

MANHOLE SAFETY

Presented by Gary J. Timmer
United Water - September 2009



Manhole Safety...What are the hazards?



American Federation of State, County and Municipal Employees (AFSCME)

1970 to 2005 AFSCME Workers Killed in the line of Duty -557 initial with 185 which could be related to working with manholes (33%)

| STATE | DATE | CAUSE OF DEATH |
|----------------|------------|---|
| WI | 8/9/1980 | 80 pound chain fell on him while working in a manhole. |
| Several | 5 | Asphyxiation |
| CT | 4/30/1970 | Carbon monoxide poisoning |
| NY | 7/19/1985 | Confined space drowned in sludge. |
| MD | 0/0/0 | Crushed by a backhoe. |
| OH | 7/16/1998 | Decapitated when hit by drunk driver while climbing out of manhole. |
| CT | 1/6/2006 | Died from complications after surgery for a hernia suffered at work. |
| NY | 4/15/1995 | Drowned after falling into several feet of water. |
| MD | 6/27/1988 | Drowned in resevoir. |
| NY | 12/14/1993 | Drowned in tank of raw sewage. |
| NY | 8/1/1996 | Drowned when 8-foot deep unshored trench collapsed. |
| DC | 11/29/1989 | Drowned when balloon burst that was used to block the sewage flow. |
| NY | 12//1993 | Explosion caused massive injuries to the head. |
| IA | 5/16/2000 | Exposed to hydrogen sulfide. |
| NY | 7/17/1987 | Exposed to toxic floor cleaning chemicals. |
| MI | 7/22/1998 | Fatally scalded while working on a steam line. |
| NY | 7/21/2002 | Fell from ladder while working. |
| PA | 11/9/1993 | Fell into chemical tank. |
| OH | 12/12/1995 | Fell through a third-floor walkway in a vacant industrial building. |
| NJ | 1/7/1993 | Fell through access doors to floor below while guiding a hoist. |
| NY | 2/12/1991 | High pressure hot water/steam explosion |
| IN | 8/14/1997 | Inflatable rubber plug that blocked wastewater blew out of a pipe. |
| MD | 0/0/0 | Scalded while working on an underground steam pipe. |
| NY | 3//2001 | Slipped into a drainage pipe while attempting to clear out a stoppage. |
| NY | 10/16/2002 | Steam line valve burst. |
| WI | 5/19/1981 | Steam pit explosion |
| MI | 8/9/1989 | Struck by a pressure fitting off a pressure tank. |
| MN | 8/12/1988 | Struck by vehicle while working in a manhole. |
| Many | 136 | Struck by vehicle. |
| NY | 6/2/1983 | Struck on the head with crane boom. |
| OH | 3/5/1992 | Suffocated |
| WI | 6/23/1997 | Suffocated in a confined space while trying to unplug a sewer drain. |
| MO | 9/3/1992 | Suffocated in a manhole. |
| OK | 7/10/1986 | Suffocated in confined space while trying to rescue co-worker. |
| IL | 7/29/1983 | Suffocated in confined space. |
| KY | 8/25/1985 | Suffocated in confined space. |
| NE | 0/0/0 | Suffocated in confined space. |
| OH | 7/1/1985 | Suffocated in confined space. |
| OK | 7/10/1986 | Suffocated in confined space. |
| MD | 7/22/1997 | Trench collapsed when valve failed and unshored trench filled with water. |
| WV | 4/25/1984 | Trench collapsed while replacing sewer line. |
| WI | 6/23/1997 | Unplugging a sewer drain in a confined space. |
| MD | 7/22/1997 | Valve brake filling unshored trench with water. |
| MI | 1/31/1996 | Valve burst in an underground pit while checking a water meter. |
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Hazards Associated with Manholes



Fall Hazards – From the Surface

- Falling In a Manhole from the surface
 - Leaning over
 - Ice
 - Mud
 - Rain
 - Knocked in by Equipment
 - Tripping



Thieves Around the U.S. Stealing Manhole Covers

July 8, 2008 · Earth First

- A sign of true desperation: with the U.S. economy sagging, people have started resorting to stealing manhole covers to sell as scrap metal. The price of metal has skyrocketed lately, so thieves around the country have started stealing the 200-lb covers by the hundreds. Funny thing is, for all the effort it likely takes to haul off an iron manhole cover, you can only get \$10-\$15 each for them.

From [USA Today](#):

- "It's a sign of the times," says Sgt. Jay Baker of the Cherokee County Sheriff's Office in Georgia, where 28 manhole covers disappeared in April and May. "When the economy gets bad, people start stealing iron."
- It's the first year he has seen such thefts since he started with the department 16 years ago.
- Long Beach has lost more than 80 covers this year. People who have damaged their cars driving over manholes have filed claims with the city, Alsop says.
- "Our No. 1 concern" is safety, he says. "A small kid can fall into these holes," which can be 20 feet deep.
- Hey, I guess meth heads gotta get their fix somehow! Seriously though, what's next? They're stealing copper wire off construction sites, catalytic converters straight from parked cars all over the place, and now manhole covers. Should I be locking down my metal patio set?
- Link [[USA Today](#)]



Fall Hazards - Falls While Entering or Exiting



- Ladders & Ladder Rungs
- Slick surfaces inside

Fall Hazard Protection



Fall Hazards - Falls While Entering or Exiting

- Use Fall Protection

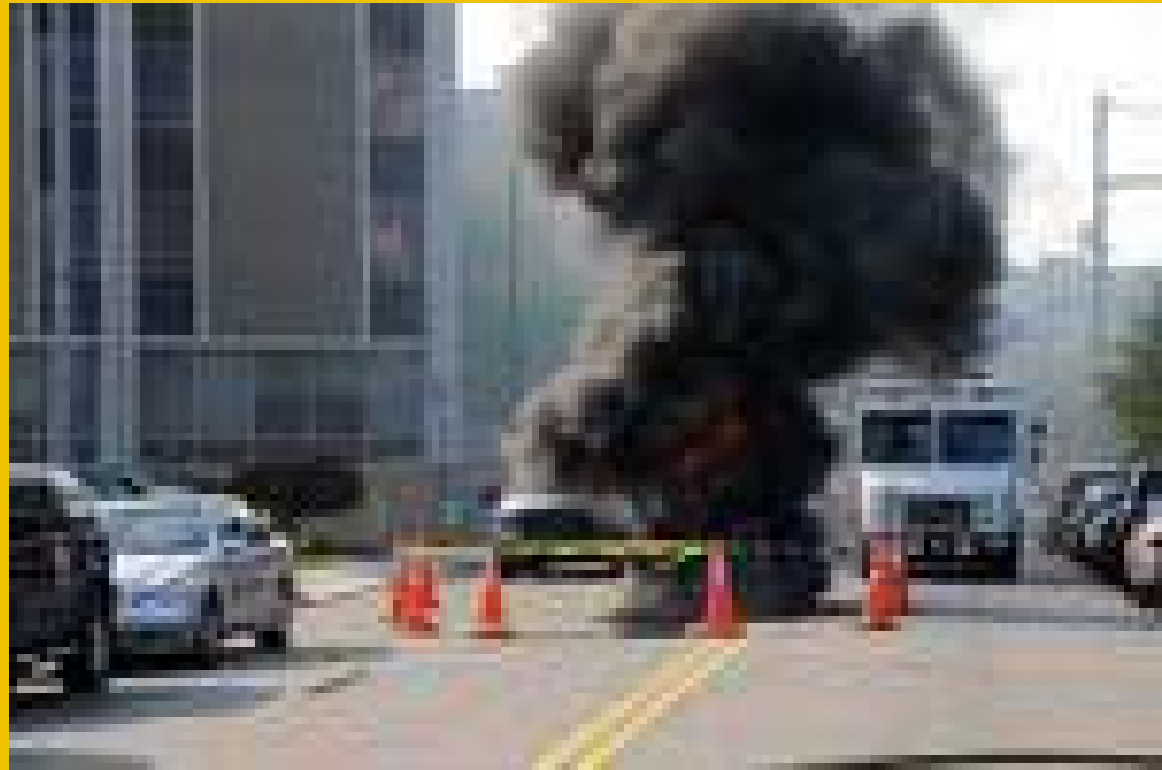


Fall Protection – Portable Guard Rails



Atmospheric Hazards

- Oxygen deficient
- Oxygen enriched
- Toxics
- Flammables



Atmospheric Hazards – When should we be concerned?

- Check for Hazards before you open the Manhole!
 - Gas can be trapped
 - Often gasses follow the pipes to manhole structures
 - All the time when we are in the manhole



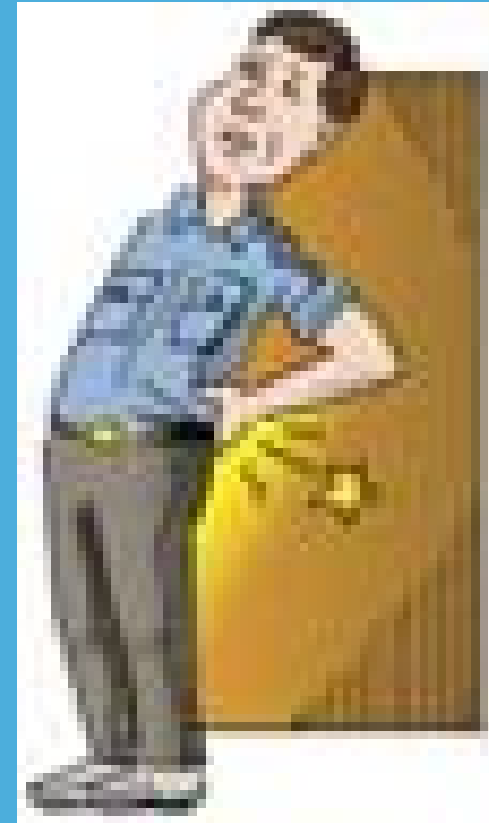
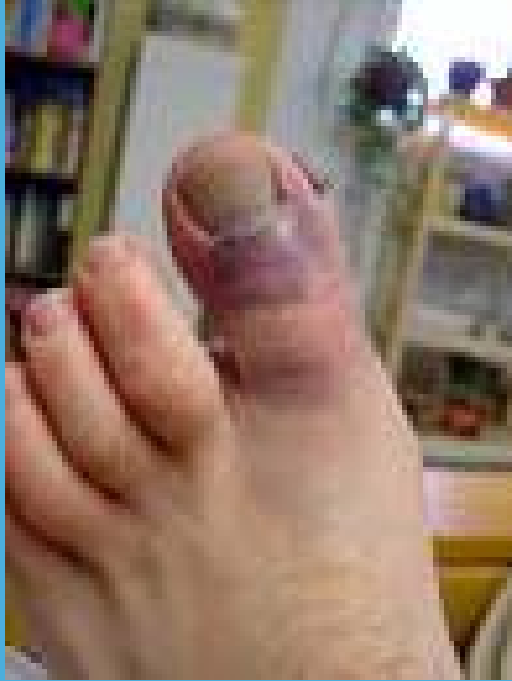
Insert Air Monitor Here

Atmospheric Hazards – When should we be concerned?

- How do you open a manhole covered with asphalt?



Manhole Lifting Safety



Manhole Lifting Safety

**This is better
than a shovel
and screw
driver!**



Manhole Lifting Safety



Manhole Lifting Safety



Manhole Lifting Safety



RING

THE **Lifter**

Manhole Lifting Safety

- Non Magnetic



Engulfment Hazards



How well do you know your system?



Sometimes you are better off to dig up a blockage



Insert Plugs upstream of the entry

- Make sure plugs fit
- Don't insert them on the downstream side because they can blow out!





- Use the right tool for the job

Don't become a plug!



Traffic Safety



Close the Road if Needed!



Adjust Work Schedules Around Rush Hour



Space Vehicles to absorb impact



Beware of the DUI!



QUESTIONS?



THANK
YOU!!!!

