

U.S. Pipelines & Logistics Contractor toolkit



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Q1 2019

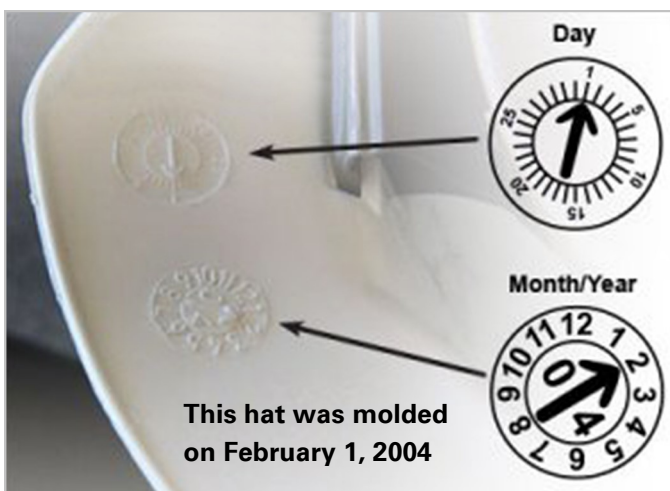
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Do you need a new hard hat?

If the one you are using is more than five years old, you do. Hard hats are rated for five years and that is the standard that BP follows for replacement. See the photo (left) to learn how to find the manufacture date.

If you continue to use the same hard hat because it's covered with stickers (and you like it that way) feel free to save it as a souvenir but get one to USE that has not expired. Don't risk injury because your hard hat may no longer be effective!

Unexpected OSHA Audit



During a recent excavation activity on a USPL job site, one of our contractors (Michels) was approached by a Compliance Safety and Health Officer (CSHO) from OSHA. This was an unexpected visit from OSHA and the CSHO requested to walk through the job site for an audit.

Michels' foreman led him around and answered all of his questions. The CSHO stated that he was driving by the site and decided to stop due to an increased number of incidents involving trench boxes. OSHA's CSHO commented on the site's good order and specifically mentioned that he was pleased with the ladder being secured, gas monitors in place and everyone wearing the proper personal protective equipment (PPE). This is a job well done by the crew and Michels should be congratulated for successfully passing the OSHA inspection!

Some general trenching and excavation rules to keep in mind, include:

- In excavations greater than five feet, make sure sloping, shoring or shielding is in place.
- Keep excavated soil and other materials at least two feet from the edge of the excavation or use a sufficient retaining device or a combination of both.
- Perform a one-call and verify underground utility locations.
- In excavations four feet or greater in depth, perform a daily pre-entry gas test for Oxygen, Carbon Monoxide and LEL.
- Inspect trenches at the start of each shift prior to entry and after rainstorms.
- Do not work underneath loads handled by lifting or digging equipment.

WYE? – What's your exposure?

Spring driving tips



Winter is considered by some to be the most dangerous driving season, but spring also arrives with a number of potential driving dangers and hazards.

If you live in the Midwest, it seems the winter weather will just not go away, but eventually it will. Take a few moments to review these spring driving tips to keep yourself and others safe while traveling on the roadways.

- ▶ **Slow down.** Reduce your speed, especially in bad weather, heavy traffic, construction and unfamiliar areas. Expect more animals in areas where wildlife is common.
- ▶ **Buckle up.** Make it your responsibility to ensure that everyone in the vehicle is wearing a seatbelt.
- ▶ **Don't drive fatigued.** Allow plenty of time to reach your destination.
- ▶ **Avoid driving through large puddles.** Water can impair your brakes and cloud your vision.
- ▶ **Wipers on, lights on.** Increase your visibility and allow others to see your vehicle easily in the rain.
- ▶ **Do not use cruise control.** During heavy rains or hail, disengaging the cruise control can take crucial seconds during an emergency situation.
- ▶ **Share the road.** Warm weather brings motorcyclists, bicyclists and pedestrians out on the roads. Because more and more pedestrians have developed habits of texting, talking on cell phones and listening to music, they can be unaware of the traffic around them. Be extra cautious around intersections and in residential communities and school zones.

Vehicle maintenance

- ▶ **Maintain your vehicle.** Follow the manufacturer's maintenance recommendations.
- ▶ **Replace the windshield wipers.** Make sure your vehicle is ready for rain. Don't drive faster than the wipers can clear the water from your windshield.
- ▶ **Keep your tires properly inflated.** By doing so, it can reduce damage from potholes, uneven pavement and other road hazards.
- ▶ **Clean your windows.** After a long winter, salt and other road residue can build up on your windows. Wiper effectiveness and visibility can be greatly enhanced by just cleaning the glass. Cleaning the inside of the glass can also increase visibility and help the defroster clear your windows faster by reducing moisture build-up.

Spring weather can introduce other dangerous weather conditions, such as tornados.

Seek shelter in a sturdy building or underground, if possible. Vehicles are an extremely risky place to be in a tornado. If you do encounter a tornado while in a vehicle, NOAA provides the following tips:

- ▶ If the tornado is visible, far away and the traffic is light, you may be able to drive out of its path by moving at right angles to the tornado.
- ▶ If you are caught by extreme winds or flying debris, park the car as quickly and safely as possible – out of the traffic lanes. Stay in the car with the seat belt on; put your head down below the windows; cover your head with your hands and a blanket, coat or other cushion, if possible.
- ▶ If you can safely get noticeably lower than the level of the roadway, leave your car and lie in that area, covering your head with your hands.
- ▶ Avoid seeking shelter under bridges, which can create deadly traffic hazards while offering little protection against flying debris.

Be prepared, enjoy this spring!

Drive smart, drive safe.

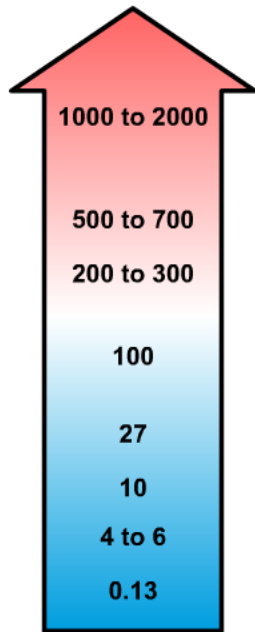
Andy Gattermeyer

USPL Fleet and Security Advisor

WYE? – What's your exposure?

Hydrogen sulfide (H₂S) – Managing the hazards

Hydrogen sulfide concentration (ppm)



Effects of H₂S on health

- ▶ Sudden loss of consciousness with quick breathing cessation then death in a few minutes. Death can occur even if the casualty is rapidly evacuated to fresh air.
- ▶ Loss of consciousness and breathing cessation, then death.
- ▶ Severe conjunctivitis (eye inflammation) and irritation of the respiratory tracks after one hour exposure.
- ▶ Cough, eye irritation, loss of sense of smell within 2-to-5 minutes.



USPL Protection Criteria for H₂S

- **<10 ppm:** considered non-hazardous environment. No respiratory protection required.
- **10 to 100 ppm:** supplied air respirator required (SCBA or air-line).
- **>100 ppm:** Immediately dangerous to life or health (IDLH). Entry prohibited!
- **4-gas monitor:**
 - ▶ H₂S low alarm set point: **10 ppm**
 - ▶ H₂S high alarm set point: **20 ppm**
- **Exit the work area** if low alarm sounding and no SCBA is donned.
- Know how to confirm your 4-gas alarm set points.
- H₂S is colorless and flammable.

Equipment, personnel and testing requirements

When gauging or sampling crude oil, bunker fuel or heavy fuel oil tanks, workers shall use an air supplied respirator in conjunction with a portable hand-held H₂S monitor to determine H₂S concentrations at the thief hatch. A personal, single gas H₂S monitor shall also be worn clipped to the hard hat, collar or in a breast pocket to measure breathing zone concentrations. Additionally, when workers gauge/sample tanks with external floating roofs, they shall assure all the requirements of the **confined space entry** policy are met before the tank may be gauged or sampled. The tank mixer shall be off and no flow may be allowed into or out of the tank for at least two hours prior to entry onto tank roof. The inlet valve to the tank shall be closed.

The respirator's face piece shall be donned and pressurized when opening the hatch. H₂S concentration measurements are to be taken at the hatch opening using a hand-held, portable monitor equipped with an H₂S sensor and powered pump.

- If hatch measurements are **below 100 ppm and breathing zone measurements are below 10 ppm**, the face piece can be removed and gauging and/or sampling can proceed.
- If hatch measurements are **below 100 ppm but breathing zone measurements are greater than 10 ppm**, gauging and/or sampling shall proceed while wearing the respirator face piece.
- If hatch measurements are **at or greater than the IDLH of 100 ppm**, the worker shall immediately stop the gauging/sampling and leave the area.
- Check the [H₂S FAQ document in DRM](#) for modified test criteria of vented gauge hatches.

Personal single gas monitors for H₂S shall be worn while performing the following tasks/jobs:

- 1) Draining and/or line-breaking equipment or piping in crude oil or heavy fuel oil service.
- 2) Launching or retrieving pigs or tools in crude oil lines.
- 3) Purging crude oil lines or systems.



Used when there is a potential for H₂S concentrations greater than 10 ppm (e.g., crude oil tank dike areas, crude manifolds and crude booster pumping stations).



Used at all field locations where there is a likelihood that H₂S exposures greater than 10 ppm may be present (e.g., crude system valve vaults, pump rooms/buildings and entry ways into crude oil and heavy bunker fuel storage tanks).

Track hoe contacts overhead powerline

What happened

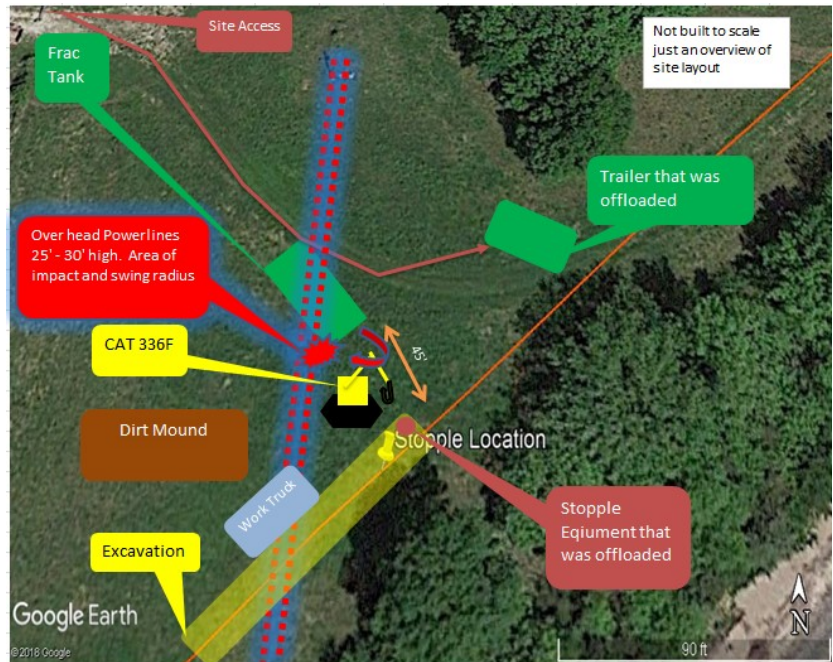
A Caterpillar 336 track hoe operator was positioning the track hoe on a pipeline Right of Way to prepare for a lift. During the track hoe movement, the operator focused simultaneously on getting the track hoe into the right position for the lift, a backup camera to avoid hitting a tank behind him, the boom swing to avoid hitting people or equipment in front and beside him, and the raised boom to avoid an overhead electrical powerline. While positioning the track hoe, the boom contacted the powerline resulting in an arc to ground and the powerline protective relay opening de-energizing the powerline. There were no injuries or equipment damage, but the investigation determined there were ineffective barriers concluding a potential severity E level incident was possible.

What went wrong

The investigation determined there was inadequate on-site planning and risk assessment. The powerline was clearly identified in the risk assessment, but effective mitigations such as workplace layout and spotters were not mandated. There was also overconfidence in the operator's abilities by the operator and other workers on-site based on previous experiences. The investigation also determined an inadequate management of change failed to identify new risks when a significant change in the planned project work methods was necessitated by site conditions.

Summary of local action

Work was stopped immediately and ground signage and spotters were established. Longer term, equipment siting discussions will now be held in the planning and work stages of projects, with mandatory mitigations when serious hazards are identified in risk assessments. Objective criteria for when to use spotters when working near powerlines has been established. The business unit is also strengthening Management of Change activities when significant project job scope changes occur to ensure the full benefit of front end loading.



Key learning to share

The possibility of the track hoe boom contacting an overhead powerline was clearly identified in the site risk assessment, but effective mitigations were not. This failure to adequately address the identified risk was set up by procedures which did not mandate mitigations such as a spotter, and leadership not perceiving the operator's need to track four areas simultaneously while positioning the track hoe. This led to a decision making error, based on the team's overconfidence that the operator would ask for help if he needed it.

Risk assessments need to be improved to always consider the possibility of overconfidence, and where possible, require mitigations as a matter of performing the task, such as requiring spotters when moving equipment near obstacles including powerlines. There's a lesson to always highlight the existence of powerlines during equipment siting decisions during planning both pre-project start-up and at the site before work begins.

There is also a reminder of job scope changes. Robust project planning can be made ineffective if work scope changes don't result in careful review of the original front end loading work. Significant work scope changes occurred twice during this project, but the planning stage work was not reviewed to determine the effect of the changes.

HSSE safety share

Energized 120V wires cut

What happened?

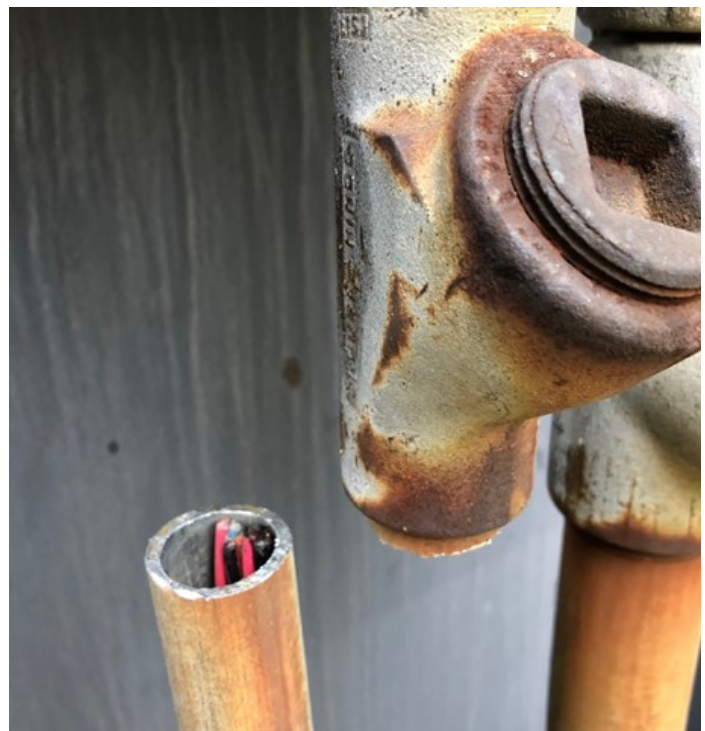
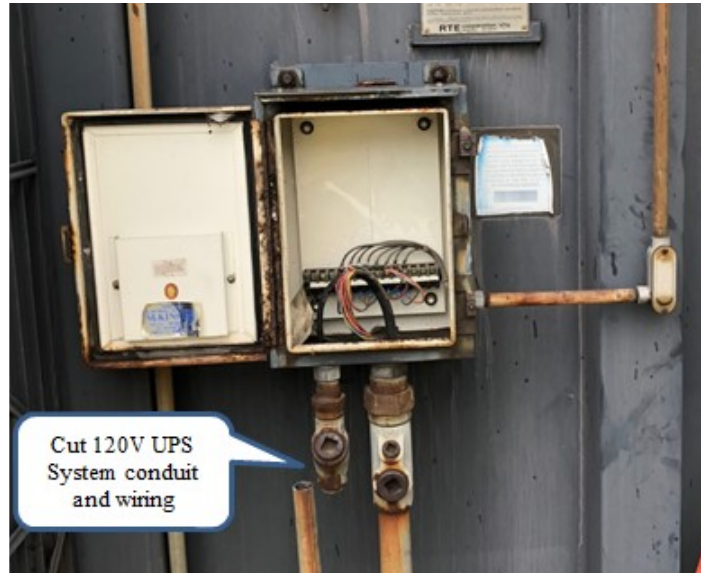
An existing LOTO procedure was used to de-energize a 13.8KV transformer system at the Whiting Station as part of the electrical upgrade of the station project going on for months. A contractor electrician cut conduit associated with the LOTO as part of the removal from service. As he completed the cut, 120V wires inside the conduit contacted the conduit wall and arced. The arc caused a fault in the station control system and the operation of the entire station immediately shut down. All work at the station stopped and an initial investigation ensued. Site personnel recalled that part of the project work completed previously under the same LOTO was to replace the 48V control circuit wiring with new 120V uninterruptible power supply wiring.

What have we learned?

The investigation team determined that the LOTO procedure did not account for the new 120V wiring, partially because it originally was 48V wiring and thought to be exempted from LOTO, although it was in a panel with wiring above 50V. The LOTO was not updated with this new wiring, and re-validation of the LOTO did not identify the new 120V wiring before the LOTO was reused. Testing and verification of de-energization was conducted inside the MCC building only, and because the LOTO had been used successfully previously, additional testing was not conducted.

It's easy to predict that the corrective actions include learnings about a rigorous re-validation before reusing LOTOs, and verifying the energy state before beginning work. The less obvious lesson is about human factors. It was easy to accept as fact that a LOTO previously used successfully would be successfully used again. But unless the energy state is verified, it is not really a fact, just a strong belief. We have many examples of strong beliefs based on past experiences and expectations being proven false.

So a valuable reminder is not to allow yourself or a co-worker to put personal health and safety at risk by relying on assumptions and strong beliefs. Test before touch is the electrician's motto. "Prove it before you do it" might be a broader application of the same thought process. Not sure if you have enough clearance while maneuvering your vehicle? Get out and look. Wonder if a co-worker notices a potential hazard? Talk to them. Believe your instructions for how to perform a task were very clear? Ask some questions. Prove it before you do it.



Discussion: Can you remember a work experience where you expected conditions to be a certain way and were surprised when they weren't as you expected?

Good catch/near miss highlights

What makes a great good catch/near miss?

- ▶ **See something** – observe a potentially unsafe condition
- ▶ **Say something** – report the near miss to the appropriate parties
- ▶ **Do something** – apply corrective action or follow-up

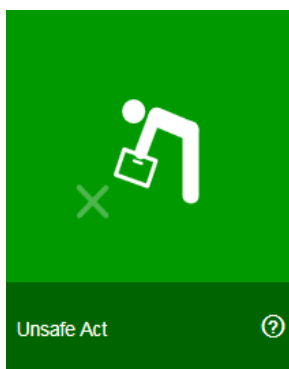


Making an intervention to prevent an unsafe act.

Avoiding a spill

Good catch: While a contractor was monitoring a cold cut being made, he noticed a seep beginning to occur and stopped the work to assess it. It was identified that there was a “belly” in the pipe where diesel was trapped that was not previously known. They brought a vac truck over to contain the diesel as the pipe cut was finished. A spill was avoided as a result of his vigilance, communication and actions to remedy the situation.

Discussion: How do you ensure that you are monitoring your work for unforeseen hazards? What can you do to keep yourself and your co-workers accountable for battling complacency and staying alert?

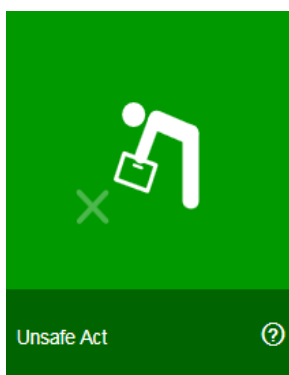


An observed behavior that differs from the expected safe way of working.

Uncovered hole

Good catch: A crew member was approached because there was an abandoned hydro-excavation hole in close proximity to other areas where work was being performed. The crew member was asked to barricade the hole to mitigate a potential fall hazard until it could be filled. The crew member agreed and covered the hole.

Discussion: How could the What’s Your Exposure tool be utilized to evaluate hazards outside of the immediate job site? Are factors from the outside environment of immediate job location considered during the ATW process?



An observed behavior that differs from the expected safe way of working.

Open valve discovered

Good catch: As an employee was entering BP’s facility he noticed a protruding valve stem. Upon further investigation it was discovered that the dike’s drain valve was inadvertently left open. The employee closed the valve.

Discussion: At the end of the work day, do you ensure that every piece of equipment that has had hands on it is checked? What can you personally do to ensure the worksite is in a safe condition (i.e. housekeeping, barriers in place, environmental) before leaving the site?

Have a **Good Catch** or **What Good Looks Like** event you want to share?
Report either to the appropriate BP site contact.

Contractor management

Pacific northwest contractor forum

BP USPL is planning to conduct a Pacific Northwest Contractor Forum on May 15, 2019. Invitations to contractors will be sent out soon.

Contractor grading statistics

As of 2019, the requirement to have the proper insurance for contractors is no longer a showstopper and is not being scored in ISNetworld, although being monitored. Thus, we have moved several "D" grade contractors into "A" and "B" grades.

The overall statistics of contractor grading is below:

A grade – 55

B grade – 129

C grade – 14 (6 on variance)

D grade – 35 (1 on variance)

Key BP contacts

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Contractor information website

The USPL contractor information website contains important information to assist you in working safely with USPL, including HSSE policies, forms, toolkits, BP-specific programs, links to industry websites and OQ training information. Access the website at:

http://www.bp.com/en_us/bp-us/what-we-do/bp-pipelines/contractor-information.html