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**National Fire Fighter Near-Miss Reporting System
Reports Related to Confined Space/Underground Tech Rescues
Reports**

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Please note: In the 2010 Near-Miss Calendar the December Case Study on Confined Space Trainings. Click this [link](#) for the calendar.

09-552

Event Description

The police contacted one of our stations directly to see if a crew could respond to a local shopping plaza to assist with removing ducklings from a storm drain in the parking lot. The ducks were in a connecting pipe between storm drain openings, so the officer in charge of the crew decided to flush the drain with a trash line to force the ducks into another drain opening where they could reach and removed the ducks. This did not work, as the water was not coming through with enough volume to force the ducks to move downstream to the next opening. The officer then decided to use a 2 1/2" line to create a greater flow. At this point, firefighters were working in a storm drain opening that was about six feet deep and they were running air monitoring equipment continuously. The officer made a passing comment to one of the smaller firefighters on scene that he may be needed to crawl through the pipe. Before getting ready to pull the 2 1/2" line, the officer informed the crew that no one was to go down into the storm drain without his approval. While the crew was preparing the 2 1/2" line, the firefighter that the officer made the passing comment to climbed down into a drain opening, and proceeded to crawl through the drain pipe that was about 30 feet long before it entered the next storm drain opening. He had no harness, and there was no confined space rescue equipment set up at all. He made it through the pipe without incident, but the risk of what he did was not all worth the benefit of saving a few ducklings.

Lessons Learned

This is classic example of freelancing, and while the outcome was not tragic, there was certainly an unnecessary risk taken. This firefighter had not been through confined space training, and was unaware of the potential hazards involved with his decision. It also is an example of needing clear and careful communication. While the officer in charge did a good job of initially managing the risk with this extremely low priority incident, he should not have made the comment to the firefighter about potentially being needed to enter the pipe, as he knew this firefighter was not trained to work in confined spaces. The firefighter's lack of training and the message from the officer most likely led to his decision to enter the pipe.

06-136

Event Description

An assistant chief arrived on scene for a cat trapped in a below ground storm drain. The fire chief had the first truck on scene put a ladder in the hole and had the firefighter climb down approximately 20 feet to get the cat. There was no air monitoring, no retrieval system in place, no confined space training, etc. The assistant chief was questioned on scene by a firefighter. The chief said that it was ok because it was a cat.

Lessons Learned

There were no lessons learned because the chief did not feel he did anything wrong. Proper training and awareness would probably help correct this from happening in the future.

08-525

Event Description

This incident occurred at an active construction site of a 5 million gallon, double wall, poured in place concrete water tank.

A 38 year old male construction worker was working at an approximate height of 25' from scaffolding inside the inner tank structure, removing plywood forms from the ceiling of the tank. The worker was secured to scaffolding with a fall protection harness secured to the rail of the scaffolding. The harness did not have a shock absorbing lanyard. It was secured via chain to a partial body harness. As the worker attempted to strip a plywood form, he reportedly lost his balance and there was a presumable failure of the lanyard carabiner, causing the worker to fall approximately 25' to a concrete surface. After the fall, the worker was conscious and complained of lower extremity injuries.

The first arriving engine officer did not conduct a size-up and did not recognize that this was a confined space rescue. The first arriving officer then entered the confined space alone and without a working radio and without air monitoring. Technical rescue resources were not assigned to initial dispatch, which resulted in the delay of properly trained personnel and specialty apparatus arriving on the scene. After the arrival of the technical rescue resources, the engine officer was ordered to evacuate the confined space, and did so without injury or incident.

Lessons Learned

It is important to remember that confined space and technical rescue incidents are low-frequency, yet high-risk events. Sixty percent of confined space fatalities are would-be rescuers. Unless specifically trained and equipped, consult with technical rescue resources prior to taking any actions. The first arriving unit should properly size-up the scene, establish command, and request appropriate resources, no matter where they come from. Unless specifically trained or equipped, do not become part of the problem.

07-829

Event Description

We were called to assist the police with the apprehension of two escapees from a local juvenile hall who were believed to be in the sewer system below the complex. As the firefighter, I was told to drop a straight ladder into the sewer via a manhole cover and climb down to check out the system. I wore a level C suit, with an air purifying respirator (APR). I climbed down, stepped off the ladder, and looked around. While I never lost contact with the ladder, the pipe's surface was very slick. I had no tag line. Also, this is a permit required confined space, with low oxygen and potential for hazardous gases, not to mention the fact that I was standing in raw sewage. I was in

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verbal communication with those on the surface, as portable radios wouldn't work. We have had extensive confined space training, but no one, me included, realized that this was, in fact, a confined space. It was only after the fact that we realized that a tag line, and confined space operations should have been put into use.

Lessons Learned

First and foremost, situational awareness. Realizing what a confined space is and how to deal with them is key in this type of incident. We need to realize that real world incidents don't exactly mimic training scenarios. A confined space is clearly defined, so we must be the ones to recognize them. Also, having a safety officer/entry supervisor would have allowed us to realize that I was entering an oxygen deficient atmosphere. We had all the necessary equipment available to us, but didn't use it.

09-593

Event Description

Our department received a call for a fire in a grain silo. The first arriving crew noticed an electrical panel box and heard a distinct humming. The power was killed at this box. As they entered the silo, one firefighter noticed a light bulb still burning. The firefighter said it did not register with him that something was still energized. The crew began applying water and moving grain around to extinguish the fire. After they were convinced that the fire was out, the grain elevator energized and began moving upward. Thankfully no one was injured in this event.

Lessons Learned

Never take anything for granted. There could possibly be more than one source of power to any structure and turning off power to one box does not mean that the building is "dead". I have advised all fire personnel, that in the future (should we have a working fire upon arrival) that the utility companies are to be notified immediately and precautions should be taken until we are notified that the power is off to the building. We were extremely fortunate that no one was injured or worse.

10-734

Event Description

Note: Brackets denote reviewer de-identification.

Our battalion [number omitted] was doing a confined space training exercise at [location omitted]. We completed the company's briefing on the procedures for confined space entry, and they assured us that the space was made safe from all dangers. They stated that their lock out/tag out procedures were completed. The exercise started with [Instructor A] and [FF A] placing the rescue mannequin in a 42 ft. deep flour bin. When the mannequin was placed into the flour bin, there was no product in the bin. During the setup phase of the exercise, a member of [company name omitted] staff started filling the bin from another source. This resulted in burying the mannequin with

seven feet of flour. During the lock out/ tag out phase of the fire department training, the source was discovered and corrected.

Lessons Learned

Proper lockout procedures for all product entering and exiting the training area are tested and tried prior to training.

07-762

Event Description

I am a full time firefighter-paramedic but also work on an ambulance part-time as a clinical manager/supervisor. I was at the station when a call came in for a man down, not breathing and under a mobile home. I wanted to evaluate a new employee so I went along on the call. A first responder team of volunteers made it on scene about 4 minutes before we did. Upon our arrival, we found a man in "full arrest" deep under the mobile home. Two of the first responders were under there trying to move him out. The patient had crawled over an axle and was deep inside a confined space. Due to the fact of the small working area, limited lighting, and a large patient (250 lbs), the scene was rushed. I went under to assist. I tied a bedroom knot, slipped it onto the patient, and began extrication with the help of the others on the rope on the outside. As the patient began to move, we noticed a wire that was lying under the patient. After the patient was moved outside, CPR was begun. I noticed the patient had two, what appeared to be electrical burn marks, on his arm. The wire that was found was traced back to a breaker box. It would appear that he cut into a 220V live wire and was shocked. He later died at the ER after transport. We, as a group, did not fully consider the issue of a confined space nor the dangers of what could be under the mobile home. I also ASSUMED that the scene was safe as the first responders were working without problems. The lesson learned is that safety needs to be re-assessed and should be on-going through the entire call.

Lessons Learned

Always re-assess the scene and make it an on-going process through the entire call. Do not assume anything. Also, be aware of the type of situation you are dealing with. This was a confined space with multiple hazards that were not addressed properly. Finally, do not get rushed into a call. Safety is number one for you and your crew, even in a life or death situation.

10-780

Event Description

During a confined space operation class being taught by an outside company, the class had one student make entry into an 18" concrete pipe. The pipe was part of a storm drain system along a county road. The student was performing a confidence entry and

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the pipe was approximately 150 feet in length. The student was on a tethered air line and had a back-up air supply along with a safety line attached to a harness. During entry, the student was approximately 80' into the pipe and became tired and stopped to rest. At this point in time, it started to rain, with the runoff entering the storm drain system. The student was unable to move because of the water and had to attempt to move backwards toward the entry point. Meanwhile, the crews above ground started to dike off the area and block off the pipe at the water's point of entry. Personnel on site requested a vacuum truck from the local water district and tech crews from the vendor company prepared to make entry and pull the student toward the exit point. When the entry team was ready and they removed the items that blocked the pipe, the rush of water pushed the student back to the entry point where he was safely removed. A concern for situational awareness as it relates to the weather was not considered by the instructors that the department had put their trust in for their expertise. Thankfully, past training by the department in survival skills along with regular fit testing for the SCBA made the difference in this situation not turning out badly.

Lessons Learned

Situational awareness is always important. Make sure when using an outside vendor that you are being taught to the level of the class being presented and not above and, as a result, putting your people at risk. In a special operations training class, always prepare for the worst and never allow complacency. Thankfully, we had great equipment and all students worked like a well-oiled machine to accomplish the desired outcome and didn't panic knowing who was in the pipe. The student also remained calm allowing for a successful outcome. Always train and make sure you get your SCBA mask fit tested regularly along with knowing how to use your equipment when you're in the most demanding environments or situations.