP

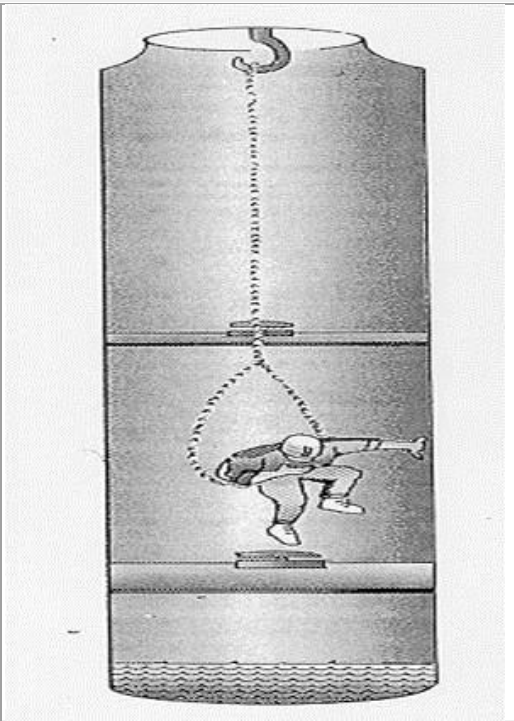
- Safety and Health Requirements for Working in Confined Space, a slide-tape training program including instructor's guide and class handouts, helps employees recognize potential sources of danger in confined spaces and explains how to select and use proper protective clothing and equipment. Available from the National Audio Visual Center, order No. A12793, for \$90, prepaid, 8700 Edgeworth Dr., Capitol Heights, MD 20743-3701, telephone (301) 763-1896.
- Construction Safety and Health Standards (OSHA 2207) which contains all OSHA job safety and health rules and regulations (1926 and 1910) covering construction.
- OSHA-funded free consultation services. Consult your telephone directory for the number of your local OSHA area or regional office for further assistance and advice (Listed under U.S. Labor Department or under the state government section where states administer their own OSHA programs).

**NOTE:** The case here described was selected as being representative of fatalities caused by improper work practices. No special emphasis or priority is implied nor is the case necessarily a recent occurrence. The legal aspects of the incident have been resolved, and the case is now closed.

# ACCIDENT REPORT FATAL FACTS

## ACCIDENT SUMMARY No. 39

Accident Type:	Asphyxiation
Weather Conditions:	Warm
Type of Operation:	Boring, Jacking
Size of Work Crew:	6
Collective Bargaining	No
Competent Safety Monitor on Site:	No
Safety and Health Program in Effect:	No
Was the Worksite Inspected Regularly:	No
Training and Education Provided:	No
Employee Job Title:	Laborer
Age & Sex:	23-Male
Experience at this Type of Work:	1 Day
Time on Project:	1 Hour



### BRIEF DESCRIPTION OF ACCIDENT

An employee sitting in a looped chain was lowered approximately 17 feet into a 21-foot deep manhole. Twenty seconds later he started gasping for air and fell from the chain seat face down into the accumulated water at the bottom of the manhole. An autopsy determined oxygen deficiency as the cause of death.

### ACCIDENT PREVENTION RECOMMENDATIONS

1. Instruct employees to recognize and avoid unsafe conditions associated with their work environment (29 CFR 1926.21(b)(2)).
2. Instruct employees on hazards involved in entering confined or enclosed spaces (29 CFR 1926.21(b)(6)(i) and (b)(6)(ii)).
3. Provide and require employees to use appropriate respiratory protection (29 CFR 1926.103(a)(1) and 1910.134).

### SOURCES OF HELP

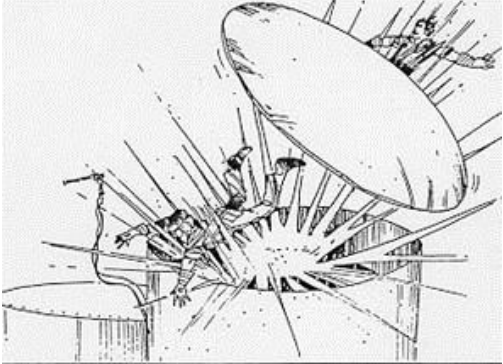
- Construction Safety and Health Standards (OSHA 2207) which contains all OSHA job safety and health rules and regulations (1926 and 1910) covering construction.
- OSHA-funded free consultation services. Consult your telephone directory for the number of your local OSHA area or regional office for further assistance and advice (listed under U.S. Labor Department or under the state government section where states administer their own OSHA programs).

**NOTE:** The case here described was selected as being representative of fatalities caused by improper work practices. No special emphasis or priority is implied nor is the case necessarily a recent occurrence. The legal aspects of the incident have been resolved, and the case is now closed.



# ACCIDENT REPORT FATAL FACTS

## ACCIDENT SUMMARY No. 53

Accident Type:	Explosion	
Weather Conditions:	Clear	
Type of Operation:	Structural Steel Erection	
Size of Work Crew:	2	
Collective Bargaining	No	
Competent Safety Monitor on Site:	No	
Safety and Health Program in Effect:	Inadequate	
Was the Worksite Inspected Regularly:	No	
Training and Education Provided:	No	
Employee Job Title:	Welder	
Age & Sex:	26-Male	
Experience at this Type of Work:	Undetermined	
Time on Project:	15 minutes	

### BRIEF DESCRIPTION OF ACCIDENT

Two employees were welding brackets onto an oil storage tank (55,000 gallons). The tank, half full, contained explosive atmospheres of vapor from waste chemical and oil materials from automobile and truck service stations. One worker was killed and another injured when the tank exploded and the top was blown off.

### INSPECTION RESULTS

As a result of its investigation, OSHA issued citations for violations of four standards.

### ACCIDENT PREVENTION RECOMMENDATIONS

1. The employer must instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment "to control or eliminate any hazards [29 CFR 1926.21(b)(2)].
2. The employer is responsible for requiring the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions [29 CFR 1926.28(a)]. In this case, safety belts and lanyards or other means of fall protection would have prevented employees from falling off the tank to the ground. Also, fire or heat resistant safety clothing should have been provided and used.

3. Welding, cutting, or heating must not be done where the application of flammable paints, or the presence of other flammable compounds, or heavy dust concentrations creates a hazard [29 CFR 1926.352(c)].
4. Drums, containers, or hollow structures which have contained toxic or flammable substances must be filled with water or cleaned of such substances and ventilated and tested before welding, cutting, or heating is undertaken on them [29 CFR 1926.352(i)].


#### SOURCES OF HELP

- OSHA General Industry Standards [29 CFR parts 1900-1910] and OSHA Construction Standards [29 CFR Part 1926] which together include all OSHA job safety and health rules and regulations covering construction.
- OSHA-funded free consultation services listed in telephone directories under U.S. Labor Department or under the state government section where states administer their own OSHA programs.
- Courses in construction safety are offered by the OSHA Training Institute, 1555 Times Drive, Des Plaines, IL 60018, 312/297-4810.

**NOTE:** The case here described was selected as being representative of fatalities caused by improper work practices. No special emphasis or priority is implied nor is the case necessarily a recent occurrence. The legal aspects of the incident have been resolved, and the case is now closed.

# ACCIDENT REPORT FATAL FACTS

## ACCIDENT SUMMARY No. 67

Accident Type:	Asphyxiation	
Weather Conditions:	Clear/Cool	
Type of Operation:	Painting/Sand Blasting	
Size of Work Crew:	3	
Competent Safety Monitor on Site:	No	
Safety and Health Program in Effect:	Yes	
Was the Worksite Inspected Regularly:	No	
Training and Education Provided:	No	
Employee Job Title:	Sandblaster	
Age & Sex:	31-Male	
Experience at this Type of Work:	5 Months	
Time on Project:	10 Days	

### BRIEF DESCRIPTION OF ACCIDENT

Three employees were sandblasting portions of a heat exchanger in a manufacturing plant, preparing the surface for paint. The job was almost finished except for some touch-up work. The air compressor used to supply breathing air to the sand-blasters' hoods was sent to another job. The workers hooked their supply hoses into the plant's air system without clearing it with the plant's management.

The plant operators, not knowing the plant air was being used for breathing air, shut down the compressor for scheduled maintenance. This caused the nitrogen back-up system to come on line to maintain air pressure.

One sandblaster was asphyxiated from the nitrogen being fed into his hood.

### INSPECTION RESULTS

Following an inspection, OSHA issued citations for two serious and two other-than-serious violations of OSHA standards.

### ACCIDENT PREVENTION RECOMMENDATIONS

1. Ensure that employees are thoroughly trained when required to use respirators in atmospheres immediately dangerous to life, in accordance with 29 Code of Federal Regulations (CFR) 1926.103(c)(1).
2. Ensure that the compressor used to supply breathing air has a high-temperature or carbon monoxide alarm or both, in accordance with 29 CFR 1926.103(f).
3. **WARNING:** Nitrogen back-up systems are often used as the back-up system for compressed air systems. Always determine the type of back-up system before using any air system for breathing purposes.
4. Ensure that frequent and regular inspections of the job site are being done, in accordance with 29 CFR 1926.20(b)(2).
5. Ensure that employees are trained in hazard recognition and avoidance, in accordance with 29 CFR 1926.21(b)(2).

## SOURCES OF HELP

- OSHA Construction Standards [29 CFR Part 1926], which include all OSHA job safety and health rules and regulations covering construction, may be purchased from the Government Printing Office, phone (202) 512-1800, fax (202) 512-2250, order number 869022-00114-1, \$33.
- OSHA-funded free consultation services listed in telephone directories under U.S. Labor Department or under the state government section where states administer their own OSHA programs.
- OSHA Safety and Health Training Guidelines for Construction, Volume III (Available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; phone (703) 487-4650; Order No. PB-239-312/AS, \$25) to help construction employers establish a training program.
- Courses in construction safety are offered by the OSHA Training Institute, 1555 Times Drive, Des Plaines, IL 60018, 847/297-4810.
- OSHA regulations, documents and technical information also are available on CD-ROM, which may be purchased from the Government Printing Office, phone (202) 512-1800 or fax (202) 5122250, order number 729-13-00000-5; cost \$79 annually; \$28 quarterly. That information also is on the Internet World Wide Web at <http://www.osha.gov/>

**NOTE:** The case here described was selected as being representative of fatalities caused by improper work practices. No special emphasis or priority is implied nor is the case necessarily a recent occurrence. The legal aspects of the incident have been resolved, and the case is now closed.