

Operations Challenge Safety Event 2008

Situation:

You find a coworker at the bottom of a (confined space) lift station unconscious. You suspect he/she has been overcome with an unknown chemical gas or lack of oxygen. You immediately call for the in-plant rescue team.

Directions:

Four-minute equipment check: The team will be allowed onto the platform to check all competition equipment and supplies for four minutes prior to the actual start of the event. The head judge will inform the team captain when the four minutes are completed. At this time all team members must immediately move to their starting area. If all equipment problems have not been resolved by this time, they will be addressed with the team captain in starting position. A delay at this point is cause for a penalty. Judges will not answer team questions during the four-minute inspection time or during the event. All questions will be answered on Monday during the pre-competition meeting. This is done to assure all teams receive the same instructions. **No equipment can be pre-assembled prior to the start. If anything has been pre-assembled, the head judge will instruct the team to disassemble the equipment prior to starting. If there is still pre-time left, then no penalty will be assessed, but if the four-minutes have been used up, a penalty of excessive pre-check will be assessed. All equipment must be placed back behind the line in the equipment storage area at the end of the four-minute equipment check.** All printed and signed names of the entrants and qualified person may be made on the permit at this time; names must be legible. **Fill out the lockout tag** To avoid subjectivity, the judges will verify legible handwriting at this time. The power for the gas detector and blower will be left in the off position. At the end of the four-minute time all team members must immediately move to their starting area, i.e., starting or ending in the decontamination area:

- 1) Team members will start at a designated starting line
- 2) The team captain will start the event by yelling, "Start."
- 3) Two entry persons will put on full body harnesses.
- 4) One team member will turn on the detector and test the manhole atmosphere for 30 seconds using a gas detector and provided stopwatch.
- 5) **One team member will place the electrical safety switch in the off or disconnected position.**
- 6) **The Attendant will lock out the disconnect by using the gang hasp and their lock and tag. Each team member entering the manhole will place their lock and tag on the gang hasp. At the end of the event the disconnect will remain locked and tagged out, each team member will maintain custody of their key and have it at the end of the event to turn into the head judge.**
- 7) The qualified person will fill out the confined space entry permit. The only entries required on the permit during the timed event are acceptable (safe entry levels) readings for oxygen, combustible gas and hydrogen sulfide.
- 8) Necessary team members will assemble the non-entry rescue system not over the manhole. Extend legs to 7 ft. The leg chain will be adjusted at the start by the judges. Completely install the Salalift winch and two self-retracting lifelines (SRLs), one on a leg (Blueblock Winch/SRL) and the other on the eyebolt at the top of the tripod. Then move the tripod over the manhole. The entry persons with the safety harnesses on will be attached to the fall protection devices (SRL). This must be done before the manhole safety cover is removed.
- 9) Remove the manhole safety cover.
- 10) Install the blower saddle vent into the manhole; attach the 90-degree fitting to the saddle. Place the blower 5-ft from the manhole and attach the blower hose to the 90-degree fitting and turn the blower on.
- 11) Entrants will be lowered into the manhole (one at a time) on the work seat with the Salalift winch. **The work seat will be raised to a height above the platform floor before the entrants can get on or off the work seat.**

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- 12) When the entry person(s) enter the manhole a third team member will continually monitor the fall protection lines until both entry persons are out of the manhole.
- 13) The entry persons will put a full body harness on the victim. Both entrants must take part in placing the harness on the victim. After the full body harness is on the victim and properly adjusted, one entrant will be raised from the manhole on the work seat, with the Salalift winch, to assist in moving the victim on top of the platform. The other entrant will assist in guiding the victim from below. No lifting the victim from below.
- 14) The work seat is removed from the winch hook. Do not drop the work seat.
- 15) The winch hook is connected to the center "D" ring on the victim's harness.
- 16) Another team member will lift the victim using the Salalift winch.
- 17) Two team members will carry the victim to the chair in the designated area and begin the decontamination process. Do not drag the victim; all body parts must be off the ground (floor of the platform) while moving the victim to the chair. Activate the shower by pulling the shower handle to its furthest position downward. The body harness will remain on the victim.
- 18) The team member tending the fall protection system will assist in bringing up the second entrant with the use of the work seat and the Salalift winch. The work seat must be lowered using the Salalift winch.
- 19) Team members will disassemble and store all equipment **behind the line in the equipment storage area**. Tripod legs must be fully retracted; **all pins will be placed in their proper holes. The winch cable must be within the length of the weight and hook.** The full body harnesses will remain on the two-entry persons.
- 20) Time will end when all team members cross the finish line and the team captain raises his/her hands above their heads and shouts "Stop."
- 21) All team members will stay in the start/finish area until released by the judges. Judges will collect **the confined entry permit, stopwatch, two harness, gas detector and lockout keys. Once the team as been released they will leave the competition area.** The captain will be escorted to a waiting area for review of the event with the head judge.

Safety

The manhole opening will be protected with a safety cover before a team accesses the platform. It must not be removed until the tripod is in place over the manhole and the two entrants are completely and properly in the harnesses and attached to the SRLs that are fully attached to the tripod. The cover must be reinstalled on the manhole opening as soon as the second entrant has been removed from the manhole and before the tripod is removed from the manhole opening.

Atmosphere Tester

Turn the meter on first; do not wait for the meter to fully start up. With one end of the hose attached to the meter place the other end of the hose into the manhole. **There will be two marks on the hose. One should be through the manhole (under the platform floor), with the other mark above the manhole rim (above the platform floor).** Once in this position the 30-second test will begin. The team member using the meter must remain with the meter and keep track of their time. Once the initial test is completed remove the hose from the manhole and from the meter. The gas meter must enter the manhole with the first entrant. It must remain in the confined space until the last entrant is removed from the manhole. **A stopwatch will be provided to each team; this is for the team to time the 30-second atmosphere test.**

Blower Placement

The blower must be placed 5 ft from the rim of the manhole prior to entry. There will be a square drawn around the perimeter of the manhole to allow the teams to correctly locate the blower. The blower may be placed at any point, outside the square the team wishes. The blower power cord will not be plugged in, but the switch **must be turned on and left on.**

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Permit

The only entries required on the permit during the event are acceptable readings for oxygen, combustible gas and hydrogen sulfide. These three entries must be made after the 30 second test and before anyone breaks the plane of the manhole. Do not wait for the readings on the gas meter. Any acceptable reading (considered safe for entry by OSHA) may be entered on the permit after the 30-second test. Readings will be written to the tenth. Example oxygen of 20 PPM will be written 20.0 PPM .Only two entrants may be listed on the permit and allowed to enter the manhole. **Gloves may be removed from the hands of the person completing the permit and only while he/she is entering information on the permit.**

Victim's Harness

The full body harness on the victim must be tight enough to insure proper care of the victim; **that is no more than a fist** under the chest strap in the center of the chest. **The harness will be adjusted for proper fit by the team.**

Decontamination Procedures

Place the victim in the armchair below the emergency shower. Activate the shower by pulling the handle to the furthest position downward.

Personal Hygiene

Do not place any thing into your mouth, i.e., gas detector, pencils, pens, or straps. This will result in a penalty.

Equipment Provided for Competition:

- 16ft X 16ft platform (6ft height) with a 36 inch circular opening in the center of the floor.
- Full body mannequin (victim). Approx. weight 105 lbs.
- One arm chair
- One clipboard
- One stopwatch
- One manhole safety cover similar to the PortaCover manufactured by Safe Approach Inc.
- **One Gang hasp and 4 locks**
- **One Lockout/tagout Tag**

USA Bluebook Items and Numbers

Item Description	Part Number	
1	One Salalift Winch and Tripod System W/ 60 ft. galvanized cable winch & 7 ft tripod	65133
2	One Self-Retracting Lifeline (SRL) 50 ft.	42859
3	One carabineer self-locking snap hook for SRL	65152
4	One Blueblock Winch/SRL w/50 ft. galvanized cable	42860
5	One tripod leg mount pulley	42861
6	One tripod leg mount bracket	42862
7	Three ExoFit Harness – Vest type w/"D" rings Small Medium Large	65113 65114 65115
8	One work seat w/belt Medium Large	65156 65157
9	One GasAlertMax Gas Detector	42715
10	One emergency Shower – horizontal Retrofitted with a vertical pipe 7" (+ or -) ft high	42580

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11	One Axial blower w/canister & 15 ft of 8" hose	70186
12	One manhole saddle vent	42890
13	One universal saddle vent mount	42891
14	One 90 degree elbow for saddle vent	42898
15	Padlock Red	25595
16	Padlock yellow	25596
17	Padlock blue	25597
18	Padlock Green	25598
19	Gang Hasp	25535
20	Three Lockout Tags	46162

Equipment Provided by Teams

Teams will be required to supply and wear, as appropriate, the following:

1. Steel-toed shoes ANSI rating Z41-PT99
2. Hardhats Cap or full brim Style meeting ANSI standard ANSI Z89.1-2003 Type 2
3. Safety glasses/goggles ANSI rating Z87.1-2003
4. Leather gloves, mechanics gloves. Baseball, Golf gloves. Gloves with fingertips removed, **holes in the glove are not acceptable.**
5. Pencil or pen to write on confined space permits

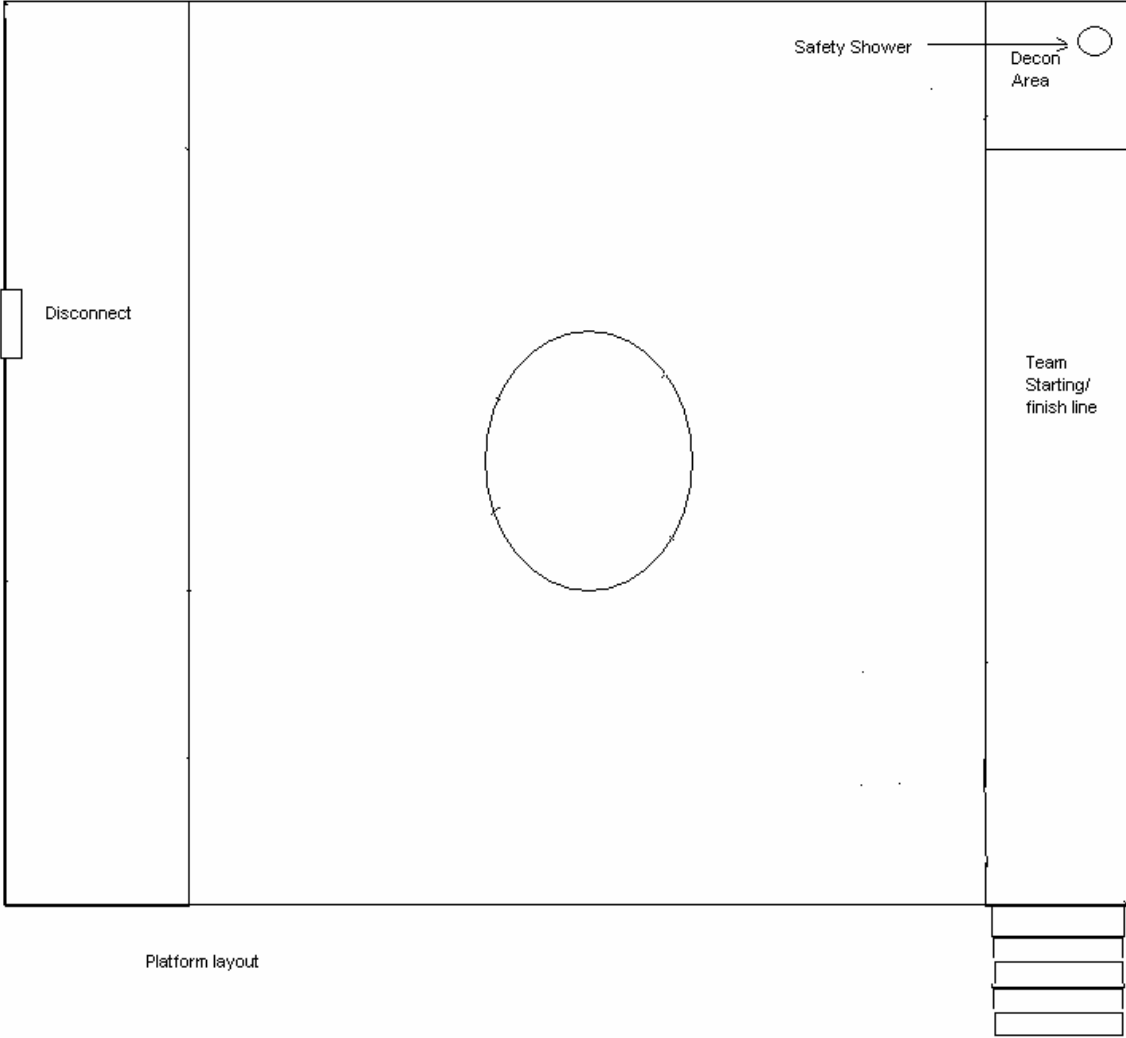
Each team will need two full body harnesses and one work seat. You select the sizes. These will be supplied at WEFTEC.

Teams interested in acquiring their own equipment for practice prior to WEFTEC, contact Eric Pfeuffer at USA Bluebook 1-800-925-8399 Ext. 250. USA bluebook has agreed to a discount on the items they are providing. You will need to provide your team name, utility, and MA name.

Judging Criteria

Safety Judges will stop competitors from competing if any unsafe actions are detected until corrections are made **Time will not stop, and judges will not identify the safety issue for the team.**

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Penalties

Description of Penalty
Excessive pre-check time
Second false start
Start not called out
Harness straps (leg, shoulder) not properly connected or properly adjusted
Turning on the gas Detector or the blower during the 4 minute check
Not turning on Gas Detector
Inserting gas detector hose in manhole improperly
Not performing atmosphere testing
Not performing atmosphere testing for 30 seconds
Reading recorded on permit before 30 second testing period ends
Breaking the plane of the manhole before the 30 second test is done
Gas detector leaves the confined space before all entrants exit the space
No team member monitoring the confined space
Tripod not fully extended
Winch not used or connected to tripod incorrectly
SRL's not used or connected to tripod incorrectly
Both entry persons not hooked to SLR's before manhole safety cover is removed
Manhole cover removed before tripod is over manhole
Harness not properly attached to SLR's
Tripod not centered over manhole
Blower not used
Blower not out of the perimeter square
Blower saddle not used
Blower 90' not used
Blower switch not on
Entrant not fully in work seat before being raised/lowered
More than one Entrant in work seat being raised/lowered
Work seat not removed from winch to raise victim
All team members will start in the starting area. A penalty will be assessed to any team member who is standing outside that area, i.e., decontamination area.
Team member in the hole lifting victim
Throwing seat down to team member in the confined space
Victim harness adjusted by team
Placing the victim face down
Moving victim in a manner that would injure a person
Dragging the victim
Throwing the victim
Victim not in decontamination area
Attendant not monitoring entrants
Safety shower not Activated

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Both entry persons not hooked to SLR's before safety cover is removed
Safe Approach cover not on manhole before tripod is moved
Improper lifting technique used
Equipment not disassemble at end of event
Equipment not properly stored at end of event
Equipment on or beyond the line
Cable not completely wound or over tight on winch
Jumping into the manhole
Throwing/dropping/ abusing tools or equipment
Team members PPE not on during the event (except for Writing on permit)
Hard hat not on head any time during the event (5 second rule exceeded)
Injuring a Judge
Injuring a team member
Lockout tag not signed/dated
Entry member did not lock out gang hasp

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WEFTEC 2007 Safety Event	
Confined Space Entry Work Permit	
A. Site Information: PLEASE PRINT	
Confined Space Id. Number:	
Team name:	
Designated Entry Team Leader:	
Designated Entry Team person:	
Designated Team Attendant:	
Description of work to be performed:	
B. Protective And Emergency Equipment Needed	
Yes	No
Gloves X	
Boots X	
Harness/Tripod/Hoist X	
Atmospheric Tester X	
Blower X	
Hard Hat/Coveralls X	
Ventilated/Purged X	
C. Atmospheric Tests	
Explosive Gases	LFL
Oxygen	%
H ₂ S (Hydrogen Sulfide)	PPM
CO (Carbon Monoxide)	PPM
(Note: if alarm sounds vent space for 15 minutes with power ventilator and retest. If alarm sounds again continue to ventilate and retest until atmosphere meets allowable limits)	
Test accomplished by:	
D. Sign Off	
Entrant Signature:	
Entrant Signature:	
Attendant's Signature:	

Note: This list and instructions are subject to change. Changes if any will be noted at the pre-competition meeting.

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Safety Event FAQ's

- 1. Can the SRLs suspended from the center top of the tripod be removed as soon as the person attached to it is out of the manhole?**
No - There is the possibility of it being dropped on the other entrant. All of the tripod equipment will be disassembled after it is moved away from over the manhole.
- 2. Can the Safe Approach safety cover be removed from the manhole before the tripod is over the manhole?**
No - It must be removed after the tripod is over the manhole and must be back over the manhole before removing the tripod system from above the manhole opening.
- 3. When can the permits be signed?**
During the 4-minute equipment check.
- 4. Who can remove PPE during the event?**
The only person allowed to remove PPE during the event is the person writing the gas reading on the permit. Anyone else will be penalized except for the 5-second rule on hard hats. Definition of the 5-second rule is when a hardhat falls off the head, that person must stop working immediately, pickup the hardhat and place it back on their head. If this is not completed in 5 seconds a penalty will be assets.
- 5. What are approved gloves?**
Leather gloves, mechanics' gloves. Gloves with fingertips removed, hole(s) in the glove are not acceptable.
- 6. Who is timing the 30-second air check and how?**
The Team will do the 30 second time for the air check. A judge will be checking the marks on the hose for proper placement. This judge will also observe the 30-second timing for accuracy. The judge will not comment to any team member, it is the team's responsibility to do the test of a full 30 seconds.
- 7. Can the air sampling tube be placed through or under the manhole safety guard? Yes**
- 8. When can the blower adapter be placed in the opening? After the safety cover has been removed. The blower must be completely assembled with the diffuser inserted into the manhole and turned on before a team member enters the confined space.**
- 9. Can the tripod legs be extended before the tripod is placed over the opening?**
Yes - Per the directions Step number 7; the tripod must be setup completely before it is placed over the manhole.
- 10. Can one or more safety appliance be mounted on the tripod prior to placement over the opening?**

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The complete fall protection system, tripod, two SRLs, one salalift winch and chain must be completely setup before it is placed over the manhole. This includes mounting all safety appliances. - Per the directions Step number 7

11. **Are the tripod legs retracted at the completion of the event? Yes**
Are ALL of the safety appliances removed from the tripod upon completion of the event? Yes, both SRLs and the Salalift winch must be removed from the tripod at the end of the event. The way the equipment is at the start of the four-minute check is the way you end the event. Every piece of equipment will be behind the equipment line, with the exception of the harnesses they may remain on the entry persons and the victim.
12. **Are we correct in our thinking that both entrants have to physically move the dummy at the SAME time? No** they both have to participate in getting the harness on the victim
13. **Example: If the first entrant turns the dummy over or sits him up before the second entrant comes down to help, is that a penalty? No** as long as proper lifting technique is used and the second entrant helps of equipment will be behind the equipment line, with the exception of the harnesses they may remain on the entry persons and the victim.
14. **Can a team member "physically handle" the cable and lift a person or victim out of the confined space without using the winch? No** - Should the cable slip this would injure the person. The penalties for injuring anyone are very high.
15. **Who determines what is "legible" for the printed names? The printed names must be able to be read by the judges. This will be done during the 4-minute equipment check.**
16. **Can a team go under the platform to check the harness on the mannequin during the four-minute equipment time check? Yes**
17. **Must an entrant remain connected to the SRL while placing the safety cover back on the manhole?**
Yes
18. **Can someone other than the entrants remove and replace the safety cover?**
Yes
19. **Will the SRLs and salalift winch be in their bags/boxes when the event begins?**
No
Will the hose be attached to the gas meter at the beginning of the event?
No
20. **What are the dimensions of the starting/stopping, decontamination and the equipment storage areas?**
The start/stop line is 3ft wide X11 ft long. The decontamination area is 3 ft wide X 5 ft `long. The equipment storage area is 3 ft wide X 16 ft long.

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21. **Will the mounting bracket for the one SRL and the Salalift winch be on the legs or will the team have to install the brackets?**

They will already be mounted on the legs when the team gains access to the platform.

22. **What is the definition of dropping/abusing tools or equipment?**

Dropping tools or equipment from a distant that could damage it. Abusing tools is doing anything that could damage the equipment

23. **The attendant (not connected to the SRL) can replace the porta-cover when all entrants are out. Is this correct?**

Yes

25. **The attendant (not connected to the SRL) can insert and remove the ventilation equipment from the manhole as long as he does not break the plane. Is this correct?**

Yes