



Date: June 25th, 2009

Subject: Expanded 72 Hour Briefing; Entrapment and Shelter Deployment, Goose Paddle Fire, Walker County, Texas

To: Mark Stanford Chief of Fire Operations, Texas Forest Service

Introduction

On June 22nd during initial attack operations on the Goose Paddle Fire in Walker County Texas near the city of Huntsville, a Texas Forest Service Tractor Plow operator was entrapped by fire and deployed his fire shelter. This report expands on the information included in the 24 hour preliminary report and contains factual information as discovered by a small group of investigators. This report is preliminary and is subject to change.

Recent Fire Activity

State fire activity as reported in the TFS fire reporting system for the Livingston dispatch zone (includes Walker County) from June 1st through June 21st included 21 fires for 360 acres. Two of these fires accounted for 225 acres. Walker County reported 5 fires for 23 acres during this same time period.

Fuel Conditions

The last rainfall recorded at the Huntsville remote automated weather station (RAWS) occurred during a three day period from May 23rd to May 25th when .47 inches was measured. There was no rainfall recorded in Walker County in the 30 days leading up to the Goose Paddle Fire. All of the National Fire Danger Rating (NFDRS) fuel dryness indices indicated that timber litter fuels were critically dry. The NFDRS indices calculated at the Huntsville RAWS on June 22nd included an ERC value of 36 which is above the 90th percentile ranking and close to the 97th percentile ranking of 38. The 100-hr fuel moisture value at the Huntsville RAWS on June 22nd was 12%, which is the 10th percentile ranking for 100-hr FM. The Fuel Dryness Index, which is a combination of percentile ERC and 100-hr FM had an adjective rating of critically dry.

Live fuel moisture (LFM) sampling in Walker County on June 1st measured a moisture value of 124% in Loblolly pine. This value is 11% below the historical low June value (135) for this sampling site which has been sampled since 2001. This value is 27% below the average June Loblolly pine LFM. Southern Red Oak LFM was measured in Walker County on June 1st at 92%, which is the same as the historical June low value and 20% below the average June LFM for Southern Red Oak.

Fuel Types

The Goose Paddle Fire burned in managed Loblolly Pine timber fuels. The fire initially burned in a mature Loblolly Pine stand that had been thinned several times. The mature pine canopy was open (less than 60% closure). There was a heavy brush (southern rough) understory 6-15 feet high that included the volatile species yaupon and wax myrtle. The surface timber litter included a long needle litter 8-20 inches deep mixed with hardwood leaves and a moderate dead branchwood loading. This is the fuel type where the entrapment occurred. This fuel type is representative of the fire behavior prediction system (FBPS) fuel model number 7 Southern Rough. After the fire moved past the entrapment site it encountered a closed canopy loblolly pine plantation with a total height of 20-30 feet.

Weather Conditions

The nearest weather observation sites were the Huntsville RAWS and the municipal weather station at the Huntsville airport. These two sites are located about ½ miles apart from each other.

The average observations at 1500 included clear sky conditions, a temperature of 98 degrees, relative humidity of 34%, wind direction of south and sustained windspeeds in the 0-4mph range with gusts to 9 mph.

Fire Behavior

Surface fire in the mature southern rough timber litter fuel was characterized by flame lengths in the 3-6 foot range with moderate rate of spread in the 8-15 chains per hour range. The surface fire behavior could be characterized as moderate to active. Very active to extreme fire behavior began occurring when the surface fire transitioned to passive and active crown fire in the understory brush fuel layer. Intensities increased (10 to 20 foot flame lengths) initiating short range spotting on the right flank of the fire. Passive crown fire (single and group tree torching) was occurring in the pine canopy at the head of the fire producing a maximum spotting distance of 170 yards or almost 1/10 mile.

Operational Considerations

The standard TFS operating procedure for supervision on type 5 initial attack fires is for the senior tenured or most experienced fire crew member of the first arriving crew to fill the role of incident commander (IC). This crew member will continue to fill the role of IC until a formal transition of command is implemented.

Firefighter Qualifications and Experience

Qualifications range from FF2 to FF1
Tenure ranged from 1 month to 6 years.

- FF2 1 month
- FF2 3 months
- FF2 1 year
- FF2 2 years
- FF1 6 years

Injuries

- Minor burns (1st degree) to operator involved in deployment
- Smoke inhalation and heat exhaustion to one ground crew member

Narrative

At approximately 1420 hours on June 22nd 2009, Texas Forest Service (TFS) unit # 505 (JD-650) was dispatched as initial attack on the Goose Paddle fire outside of Huntsville Texas in Walker County. The fire was burning in mature pine timber with thick hardwood shrub understory. Unit # 505 anchored at a gas well site at the rear of the fire and began constructing indirect fireline within 25 feet of the fire. Shortly upon arrival unit # 505 made the request for an additional TFS dozer unit to assist in fireline construction. Unit # 515 (JD-450) was dispatched to assist and arrived at 1459.

Upon arrival, unit # 515 unloaded and contacted unit # 505 for initial briefing. The decision was made to work in tandem and to continue constructing indirect fireline along the right flank of the fire. The ground crews began burnout operations along the indirect fireline. Soon after tandem fireline construction began ground crews conducting burnout operations observed short range spotting (15-20ft) across the fireline. Ground personnel alerted dozer units # 505

& # 515 to back track and construct line around the spot-over. After successfully containing the spot over they continued constructing fireline in an attempt to stop the spread of the main fire.

During this time the crews recognized an increasing level of fire behavior and decided to construct a safety zone. Unit # 505 constructed the safety zone. Unit # 515 continued on alone constructing indirect fireline along the right flank in close proximity to the head fire. Unit #505 completed construction of the safety zone and began improving the line made by unit # 515. The ground crews remained at the safety zone. The two units were approximately 100 ft apart when the fire transitioned from a surface fire to a passive crown fire in the brush and timber fuels. The units did not have visual contact with each other. Due to the crown fire and resultant spotting the decision was communicated by radio for all personnel to fall back to the safety zone and let the fire pass.

Unit # 505 and the three ground personnel made it back to the safety zone successfully. The fire crossed the fireline between the safety zone and unit # 515's position cutting off his escape route to the safety zone. Unit # 515 decided to continue ahead of the fire in hopes of out running the fire or looping around to the safety zone. Unit # 515 came upon a small opening that appeared to be a wildlife food plot. The operator attempted to follow a dim road leading out of this area but after a short distance realized the fire had cut off this retreat as well. The fuels were too heavy to continue a safe retreat away from the fire through the timber. The decision was made by the operator to improve the wildlife food plot area and prepare it for shelter deployment. The deployment site consisted of an area of approximately 45 ft. wide x 120 ft. long. During a 30 minute time period from 1530 to 1600 hours, unit # 515's operator began working to improve the deployment site, moved around the deployment site with his open fire shelter to avoid radiant heat and at some point during this time range the operator went to the ground and got underneath the fire shelter and remained there for 1 to 1/2 minutes. He used the dozer to help shield the heat/flames by deploying the shelter on the opposite side away from the most intense part of the fire. Crews at the safety zone reported communications were lost with unit # 515 for approximately 10 minutes after shelter deployment. After exiting the fire shelter the operator climbed back onto the dozer, established communications with crews at the safety zone and waited for help to arrive.

Prepared by Texas Forest Service Investigative Team members:
Frank Wofford, Brad Moore, Brad Smith