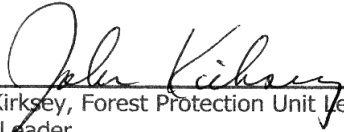


Investigative Report
Mark Stanley Accident



Tennessee Department of Agriculture
Division of Forestry

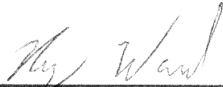
Investigation Team



John Kirksey, Forest Protection Unit Leader, TDA, Division of Forestry, Nashville
Team Leader



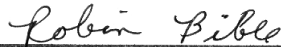
Jere Jeter, Assistant State Forester, TDA, Division of Forestry, Nashville
Team Member



Roy Ward, District Forester, TDA, Division of Forestry, Lexington
Team Member



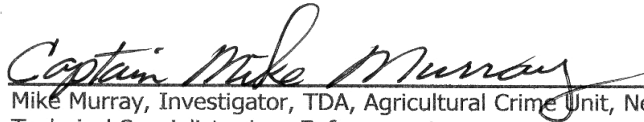
Jeff Piatt, Fire Program Specialist, TDA, Division of Forestry, Nashville
Team Member



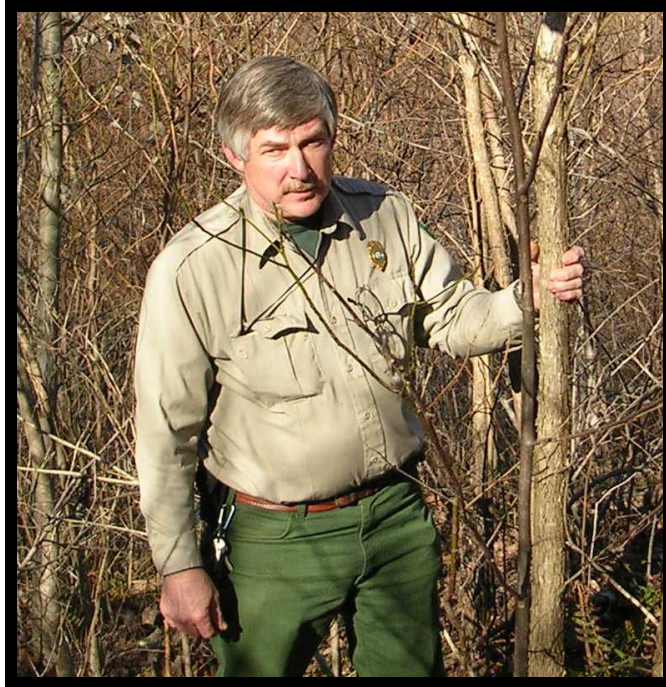
Robin Bible, Safety & Training Unit Leader, TDA, Div. of Forestry, Nashville
Team Member



Larry Grimes, Fire & Aviation Operations Safety Mgr, USDA, Forest Service, Atlanta
Team Member



Mike Murray, Investigator, TDA, Agricultural Crime Unit, Newbern
Technical Specialist – Law Enforcement



**In Memory of
Mark A. Stanley
March 20, 1957 - April 13, 2006**

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Forestry Technician Mark Stanley Accident Investigative Report

Executive Summary

On April 13, 2006 at approximately 1235, Forestry Technician, Mark Stanley, age 49, was killed in a work related accident. This accident occurred about 7.5 miles south of Bolivar, Tennessee on private property near the intersection of Sain and Hardeman Lake Roads. FT Stanley and three other Tennessee Division of Forestry employees, whom he supervised, were assisting a landowner with a prescribed burn. During dozer line construction a standing dead tree was pushed down to eliminate the potential of the snag causing a break-over during the burn. The falling tree struck FT Stanley in the head killing him.

Factors contributing to this incident:

1. The accident victim was distracted by off-site duties.
2. The accident victim was not at least 1 ½ times the height of the tree from the dozer.

After consideration of the factors contributing to this fatality, the incident review team recommends that:

1. Renewed emphasis be placed on using safe practices in all of the Division's work areas.
2. Employees be annually refreshed on the Division's Safety and Health Manual.
3. This incident investigative report be used within the Division as a safety training tool.

Sequence of Events

(Times not in bold print are estimated.)

April 13, 2006

1000: Hardeman County Forestry Technician Mark Stanley, with 28 years experience, notified Assistant District Forester Phil Blakley by radio that the Hardeman County crew would be starting a prescribed burn in fifteen (15) minutes.

1115: Test burn was deemed to be safe.

1145: Line construction on remaining portion of burn block began. FT Mark Stanley, (acting as Dozer Boss and swamper) and Forestry Aide 2 Mike Hodge (operating dozer), with 2 1/2 years experience, began line construction. Stanley was walking a safe distance to the left-rear of the dozer.

1213: Wildfire reported to FT Stanley by 911 dispatch. Stanley instructed two crew members on the prescribed fire, FA2 William Tigner and Part-time employee Danny Howell, to respond to the wildfire.

1228: PT Danny Howell reported to ADF Phil Blakley that he and FA2 Tigner, were leaving the prescribed burn site to respond to a wildfire.

1233: FT Stanley went about 75 yards in front of the dozer and indicated by hand and radio to FA2 Hodge that a dead red oak tree, 11 inches dbh and 48 feet tall, needed to be pushed down. Stanley then walked a safe distance to the left-front of the dozer and waited.

1234: FT Stanley received a second radio call from 911 dispatch about another wildfire.

1235: FA2 Hodge raised the dozer's rear plow, backed up a short distance, raised the blade, moved forward and made contact with the dead tree. The roots of the tree immediately broke loose at ground level. FT Stanley, while talking on the hand-held mic of his portable radio, walked toward the dozer into the path of the falling tree.

1236: FA2 Hodge, realizing that FT Stanley was hit by the tree, put the dozer in a safe mode, shut off the engine and ran to where Stanley lay.

1237: Getting no response from FT Stanley, and finding no vital signs, FA Hodge attempted to call ADF Blakley by radio but was unsuccessful.

1238: FA2 Hodge called 911 dispatch by radio requesting that an ambulance and Rescue Squad be sent to the scene.

1240: PT Howell overheard the unsuccessful radio transmission to ADF Blakley by FA2 Hodge and called ADF Blakley by radio and told Blakley that he should call FA2 Hodge on his cell phone right away. While working at Chickasaw State Forest DF Ward overheard these radio transmissions and drove to the Chickasaw workshop for fuel.

1241: ADF Blakley called FA2 Hodge on his cell phone. Hodge reported that he and FT Stanley were clearing some trees on the fireline. FA2 Hodge said that FT Stanley asked him to push down a rotten tree with the dozer and it fell on Stanley. FA2 Hodge then said that it had killed FT Stanley. ADF Blakley asked Hodge three times if he knew that Stanley was dead and each time Hodge confirmed this. Hodge said that he had already called 911 and that they were responding. FA2 Hodge also said that he had to leave the scene to get to the main road to wait for the EMS. FA2 Hodge was informed by ADF Blakley that Area Forester Pete Moditz, District Forester Roy Ward and Investigator Mike Murray would be contacted and responding and to call back if he needed anything.

1243: FA2 Hodge contacted PT Howell requesting that he return to the site. ADF Blakley called AF Pete Moditz on his cell phone and informed him of the situation. Moditz said he would respond immediately.

1245: ADF Blakley called DF Ward on his cell phone but did not get a response.

1247: ADF Blakley called Forest Protection Chief John Kirksey on his cell phone and informed him of the situation. They discussed the Division's Critical Incident Plan protocol in this situation.

1250: EMS arrived at the road into the accident site.

1252: ADF Blakley called Agricultural Crime Unit Investigator Capt. Mike Murray on his cell phone and informed him of the situation. Capt. Murray said he would respond immediately. Murray contacted ACU investigators Rogers and Binkley instructing them to meet him at the scene.

1256: ADF Blakley called FA2 Hodge on his cell phone to check on his condition and inform him of those others who were on their way. FA2 Hodge

stated that EMS was with him and that they were being transported from the main road to the incident scene.

1258: DF Ward contacted ADF Blakley by cell phone and was informed of the situation. Ward said he was en-route to the scene.

1300: Hardeman Co. Sheriffs Deputy arrived at road into the accident site and proceeded to secure the scene. A second ambulance with local Rescue Squad personnel arrived.

1320: DF Ward and AF Moditz arrived at the scene. Upon arrival at Lake Hardeman Road Moditz and Ward walked to the scene of the incident and talked to emergency personnel to assure the scene was not being disturbed. In addition they checked on the condition of FA2 Hodge and the rest of the crew. Then they walked back out to meet ACU Capt. Mike Murray.

1340: Capt. Murray arrived at the scene. The accident scene was turned over to the ACU investigators.

1520: FT Stanley was removed from the accident scene. Everyone left the scene shortly thereafter.

1530: Crew members gathered at the Hornsby work center for interviews and statements. Employee Assistance Program provided counseling session for crew members later in the afternoon.

Narrative

On April 13, 2006 a forest management understory prescribed fire in 10 year-old naturally regenerated loblolly pine was being conducted, in Hardeman County, in west Tennessee. The site of the burn was 7.5 miles south of Bolivar, east of the junction of Sain Road and Lake Hardeman Road, N35.147, W88.972, on private land.

Forestry Technician Mark Stanley notified Assistant District Forester Philip Blakley at 1000 that a test burn would start soon. Division of Forestry personnel who were at the burn site were FT Mark Stanley, Forestry Aide 2 Mike Hodge, FA2 William Tigner and part time employee Danny Howell. FT Stanley supervised the crew and was the Burn Boss. The landowner was also present for a short time.

About an hour later the five to ten acre test burn was determined to be safe within containment lines. At approximately 1213 Stanley received a call from the local 911 operator reporting a wildfire in southwest Hardeman County. Stanley instructed FA2 William Tigner and PT Danny Howell to respond to the wildfire from the prescribed burn site.

Meanwhile, FT Stanley and FA2 Hodge began constructing containment lines for the next section to be burned. Hodge was operating the dozer while Stanley directed him through the standing timber using his Motorola 440 hand-held radio on a fireline frequency. At 1233, Stanley had worked his way from behind the dozer to a position in front of the dozer and pointed out a dead snag that he wanted taken down. These instructions were given over the radio and by touching the snag with his hand as he walked by. At this time FT Stanley was about 75 yards in front of the dozer.

As FA2 Hodge approached the snag he could see FT Stanley in front and to the left of the dozer. He was standing in a small group of trees at a distance far enough so that the falling snag would not reach him. FT Stanley was easily seen in his yellow Nomex shirt. Stanley was not wearing a hard hat, which was unusual as he was known to always have on all PPE. He had worn it during the test burn, but left it in his pickup truck afterwards. Witnesses recalled he commented it was too hot to wear that afternoon.

A few seconds passed between the time eye contact was made between Stanley and Hodge and the dozer's blade contacting the snag. Upon contact, the snag fell immediately breaking off at ground level. No root structure was attached. When the snag began to fall Hodge again looked up and saw Stanley walking toward him with his head down and his MT 1000 radio microphone in his hand.

Just prior to this, at 1234, FT Stanley received another call on his MT 1000 from the local 911 dispatcher about a second wildfire. His state cell phone, found at the scene, indicates a missed call coming in at the same time. As Stanley was talking to the 911 dispatcher, he was struck on the left side of the head by the falling tree.

Dimensions of the tree that fell on FT Stanley were: total height - 48 feet; dbh - 11.3 inches; point of contact with Stanley - 37 feet from base; diameter at point of impact - 5.9 inches.

FA2 Hodge stopped the dozer, shut off the engine and exited the dozer with his radio and ran to FT Stanley. After getting no response or pulse from Stanley, Hodge attempted unsuccessfully to contact ADF Blakley by radio. PT Howell heard the unsuccessful attempt so he called Blakley by radio and told him to contact Hodge by cell phone.

In the meantime, Hodge called 911 and requested an ambulance. At 1241 Blakley contacted Hodge by phone. Hodge reported the events that had just transpired and that the falling snag had killed Stanley. Blakley, during the conversation asked Hodge three times if he was certain Stanley was dead. Hodge confirmed his assessment each time. Hodge told Blakley that he had already called 911 and that they were responding. He also told Blakley he had to leave the scene to get to the main road to wait for the EMS. Blakley told Hodge he would contact District Forester Roy Ward, Area Forester Pete Moditz and Investigator Mike Murray of the TN Agricultural Crime Unit and to call him back if he needed anything. Ward overheard the emergency radio transmission, drove to get fuel then contacted Blakley by phone to let him know he was responding to the scene of the accident.

Blakley attempted but was unable to reach DF Ward at the time by cell phone.

Blakley then contacted Moditz and Forest Protection Chief John Kirksey to apprise them of the situation. Kirksey discussed critical incident protocol with Blakley to make sure proper steps and procedures would be followed in responding to the incident.

Hodge met EMS when they arrived at the private road leading into the accident scene. While en route to the scene Captain Mike Murray contacted investigators Millie Binkley and Morris Rogers to meet and assist him at the scene.

Blakley called Hodge back at 1256 to check on his condition and to let him know who had been contacted. At that time Hodge reported that he was with

EMS and they were working their way toward the scene. DF Ward called Blakley and reported that he would get to the scene as quickly as possible. The Hardeman County Sheriff's deputy and a second ambulance arrived at about 1300.

Moditz and Ward arrived on the property at 1320 and walked to the scene of the incident. There they talked to emergency personnel to make sure the site was not being disturbed. In addition they checked on the condition of FA2 Hodge and the rest of the crew. Then they walked back out to the road to meet Capt. Murray and led him to the scene.

The Hardeman County Sheriff's deputies were on the scene conducting an investigation when Captain Mike Murray arrived. At that time the investigation was turned over to Capt. Murray because it was not considered a crime scene.

FPC Kirksey contacted the Tennessee Employee Assistance Program to inquire about getting critical incident counseling for the crew. Arrangements were made for Forestry personnel who were at the accident scene to meet with a counselor at their workstation in Hornsby later that afternoon. The EAP counselor talked with the group and extended his services to them as they felt the need to talk more about the incident.

DF Ward and Assistant State Forester Jere Jeter notified next of kin to the extent their names and contact information was known. Ward met Stanley's children and their mother at Hardeman County Hospital where Stanley was pronounced dead.

Forestry Technician Mark Stanley had more than twenty-eight years of service with the Tennessee Division of Forestry. Twenty-three of those years were in the Forestry Technician position he held when the accident occurred. In addition to the experience he had within the agency, he was qualified and filled several resource assignments as Advanced Firefighter/Squad Boss, Firefighter, Dozer Boss, Crew Boss, Engine Boss, Helicopter Crew Member, Equipment Manager and Base Camp Manager.

An investigative team headed up by FPC Kirksey visited the site on Friday, April 14, 2006. At that time interviews were conducted with persons involved and information was collected concerning the accident in order to develop this report. Persons serving on the team are: Robin Bible, TDF Safety and Training Unit Leader; Jeff Piatt, TDF Fire Operations Program Specialist; Larry Grimes, US Forest Service Fire Operations Safety Manager; Jere Jeter, TDF Assistant State Forester for Operation; Roy Ward District Forester; and Mike Murray, Agricultural Crime Unit Investigator.

Findings

Mark Stanley Accident

S: Significantly Contributed I: Influenced N: Did Not Contribute

1. <u>Environmental Factors</u>	
I	Weather conditions at the time of the accident.
N	Fuel model 9 (Hardwood leaf litter).
N	The topography was gently rolling, with slopes averaging 3-4%. Slope at scene was nearly level.
N	The time of day when fatality occurred.
N	Smoke present in the area.
2. <u>Agency Standards</u>	
N	Instructions were clearly understood by all members of the crew.
N	Informal safety briefings were held before beginning work on the prescribed burn.
N	The prescribed burn was to be conducted in a 10 year-old mixed pine-hardwood stand.
I	There was no burn plan in place for the operation.
N	The supervisory span of control for the crew was within acceptable limits.
S	Burn Boss maintained supervision over initial attack operations in the county.
N	Everyone knew who their supervisors were and who was in charge.
N	All of the members of the crew had received prescribed burning training.
I	Minimum of 2 crew members were at work site.

S	Employee was not at least 1 –1/2 times the height of the tree from the tractor/plow.
I	Standard procedure of using dozer to push down hazard trees of this size.
N	Crew members met current fitness standards and had completed the work capacity test.
N	Work/rest guidelines were observed.
N	All members in supervisory positions had 20 + years' experience.
3. <u>Equipment</u>	
N	The crew had sufficient equipment to conduct the prescribed burn
N	All equipment was functioning properly.
I	The victim was wearing required personal protective equipment (except for hardhat) and it was being used properly.
N	The crew had adequate radio communications with each other.
I	Intermittent capability for radio communication with district.
I	Dozer was equipped with enclosed cab, rear plow and blade mounted winch.

Commendations:

1. Crew used dozer to push down pole size dead trees near the fire break. In this situation this is a safer procedure than the use of chainsaws.
2. The use of a test burn to check burning conditions for the area.
3. Used natural breaks for control lines that reduced the amount of line construction needed.
4. The crew recognized hazards (decaying trees, fuel loads, etc.) near control lines and took action to alleviate them.
5. Prompt response by crew to get help. Good use of communication devices (radios, cell phones) to make the proper notification.
6. Crew used GPS to provide accurate accident location to responders.
7. Crew made sure EMS and law enforcement personnel could get to the scene by positioning themselves at entrances and access points.
8. The Division's *Critical Incident Response Plan* was implemented in a judicious and professional manner. Division of Forestry personnel responded quickly and effectively under these very difficult circumstances.
9. Critical Incident Stress Management assistance for employees was requested immediately and this support was provided to employees beginning the afternoon of this fatality. This action exemplified managements concern for the welfare of employees.
10. The Safety of employees is a priority within this organization. They perform duties which are inherently dangerous as a daily routine with the utmost attention placed on safety.

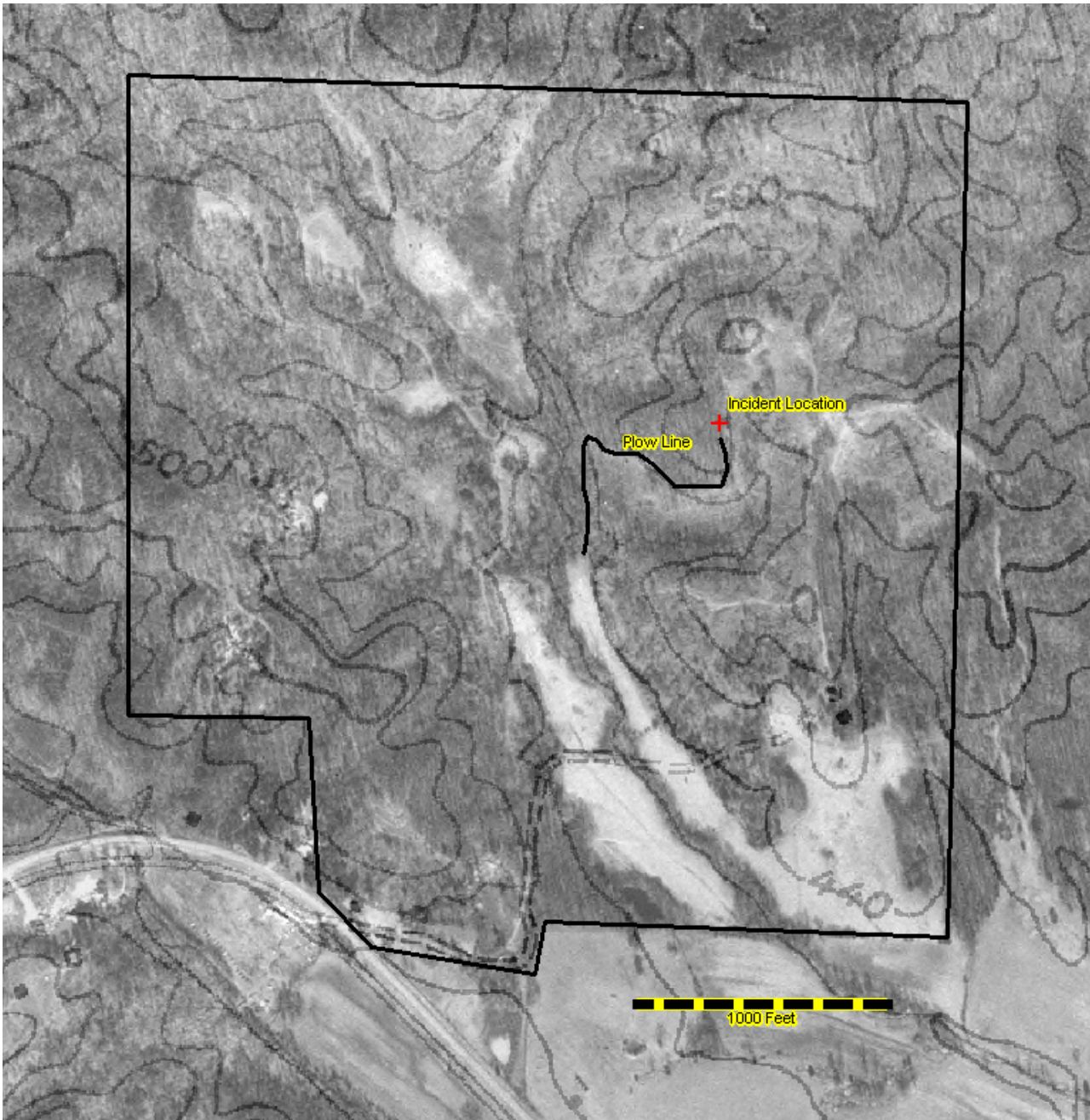
Recommendations:

The following recommendation addresses the direct causal factors of this fatality:

1. Firefighters working with dozer and tree felling operations must focus their attention on these activities and not be distracted by other duties.
2. Include the Lessons Learned from Division of Forestry fatalities in its annual safety training for all employees. Emphasis should be placed on
 - a. Use of PPE
 - b. Situation awareness
 - c. Communication with crew members
 - d. Familiarization of Safety and Health Manual
3. "Tailgate" safety sessions should be conducted prior to work activity.

Mark Stanley Fatality Report
Site Map

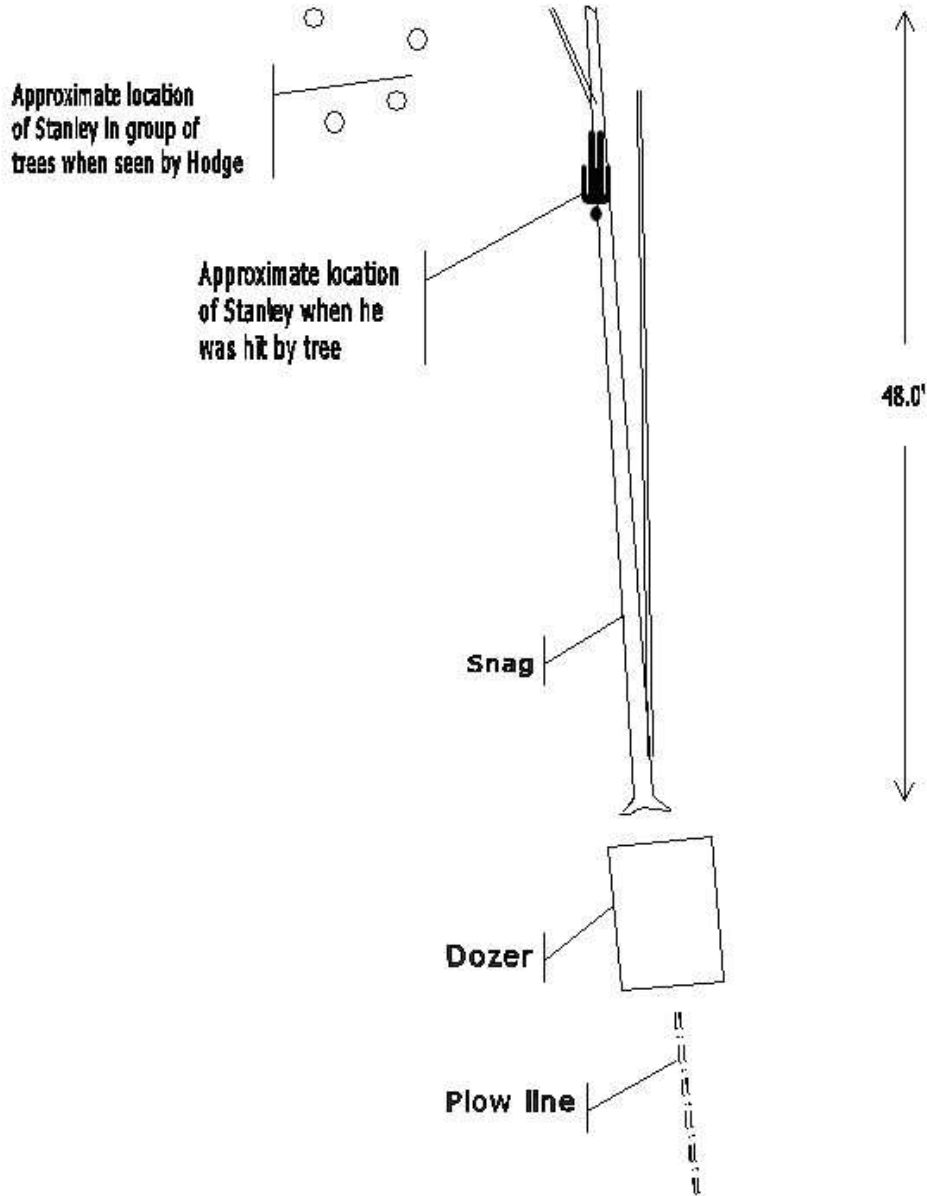
Aerial Photo With Topographic Overlay



Mark Stanley Fatality Report Scene Sketch



Scale: 1" = 10' (approx.)



Photographs of Accident Scene



Photo 1: Decayed root and trunk of dead tree.



Photo 2: Direction of fall of tree. Note smaller stem that was attached to main trunk.



Photo 3: Upper end of tree facing opposite direction of fall.



Photo 4: Hardhat indicates approximate location of where victim was struck.