

Pipeline Rupture Rx Burn

Rapid Lessons Shared



Summary

On March 20, 2023, personnel from the Livingston office with the Texas A&M Forest Service were preparing to conduct a prescribed burn on the Brodbeck-Hooper General Land Office (GLO) property in Polk County. While refreshing fire breaks along the edge of a pipeline right-of-way, a dozer operator noticed a hole in the ground. After brief observation, it was determined the hole was caused by a ruptured underground pipeline. The personnel cleared the scene and contacted pipeline officials. The issue was resolved without incident.

Narrative

Texas A&M Forest Service resources from the Livingston District Office had planned for a prescribed burn on March 20, 2023. That morning, an operator with a Caterpillar D5 tractor plow and the Burn Boss arrived on scene to do some final prep work to ensure containment lines were adequate and the unit was ready for the burn. The operator was refreshing a containment line along the edge of a pipeline right-of-way on the north side of the burn unit, back-dragging his blade to minimize soil disturbance. As the operator worked, he noticed a large hole in the ground, about 2 feet in diameter, surrounded by dirt in an area where the right-of-way dipped into a low drainage. The operator stopped about 50 feet away and called over the radio to the burn boss, describing what he was seeing. The burn boss walked over to the area to investigate. From the ground, the burn boss could hear what sounded like rushing water, which was caused by water in the hole from previous rainfall and the gas leaking from the pipeline. The sound could not be heard from the cab of the dozer.

Once the hole was identified as a ruptured pipeline, the burn boss took a quick photo and brief video for training purposes, and he and the operator cleared the scene. Once they were in a safe area, they immediately called the emergency pipeline number from one of the markers in the right-of way. A pipeline representative arrived within an hour and shut down the line. The line that had ruptured was identified as a 12-inch diameter natural gas pipeline that was approximately 10 feet deep at the point of the rupture. The cause of the rupture is unknown.

After the pipeline was shut off and the scene was secured, all personnel returned to their office. Pipeline crews returned at a later date, and the pipeline was safely repaired within a week of the incident. After the pipeline was repaired, the prescribed burn was never conducted due to lack of favorable weather conditions.



Lessons Learned

“Be more observant, especially around pipelines.” – Tractor Plow Operator

All wildland firefighters, especially heavy equipment operators, are taught about the dangers that underground pipelines present. As an agency, this is enforced through training and also specific tasks in our Heavy Equipment Operator Position Task Book. On a wildfire with active flames, this threat is more prevalent, but during prescribed burn prep or other non-wildfire operations, it is easier to get complacent and let your guard down. However, the same threats that can cause a catastrophic incident on a wildfire can still be present.

“I couldn’t hear it from inside the cab of the dozer.” – Tractor Plow Operator

When the burn boss approached the area, he could immediately hear the sound of rushing water, which was caused by the leaking gas flowing through standing water that was down inside the hole. However, from inside the enclosed cab of the dozer, the operator couldn’t hear anything. Utilizing heavy equipment with enclosed cabs and air conditioning greatly improves comfort and safety for operators, but it can also hinder some of your senses such as hearing and vision. Operators must mitigate this as much as possible by taking their time and utilizing ground resources to help them identify potential hazards.

“I knew what it was because I had seen it before.” – Burn Boss

The operator has about four years of experience as a wildland firefighter and has been on many fires within Texas and in other states in that time. However, he had never seen a ruptured pipeline, so he was not able to immediately identify what kind of threat it was. The burn boss has 30+ years of experience and has seen that exact phenomenon before, so he was immediately able to identify the threat and knew to evacuate the area. Seeking and sharing knowledge of the wildland fire environment is critical for building well-rounded firefighters. Taking training courses, gaining experience, and especially learning from other experienced firefighters greatly improves firefighter skills, knowledge, and safety.

“It wouldn’t be a bad idea to come check pipelines before burns or even prep work. Take a lap with the UTV.” – Burn Boss

It was fortunate in this instance that some of the containment lines needed prep work prior to the prescribed burn. Otherwise, this ruptured line might not have been discovered before ignitions began. It is common practice for containment lines to be double-checked prior to ignition of a prescribed burn, but if there are pipelines in the area, it might be worthwhile to check those as well, even if they are outside of the boundaries of the burn. Additionally, with planned events such as prescribed burns, it may be beneficial to refresh lines and check the burn unit in the days prior to the burn. This would allow for more time to remediate any issues that may be identified.

Video Link

Below is a link to a very short video that was taken by the burn boss when the ruptured pipeline was identified. Note the sound of the gas rushing through the standing water in the hole.

<https://youtube.com/shorts/bJJ4uKcWiRY?feature=share>