

CRITICAL INCIDENT REPORT

Hoover Road



*** March 10, 1993 ***

Critical Incident: A Forest Ranger sustained second and third degree burns over 70% of his body while attempting suppression action on a wildfire.

SUMMARY

The firefighter arrives at the fire scene, and spends some time scouting the fire from the transport, before off loading his tractor. He notes that the fire is about one acre in size, with very little intensity and flame length. He radios the district that he can handle the fire, and begins suppression action on the right flank. Within just a few minutes, he hears the fire "starting to really cook." The fire is flashing from the ground to the tree tops.

Realizing that he is in a dangerous position, he lifts the plow, to begin moving out of the fire area. In the process of doing this, he strikes two trees, then knocks down a small tree.

He feels that the fire is going to overtake him, and gets out of the cab on to the tracks, to look for a place to deploy the fire shelter. Because the tractor is surrounded by heavy brush, he makes the decision not to deploy the shelter. He also determines that running is not an option available to him.

The firefighter then attempts to move the tractor. As he starts to back up, the fire burns over him. To protect himself as much as possible, he doubles over in the tractor cab, covering his face with his arms and elbows.

As the fire hits him, he has the sensation that his Nomex jump suit is on fire. After the flame front passes, he gets off the tractor and removes the jump suit. He then gets back on the tractor, sprays himself with some water, and radios that he has been burned over and has been hurt. He advises the district that two more tractors are needed to suppress the fire.

Although he is badly injured, he manages to move the tractor back out to the road. He is met on the road by a volunteer fire department captain, who provides immediate First Aid. An ambulance arrives within minutes, and he is immediately taken to a waiting helicopter to be transported to a hospital Burn Center.

(Contributing factors and safety observations on reverse side)

CONTRIBUTING FACTORS

1. Fire behavior analysis data indicates that smoke dispersion values for March 10 were extremely high. This is a clear indicator of very unstable atmospheric conditions. These unusual weather conditions normally provide a reliable index of accelerated fire activity and intensity potential.
2. There was a significant change in fuel models from the turkey oak visible from the road to the heavier fuels such as pine, gallberry, palmetto, found farther into the fire area. The firefighter very probably was not aware of the sudden change in fuel types, or of the total dimensions of the fire.
3. The firefighter recalls seeing only one fire. This was a spotover, located directly across the road from the fire origin. However, other individuals present reported an additional spotover west of the one seen by the firefighter. The firefighter went directly to the fire that he initially saw to begin suppression action.
4. When the firefighter started suppression action, the wind was blowing out of the south. Shortly afterwards, the wind shifted from south to southwest. The effect of the wind shift was to push the fire directly against the firefighter's line.
5. The two separate fires then came together violently, within minutes after the firefighter starting plowing his line. The accelerated convective activity and fire intensity created by the two fires coming together provides a reasonable explanation for the "explosion" and flames shooting above the treetops reported by individuals watching from the road.
6. The firefighter chose not to deploy his shelter because of the heavy fuels immediately around the tractor. Since running was not an option available to him, he chose to remain on the tractor, with his personal protective equipment as the only shield to protect him from the intense radiant heat.
7. The Missoula, Montana Technical Development Center conducted a thermal analysis of the firefighter's clothing. Their data indicates that he was subjected to peak temperatures of approximately 550 degrees. The report also stated that his clothing met or exceeded all recommended minimum standards for wildland fire protective clothing.

SAFETY OBSERVATIONS

1. The Division needs to develop a more credible "Early Warning" triggering mechanism to brief firefighters on periods of heightened fire danger.
2. Training needs to be developed that focuses more awareness on the adverse fire behavior implications of unstable atmospheric conditions.
3. Firefighters now are trained to deploy fire shelters under "ideal" conditions (i.e., clear an area down to mineral soil, avoid heavy fuel concentrations, etc.). Although not normally recommended, alternative deployment strategies on or adjacent to tractor-plow units should be considered, if the recommended deployment procedure cannot be utilized.
4. In this turnover incident, since the "correct" deployment procedure was not available, an acceptable alternative for the firefighter would have been to wrap the shelter around him like a blanket, while remaining in the tractor cab. Unquestionably, the extent of his injuries then would have been greatly minimized.
5. Radiant heat, rather than direct flame contact, was the primary cause of the firefighter's burn injuries. It is reasonable to make the observation that an enclosed tractor cab environment would have minimized injuries.
6. The Division should initiate the acquisition of suppression equipment with enclosed cabs for field unit evaluation. Organizations now using enclosed cabs should be contacted to obtain the benefit of their knowledge and experience.
7. Field units should maintain two lists for emergency situations such as this turnover incident, identifying telephone numbers for family members, and blood type information for quick access if blood transfusions are necessary.



BOB CRAWFORD
COMMISSIONER

Florida Department of
Agriculture & Consumer Services

The Capitol
Tallahassee
32399-0810

PLEASE RESPOND TO:

Division of Forestry
3125 Conner Boulevard
Tallahassee, FL 32399-1650

July 7, 1993

Mr. Stan Palmer
Safety Manager
Boise Interagency Fire Center
3905 Vista Avenue
Boise, ID 83705

Dear Mr. Palmer:

Attached is a copy of a report prepared on a burnover incident that occurred in Florida last March 10. Please make sure that this information is shared with other members of the NWCG Fireline Safety Working Team.

Contact Gene Morse at 904/487-0936, or Charles Maynard at 904/487-2060, if you have any questions relating to the report findings.

Sincerely yours,

BOB CRAWFORD
COMMISSIONER OF AGRICULTURE

A handwritten signature in dark ink, appearing to read "L. Earl Peterson", written over a horizontal line.

L. Earl Peterson, Director
Florida Division of Forestry

LEP/je

Attachment

HOOVER ROAD FIRE REVIEW
Forest Ranger Timber Weller Burn Injury
Putnam County, Florida
March 10, 1993

INCIDENT REVIEW TEAM

C. Charles Maynard
Assistant Chief, Forest Protection Bureau,
Tallahassee

Charles Maynard

Donald E. West
District Manager
Waccasassa District

Don West

Rodney E. Morris
Law Enforcement Investigator II
Bushnell

Rodney E. Morris

Gordon Buckles
Law Enforcement Investigator II
Bunnell

Gordon Buckles

James D. Brenner
Fire Management Administrator
Tallahassee

James D. Brenner

Gene A. Morse
Division Training & Safety Officer
Director's Office, Tallahassee

Gene A. Morse

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SUMMARY

Forest Ranger Timber Weller Burnover Incident

Waccassassa District Forest Ranger Timber Weller was critically injured on March 10, 1993, while attempting suppression action on the Hoover Road Fire in Putnam County. Ranger Weller sustained second and third degree burns over 70% of his body. He was immediately transported by helicopter to the Shands Burn Center in Gainesville, where he remained in intensive care for more than two months. He was released from Shands Burn Center on Saturday, May 15. Due to the major injuries that he received, he will undergo a prolonged period of therapy before returning to duty as a firefighter.

SEQUENCE OF EVENTS

12:09 Putnam County Sheriff's Office advises Wacassassa District of wildfire in Section 033/09S/25E.

12:12 Forest Ranger Timber Weller dispatched.

12:14 Ranger Weller en route to incident.

12:27 Ranger Weller arrives at fire, begins suppression action.

12:37 Radio message received from Ranger Weller saying that he has been burned over, and he needs help.

12:41 Ranger Weller brings his tractor back out to the dirt road, where he encounters Volunteer Fire Department Captain Mike DeLoach. DeLoach provides immediate first aid, and calls dispatch to send an ambulance. Ranger Weller tells him "we need two more plows." DeLoach relays this message, and moves Weller by truck to the ambulance location. From that point he is transported to the helicopter, for airlift to Shands Burn Center in Gainesville.

The following is a summary of events related to the burnover incident, as reported by Forest Ranger Timber Weller, Putnam County animal control officers Danny Woodworth and John Murriello, and Hollister Volunteer Fire Department Captain Michael DeLoach.

WELLER:

1. He arrives at the fire scene, and spends some time scouting in the transport before off loading his tractor.
2. He notes that the fire is small--about one acre--and with very little intensity and low flame length. He radios the district that he can handle the fire.
3. He off loads and walks his tractor "a reasonable amount of distance" ahead of the fire, and begins plowing his suppression line, on the right flank of the fire.
4. Within just a few moments, he hears the fire "starting to really cook." The fire is flashing from the ground to the tree tops.
5. He realizes that he is in a dangerous position, and lifts the plow, and backs up, to begin moving out of the fire area. In the process of doing this, he strikes two trees, then knocks down a third small tree. The tree root ball wedges in between the tractor tracks.
6. He feels that the fire is going to overtake him, and gets out of the cab on to the tracks, to look for a place to deploy the fire shelter. Because the tractor is surrounded by heavy brush, he elects not to deploy the shelter.
7. He makes the decision to try to move the tractor. As he starts to back up, the fire burns over him. He doubles over in the tractor cab, covering his face with his arms and elbows.
8. As the fire hits him, he has the sensation that his jump suit is on fire. After the flame front passes, he gets off the tractor and removes the jump suit.
9. He gets back on the tractor, sprays himself with some water, and radios that he has been burned over and has been hurt. He advises the district that two more tractors are needed to suppress the fire.
10. He then moves the tractor back out to the road, where he encounters Volunteer Fire Department Captain Mike DeLoach. DeLoach administers first aid, transports him to a nearby ambulance, where he is moved to a helicopter waiting to take him to Shands Burn Center in Gainesville.

WOODWORTH/MURRIELLO:

1. Responding to a complaint, they are in the fire area. They call fire control and give instructions on the fire location.

2. When Timber arrives on the scene, the fire has already jumped the road directly across from the mobile home. The origin of the fire was behind the mobile home.

3. The winds pick up noticeably. They note that "it was almost like an explosion when "they" (two fires coming together?) hit each other...it was a big roar." They observe the flames shooting up 50 to 100 feet above the trees. Their comments: "It was a big roaring noise. It went up fast...it sounded like it blew up."

4. They later state that "...there is no doubt that the fire had jumped the road up there at the corner."

DELOACH:

1. He does not see where Timber has off loaded his tractor, until the incident is over. His first sighting of Timber comes as Timber walks the tractor down the road. He notes that he starts his suppression line approximately 30 feet away from the fire.

2. Within a very short period of time, he hears what sounds "like an explosion." This is followed by a big ball of fire, with black smoke and flames, shooting to the tops of the trees.

3. Shortly afterwards, he sees Timber coming back out to the road. It is apparent that Timber has been badly burned. He jumps on the plow and tries to get Timber's attention.

4. Timber shuts down the tractor, jumps off, and starts running down the road. He screams at Timber to stop. Timber stops, and he gets him over to the back of his truck, where he administers first aid, calls dispatch, and requests an ambulance.

5. He notes that the fire is now moving north-northeast at a high rate of speed with the wind.

6. Timber asks for water and says, "Tell them we need two more plows." He helps Timber into his truck, continues to give him oxygen, and moves him out to Hoover Road, where the ambulance meets them, to transport Timber to the helicopter location, for the flight to Shands Burn Center in Gainesville.

CONCLUSIONS

Based upon the objective facts obtained during the review of the Hoover Road Fire, it seems reasonable to infer that:

1. Fire behavior analysis data indicates that smoke dispersion values for March 10 were extremely high. This is a clear indicator of very unstable atmospheric conditions. These unusual weather conditions normally provide a reliable precursor of accelerated fire activity and intensity potential.
2. There was a significant change in fuel models from the turkey oak visible from the road to the heavier fuels such as pine, gallberry, palmetto, found farther into the fire area. Timber was scouting the fire from his transport, and very probably was not aware of the sudden change in fuel types, as seen from the road, or of the total dimensions of the fire.
3. Timber recalls seeing only one fire. This was a spotover, located directly across the road from a mobile home. The origin of the fire was behind this mobile home. However, Putnam County Animal Control Officers Danny Woodworth and John Murriello reported another spotover, located across the road and on the curve in the road west of the mobile home. Timber had offloaded his tractor and walked it around the turn in the road. He did not see the first spotover because he clearly must have been distracted by the suppression activity taking place around the mobile home. Therefore, he went directly to the first fire that he saw, after passing the mobile home. According to a witness, he started his line approximately 30 feet past the fire. This would be considered normal suppression strategy in turkey oak fuels.
4. When Timber started his suppression action, the wind was blowing out of the south. Very shortly afterwards, the wind shifted from south to southwest. The effect of this wind shift would have been to push the fire directly against Timber's plowed line.
5. The two separate fires---the spotover at the curve of the road and the spotover across the road from the mobile home, where Timber started his suppression action-- came together violently, within minutes after Timber started plowing his line. The accelerated convective activity and fire intensity created by two fires coming together accounts for the "explosion" and the flames shooting above the treetops that Danny Woodworth and John Murriello, Putnam County Animal Control Officers, and Hollister Volunteer Fire Department Captain Michael DeLoach witnessed.
6. When Timber realized that he was in great danger, he made the decision to use what few seconds remained before the fire hit to try to move the tractor. He chose not to deploy his shelter because of the heavy fuels immediately around the tractor.

(conclusions continued)

7. According to his statement, running was not an option. He decided to remain in the tractor cab and protect himself as best he could, with only his personal protective equipment (hard hat, jumpsuit, gloves, etc.) as a shield against the intense radiant heat.

8. The Missoula, Montana Technical Development Center conducted a thermal analysis of Timber's clothing. Their data indicates that Timber was subjected to peak temperatures of approximately 550 degrees.

Timber was wearing the standard personal protective equipment issued to all Division firefighters, with the exception of polyester/cotton blend pants. These pants were the polyester/cotton issue previously provided to firefighters. The pants sustained the greatest heat damage, evidenced by char in several places.

(However, the MTDC report also stated that "The victim's clothing met or exceeded all recommended minimum standards for wildland fire protective clothing.") A follow-up telephone conversation with Ted Putnam, MTDC Equipment Specialist, did establish that 100% cotton for forest and wildland firefighting is recommended over polyester/cotton blends.

RECOMMENDATIONS

1. The Division needs to develop a more credible "Red Flag" triggering mechanism to brief firefighters on periods of heightened fire danger.

2. Training needs to be developed that focuses more awareness on the adverse fire behavior implications of unstable atmospheric conditions.

3. Firefighters now are trained to deploy fire shelters under certain "ideal" conditions (i.e. clear an area down to mineral soil, avoid heavy fuel concentrations, etc.). Although not normally recommended, alternative deployment strategies on or adjacent to tractor-plow units should be considered, if the "correct" procedure cannot be utilized.

In this burnover incident, the "correct" deployment procedure was not available to Timber. However, if he had deployed the shelter, and wrapped it around him like a blanket while remaining in the tractor cab, the extent of his injuries would unquestionably have been greatly minimized.

4. Radiant heat, rather than direct flame contact, was the primary cause of Timber's burn injuries. It is reasonable to assume that an enclosed tractor cab environment also would have minimized the extent of his injuries.

The Division should initiate, as soon as possible, the acquisition of suppression equipment with enclosed cabs for field unit evaluation. However, prior to any equipment purchases, research should be conducted to determine the most effective configuration of this equipment (i.e., air conditioned only as opposed to complete filtration units for chemically cleansing the air within the cab).

5. A list of organizations now using enclosed cabs for forest and wildland fire suppression work should be compiled. Contact with these organizations can quickly give the Division the benefit of evaluations (pro and con) on enclosed cabs.

6. Field units should maintain two lists for emergency situations such as this burnover incident: 1) Telephone numbers of family members; 2) Blood type information for quick access if blood transfusions are necessary.



Timber began his suppression line where individual is standing in background. The tracks in the foreground mark his exit point from the fire area, only 25 yards away from his entry point.



The first part of the fireline plowed by Timber was through turkey oak fuels.



The burnover occurred at this location. Note the heavy concentration of palmetto fuels in the background.



Investigator points to tree that Timber struck as he backed up after first striking another tree. The road, approximately 330 feet away, can be seen in the background.



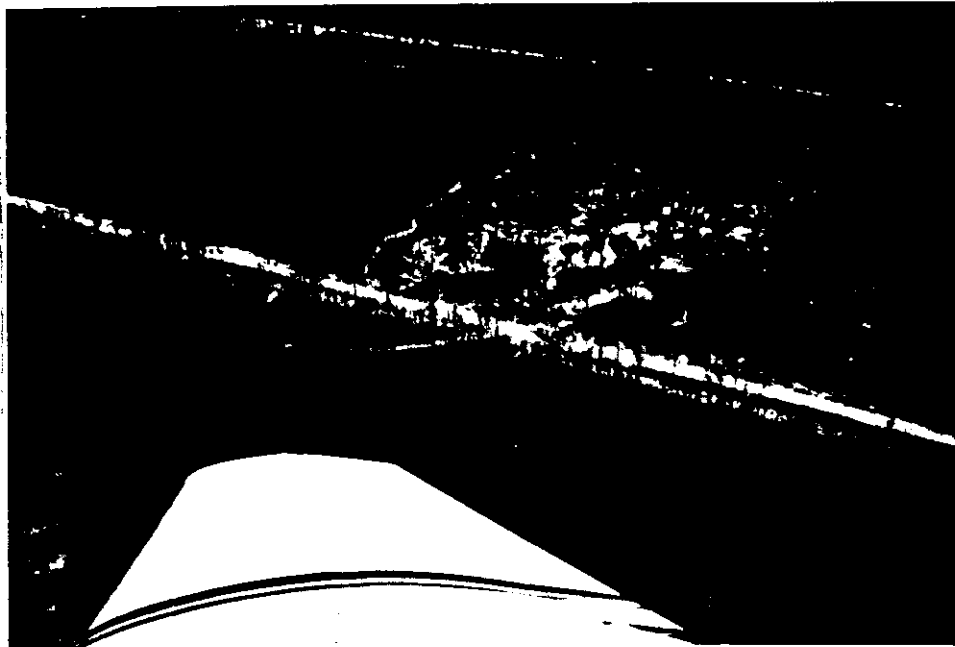
The good condition of Timber's tractor illustrates that relatively little damage occurred to his suppression equipment.



Investigator points, in a northeasterly direction, to the pine needles frozen by the convective action of the wildfire. The burnover incident occurred at this location.



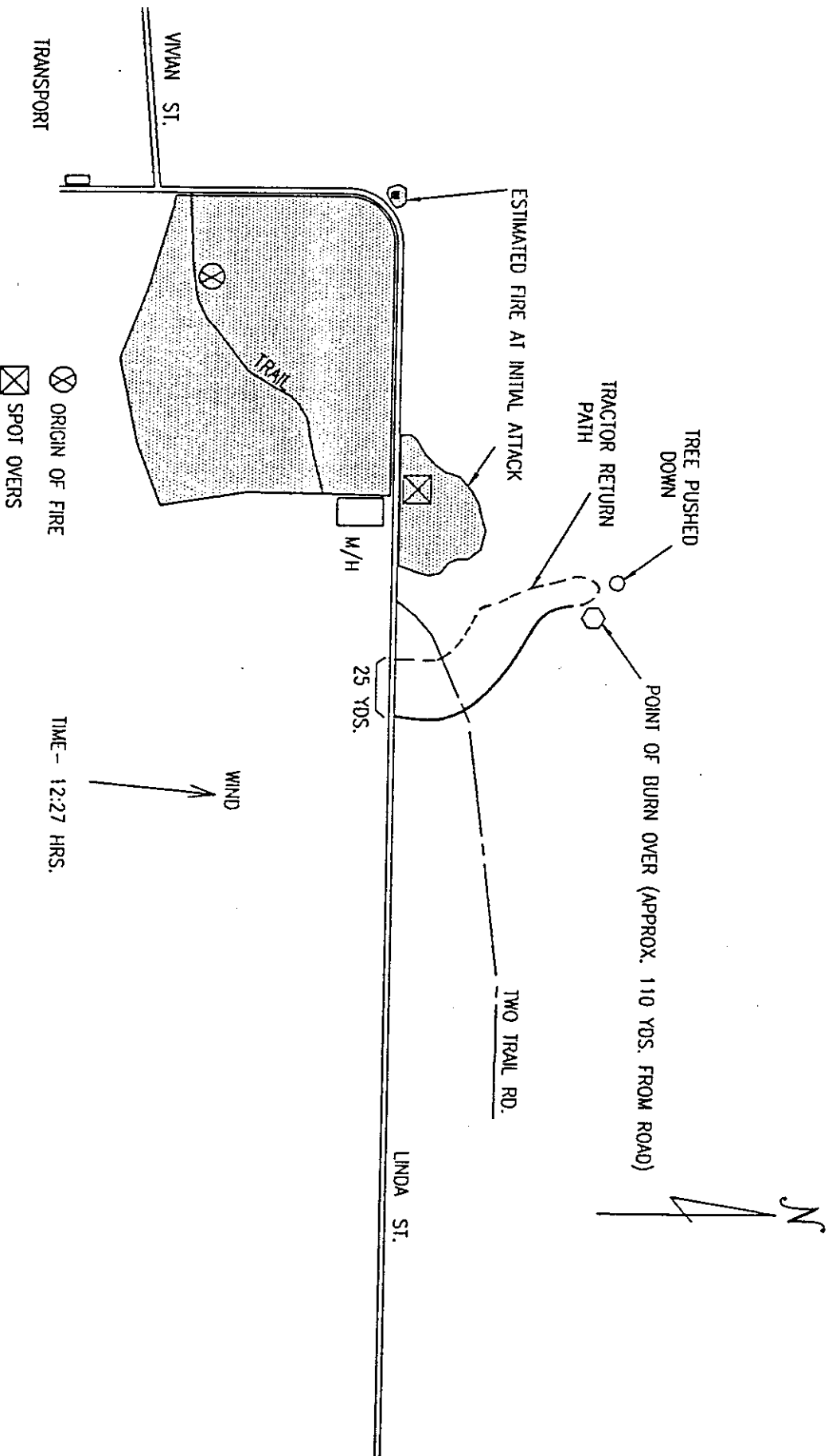
This aerial view shows very clearly the sharp contrast in fuel types between the turkey oak stand adjacent to the road, and the pine, palmetto, and gallberry fuel types where the burnover occurred. Timber's tractor can be seen as the light spot in the center of the photo.



The plane's wing points to the location of the burnover incident. Origin of the fire was behind the mobile home, located in the right center of the photo.

☐ M/H

☐ M/H



☐ M/H

☐ M/H



TREE PUSHED DOWN

TRACTOR RETURN PATH

POINT OF BURN OVER (APPROX. 110 YDS. FROM ROAD)

ESTIMATED FIRE AT BURN OVER

TWO TRAIL RD.

LINDA ST.

25 YDS.

M/H

TRAIL

VIVIAN ST.

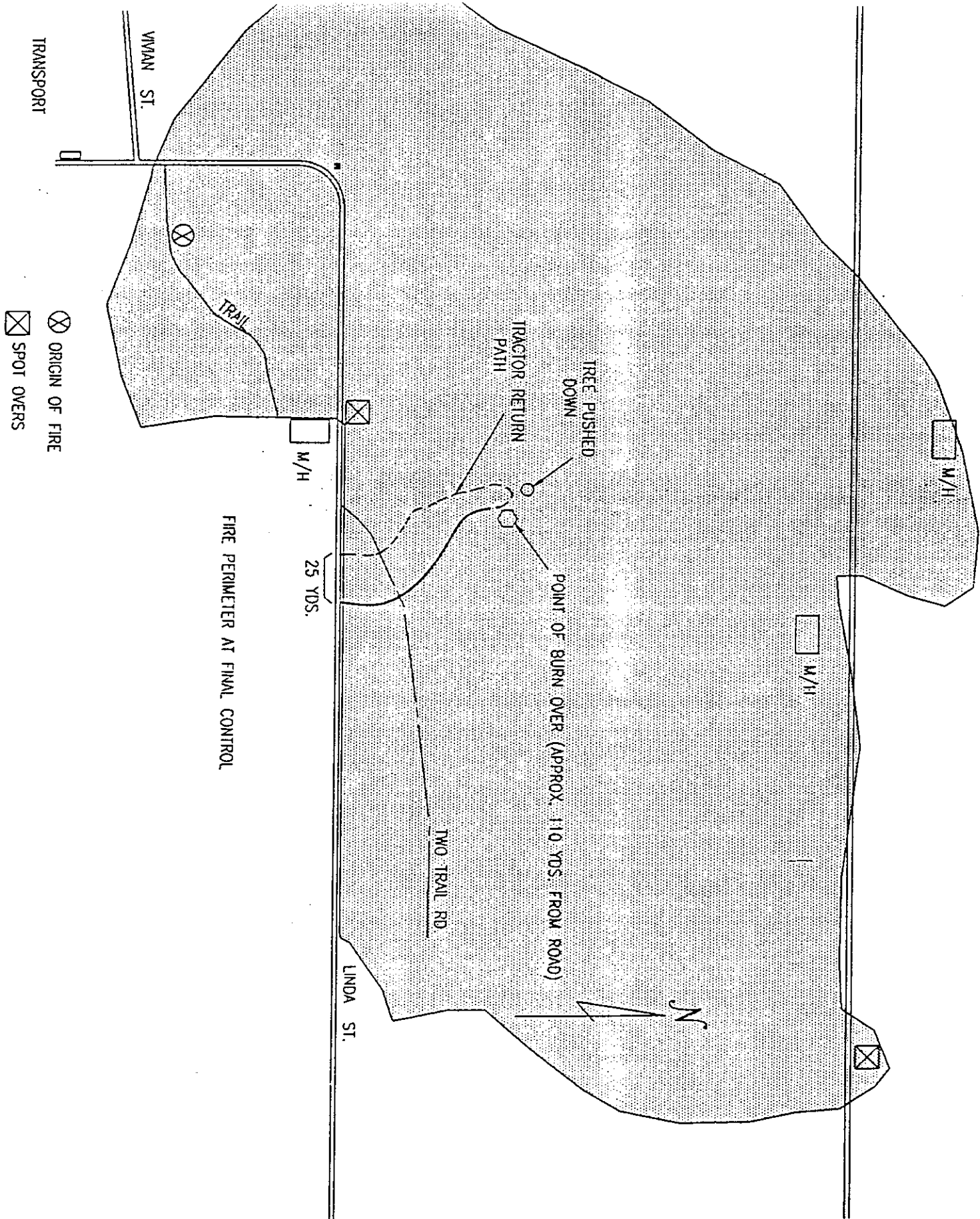
TIME - 12:37 HRS

WIND

TRANSPORT

⊗ ORIGIN OF FIRE

⊗ SPOT OVERS



United States
Department of
Agriculture

Forest
Service

Technology &
Development
Center

Ft. Missoula-Bldg #1
Missoula, MT 59801
(406)329-3900

Reply To: 5100

Date:

MAY 12 1993

Subject: Thermal Analysis of Wildland Fire Protective Clothing

To: Gene A. Morse
Florida Division of Forestry
3125 Conner Boulevard
Tallahassee, Florida 32399-1650

Enclosed is a copy of the report on the thermal analysis of clothing worn by the tractor operator on the Hoover Road Fire.

Essentially, it indicates moderate fire radiation conditions with a longer than normal exposure interval. The operator's clothing met or exceeded all recommended minimum standards.

Please write or call if you have any questions about the report.

Ted Putnam

TED PUTNAM
Equipment Specialist

Enclosure

Analysis of Clothing From Hoover Road Fire in Florida

PHYSICAL EVIDENCE

BOOTS

1. 8 inch tops, flat vibram sole, 6 oz. leather. No apparent damage. Leather still soft and pliable.
2. Nylon shoe laces - ok.

SOCKS

1. Calf high, grey, cotton/nylon blend, thermal knit.
2. Calf high, white, cotton blend, terry loop knit.
3. Very light brown color. Could be dirt or slight char.

GLOVE

1. Gunn cut, elastic wrist (right hand only).
2. Leather 2 - 2 1/2 oz.
3. Slight heat set.

SHROUD

1. Nomex, 6 osy, yellow, poplin weave.
2. Slight heat set at sides.

HARD HAT

1. Bullard Wildfire Model.
2. Heat damage at front under bill. Imitation leather sweat band blackened. PE suspension system melted in this area. Front edge of bill slightly melted.
3. Florida patch slightly melted.
4. Military style goggles. Lenses slightly melted, bubbles starting to form in polycarbonate.

T-SHIRT

1. Short sleeve, 100% cotton, 3.5 - 4.0 osy, knit, tan color.
2. Stain and slight browning on left sleeve, mostly under arm area.
3. Heaviest stain and some browning on left front and back under the arm area. Also stain around left pocket area.
4. Small stain area on collar at right front.
5. ID label lettering worn away.

WORK SHIRT

1. Short sleeve, 100% cotton, 6.0 osy, twill weave, khaki color.
2. Heavy scorching on back, esp. shoulder area.
3. Heavy scorching on right sleeve, more towards back. Patch heat set but no melting or charring.
4. Medium scorching under left arm, centered over side seam.
5. Slight scorching on left sleeve and left front.
6. Slight scorching on collar near right shoulder seam.
7. Manufactured by Riverside, Lot No. 02464.

WORK PANTS

1. Quarter top pocket, 65/35 - P/C, 7.5 osy, twill weave, spruce green color.
2. Medium char over right knee, extending to cuff. Right leg heat set from knee down to cuff in back.
3. Light char and heat set running from left back pocket down left outseam to cuff and extending to knee and calf areas.
4. Slight char and heat set on left pocket bearer and belt loop above it.
5. Manufactured by Lion Apparel, Lot No. 2156.

COVERALLS

1. Aramid (Nomex), 6.0 osy, poplin weave.
2. Dye sublimation and scorching centered over back waistband area with some on left front, quarter top pocket bearer. Some goes through to inside in waistband area.
3. Dye sublimation over right shoulder blade. Some goes through to inside.
4. Light dye sublimation and scorching across back in shoulder area. Silver reflective tape melted on left end near left shoulder blade. Dye sublimation goes through to inside.
5. Stain over right knee and right shin area. Stain over left knee area. Stain on sleeves above cuff area.
6. Dye sublimation and scorching on left sleeve under patch to cuff. Some goes through to inside. Patch is ok.
7. Slight heat set to right leg, mostly from knee to cuff.
8. ID label lettering worn away.

CIGARETTE PACKAGE

1. Slight scorching.

Note: OSY=ounces per square yard. P/C=polyester/cotton blend

DISCUSSION

All clothing was examined for signs of thermal degradation. Temperature estimates are as follows:

<u>Item</u>	<u>Peak Temperature</u>
aramid coveralls	550
cotton shirt	450
p/c pants	450
t-shirt	350
gloves	350
shroud	500
hard hat	300
socks	<350
boots	<350

In general there was more heat damage to the second layer of clothing than the outer(aramid) layer. The aramid coveralls do not show evidence of flame contact or high levels of radiant heat. This would indicate the radiant heat flux was .5 - .6 cal/cm²/sec with an exposure of 30-45 seconds. The long exposure interval allowed the heat to be conducted from the outer layers through to the skin. At .6 cal/cm²/sec exposed skin would be painful in about 1 second and burned in about 3 seconds.

It is recommended that firefighters wear at least 8 ounces per square yard (osy) of clothing to be effective against most radiant heat loads. Estimates for this victim are as follows:

<u>Area of Exposure</u>	<u>Fabric Weight(osy)</u>
arms	6.0
upper torso	16.0
lower torso	13.5
feet	10.0
hands	6.0

Hands and arms are the exception to the 8 osy recommendation and are normally 6 osy. It is also recommended not to exceed 12 osy due to the added metabolic heat stress imposed on the wearer while actively fighting wildland fires. In the case of this victim heavier fabric layers are acceptable since the work generated less metabolic heat.

The area of melting and charring on the hardhat is usually not exposed to radiant heat indicating possible conductive heat contact or that it was not worn during the incident.

CONCLUSION

The victim's clothing system met or exceeded all recommended minimum standards for wildland fire protective clothing. Evidence suggests the victim received considerable burns due primarily to a long exposure time. This allowed conductive heat transfer from the outer clothing layer to the skin. It is normally expected that firefighters would deploy their fire shelters for exposures of this duration.

The pattern of thermal degradation is characteristic of moderate radiant heat levels for longer exposure intervals. The physical clothing examination indicates all clothing components operated within their design limitations and that the level of protection was appropriate.

RECOMMENDATIONS

1. Deploying a fire shelter may have been appropriate and is specifically designed for the level of radiant heat encountered.
2. When escape is appropriate aluminized curtains may be useful for blocking significant amounts of radiant heat while operating tractors.
3. Since it takes time to deploy shelters or curtains, it is a personal judgment call whether to use the time to deploy or for escape. Training should ensure tractor operators are fully aware of their options.

TED PUTNAM
Project Leader
Wildfire Protective Clothing and Equipment

**DIVISION OF FORESTRY
SUPERVISOR'S INCIDENT INVESTIGATION REPORT**

ACCIDENT NUMBER _____

1. STATE OFFICE/DISTRICT/STATE FOREST/NURSERY Waccasassa District		2. LOST TIME/NON-LOST TIME lost time	
3. EXACT LOCATION OF INCIDENT 3 mi. NE Hollister, FL	4. DATE OF OCCURRENCE 3/10/93	5. TIME () AM 12:37 (X) PM	6. DATE REPORTED 3/10/93

INJURY OR ILLNESS	PROPERTY DAMAGE		OTHER INCIDENT	
7. INJURED'S NAME/S. JOB TITLE Timber S. Weller/Forest Ranger	13. PROPERTY DAMAGED		19. PERSON REPORTING INCIDENT	
9. PART OF BODY AFFECTED? arms, face, legs	14. ESTIMATED COSTS	15. ACTUAL COSTS	20. JOB TITLE	21. COST (If Applicable)
10. NATURE OF INJURY/ILLNESS burns	16. NATURE OF DAMAGE		22. NATURE OF INCIDENT	
11. OBJECT/EQUIPMENT/SUBSTANCE INFLECTING INJURY/ILLNESS fire	17. OBJECT/EQUIPMENT/SUBSTANCE INFLECTING DAMAGE		23. OBJECT/EQUIPMENT/SUBSTANCE RELATED	
12. PERSON WITH MOST CONTROL OF ITEM 11 Timber Weller	18. PERSON WITH MOST CONTROL OF ITEM 17		24. PERSON WITH MOST CONTROL OF ITEM 23	

D E S C R I P T I O N	25. DESCRIBE CLEARLY HOW THE INCIDENT OCCURRED Timber Weller was dispatched to suppress a forest fire in Sec. 33, Twp. 9S, Rge. 25E, approx. 3 miles northeast of Hollister, FL, in Putnam County. He started to plow firelines to suppress the fire in light fuels. He plowed north on the right side of fire. The fuel type changed to heavy fuels and he ran into a tree with the tractor. At this point, the wind changed direction and flame height and burned over Ranger Weller and tractor.
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A N A L Y S I S	26. WHAT ACTS, FAILURES TO ACT AND/OR CONDITIONS CONTRIBUTED MOST DIRECTLY TO THIS INCIDENT? High winds, dry conditions and the wind changed direction causing the fire to overrun Ranger Weller and tractor.
	27. WHAT ARE THE BASIC OR FUNDAMENTAL REASONS FOR THE EXISTENCE OF THESE ACTS AND/OR CONDITIONS? Fire suppression of forest wildfires.

EVALUATION: 28. LOSS SEVERITY POTENTIAL (X) Major () Serious () Minor	29. PROBABLE RECURRENCE RATE () Frequent () Occasional (X) Rare
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P R E V E N T I O N	30. WHAT ACTION HAS OR WILL BE TAKEN TO PREVENT RECURRENCE? NUMBER ALL ITEMS IN SEQUENCE Cautioned all forest rangers on the fire conditions; to watch out for blowup on any size fire.
	31. CIRCLE NUMBER AND GIVE DATE OF INTERMEDIATE ACTION. "X" OUT NUMBER (AND GIVE DATE) WHEN COMPLETED. INTERMEDIATE 1. <u>3/12/93</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ COMPLETED 1. <u>3/14/93</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____

32. INVESTIGATED BY <i>Frank W. Cone</i>	33. DATE 3/15/93	34. REVIEWED BY <i>Don West</i>	35. DATE 3/15/93
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- XI - Referred To				
Investigator:	<input checked="" type="checkbox"/>	Forester:	<input type="checkbox"/>	Landowner
	<input type="checkbox"/>		<input type="checkbox"/>	Other (if "none", write NONE):

- XII - Personnel and Equipment				
Date	Number of Men	or - Equipment Number	Time Departed from District	Time Released from Fire
3/10/93	2	T-039	1214	1734
3/10/93	2	8286	1237	1734
3/10/93	2	T-742	1241	1734
3/10/93	1	T-940	1241	1734
3/10/93	1	T-724	1241	1734
3/10/93	1	W-26	1305	1623

- XIII - Law Enforcement	
Notice of Violation Issued:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Evidence:	Remarks: <i>This fire burned Ranger Weller.</i>
	<i>It was moving in a EAST/NE/N direction. AFTER checking SS out ^{from} I started fighting fire. We were assisted by Hollister RFD / Unit 16+17.</i>

- XIV - Map	
<p>1. Include the Roads leading to the fire.</p> <p>2. If the WINDS are Variable, write VARIABLE WINDS.</p> <p>3. Indicate the WIND Direction At the Fire by drawing and arrow from the center of the compass rose TO the direction the wind was blowing TOWARD.</p>	

SN 4411 FORECAST ELEMENTS

- A. STATE OF WEATHER**
 0 - CLEAR
 1 - SCATTERED CLOUDS
 2 - BROKEN CLOUDS
 3 - OVERCAST
 4 - FOG
 5 - DRIZZLE
 6 - RAIN
 7 - SNOW/SLEET
 8 - SHOWERS
 9 - T-STORMS
- B. PRECIPITATION**
 0 - NONE
 1 - DRIZZLE
 2 - RAIN
 3 - SHOWERS
 4 - T-STORMS
 5 - SNOW
- C. PERCENT CHANCE**
 1 - 10%
 2 - 20%
 3 - 30%
 4 - 40%
 5 - 50%
 6 - 60%
 7 - 70%
 8 - 80%
 9 - 90%
 0 - 100%
- D. TIMING OF PRECIPITATION**
BEGINS:
 1 - 06-09(day) 18-21(night)
 2 - 09-12 21-00
 3 - 12-14 00-02
 4 - 14-16 02-06
 5 - 16-18
ENDS:
 6 - 06-12 18-21
 7 - 12-14 21-00
 8 - 14-16 00-02
 9 - 16-18 02-04
 0 - Continuing Continuing
- E. AMOUNT OF PRECIPITATION**
 1 T to .25inch
 2 .25 to .50
 3 .5 to 1
 4 1 to 2
 5 2 +
- F. Maximum Temperature (day)
 Minimum Temperature (night)**
- G. Minimum Relative Humidity (day)
 Maximum Relative Humidity (night)**
- H. WIND DIRECTION (prevailing)**
 N North SW Southwest
 NE Northeast W West
 E East NW Northwest
 SE Southeast C Calm
 S South
- I. WIND SPEED (5-minute av.MPH)**
- J. PRECIPITATION DURATION (hrs)**
- K. LIGHTNING ACTIVITY LEVEL**
- L. STABILITY ADJECTIVE (day)
 STAGNATION INDEXES (night)**
 Stability Adjective
 1 Unstable
 2 Somewhat unstable
 3 Neutral
 4 Somewhat stable
 5 Stable
 Stagnation Index
 Single Value -1 through 1
- M. Mixing Height (ht. at which
 air mass stability is sufficient
 in strength to inhibit further
 upward transport of smoke)
 value in 1000's of ft. eg., 5.8
 equals 5,800ft. Values of 1700
 or less, poor smoke dispersion.**
- N. Transport Wind Speed Av. of
 all windspeeds in mixing
 layer, including surface wind
 speed. Value in mph.
 Values of 9 mph or less
 indicate poor smoke dispersion.**
- O. Transport Wind Direction
 Average wind direction
 through the mixing layer**
- P. Smoke Dispersion Adjective**
 1 Very Poor 4 High
 2 Poor 5 Very High
 3 Average

4413

INCIDENT CARD

DATE: 3/10/93

INCIDENT #: 001107

CREW #: 1-54
 RANGER INIT: T.S. WEHLER
 FIRE #:
 EC: 33
 TWS: 9
 RNG: 25
 SUPERVISOR: CONE
 EN DIRECTIONS:

REPORTED BY: P.C.S.O.
 PHONE: 329-0800
 AUSE: unknown
 ACRES: 55
 S: 1
 WD: 1
 BUI: 23
 SI: 20
 RH: 28
 TEMP: 1
 DISP. RTO: 4

21 RECEIVED
 249 REPORT TO RANGER
 214 CREW STARTED
 227 CREW ARRIVED
 623 CONTROL TIME
 1734 MOPPED UP

TIME: REMARKS:
 237 HARRIS W-54 SAY BURNED
 OVER
 237 CALLED A.C.S.O. S.F.
 AMBULANCE
 W-104 AWARE OF SITUATION
 DISPATCHED W-56
 241 " W-50
 1243 " W-52
 256 W-104 ADVISES RANGER WEHLER

TIME: REMARKS:
 1300 call FAX FOR
 INVESTIGATOR "unavailable"
 at Blackwater
 1301 Called Bunnell for Power
 will page
 1306 CALLED MRS. WEHLER (HUSB.)
 1306 PAGES MRS. WEHLER ON DEPTER
 329-5008
 1308 W-50 ON SCENE
 APRIL 30 ACRES
 1313 W-25 AIRBORN
 1315 W-104 ON 54 EQPT
 W-56 ON SCENE
 1321 W-8 ENROUTE
 1322 W-26 will be AIRBORN in
 a few mins -
 1325 6P830 ENROUTE
 1328 W-55 R00 CHER (W104)
 1330 W-95 ON SCENE (W-50
 in CHARGE)
 1333 W-26 AIRBORNE
 1334 ADVISED W-26 to go to Key Haven
 & STANDBY FOR POSSIBLE TRANSPORT
 -13 MINS ETA -
 1336 W-52 ON SCENE
 1336 1.1-2.0 in 11.5

"HOOVER ROAD" INCIDENT

3/10/93

"033/09S/25E"

85: Incident Comments

2 PUTNAM COUNTY SHERIFF'S OFFICE ADVISED WILDFIRE IN SECTION 033/09S/25E
2 DISPATCHED W-54
4 W-54 ENROUTE
7 W-54 ADVISES ON SCENE
7 HEARD RANGER "BURNED OVER - NEED HELP"
7 NOTIFIED P.C.S.O. REQUESTING AMBULANCE
7 W-104 AWARE OF SITUATION
1 W-56 ENROUTE
1 W-50 ENROUTE
1 W-52 ENROUTE
6 W-104 ADVISES RANGER BURNED BUT STANDING - WILL BE AIRLIFTED TO SHANDS HOSPITAL.
0 W-1 CALLED JAX FOR INVESTIGATOR - UNAVAILABLE -
AT BLACKWATER
1 W-1 CALLED BUNNELL FOR INVESTIGATOR - THEY WILL PAGE
6 CALLED MRS. NEENAN WITH MESSAGE
6 DO SUPVR. PAGED MRS. WELLER ON HER BEEPER 329-5008
8 W-50 ON SCENE - APPROX 30 ACRES
3 W-25 AIRBORNE
5 W-104 ADVISES HE IS ON W-54 EQUIPMENT
5 W-56 ON SCENE
1 W- ENROUTE
2 ADVISES HE WILL BE AIRBORNE IN A FEW MINUTES
5 W-30 ENROUTE
8 W-55 RADIO CHECK (W-104)
0 W-25 ON SCENE - W-104 ADVISES W-50 IN CHARGE
3 W-26 AIRBORNE
4 ADVISED W-26 GO TO KAY LARKIN AIRPORT - STANDBY FOR POSSIBLE TRANSPORT - ETA 13 MINS
6 W-52 ON SCENE
6 W-20 ADVISES HE AT HRS IN PALATKA
9 W-25 ADVISES FIRE IS PRETTY WELL KNOCKED DOWN
6 MRS. WELLER'S PARENT NOTIFIED TO MEET AT HIGHWAY 20
6 ADVISED W-20 TO GO TO SHANDS WITH MRS. WELLER -
6 MRS. NEENAN NOTIFIED TO GO TO SHANDS
4 W-13 (W/DO MUNK) ENROUTE
0 INCIDENT STATUS SUMMARY (ICS-209) FAXED TO TALLAHASSEE (INITIAL REPORT)
5 W-25 ADVISES FIRE ALMOST CONTAINED
0 W-25 KAY LARKIN
1 DA-206 ON SCENE (GORDON BUCKLES)
8 W-25 AIRBORNE - CHECKING FIRE - FIRE OK - ENROUTE OCALA
4 W-26 AIRBORNE FROM KAY LARKIN
8 W-26 ON GROUND AT GAINESVILLE
9 W-8 DEPARTING SCENE
9 W-13 DEPARTING SCENE
3 W-56 LEAVING FIRE (SEE 0012)
5 W-52 BACKING UP W-56
8 W-50 STANDING BY
3 ISTER - RANGER MCRAE
3 4 ADVISES FIRE UNDER CONTROL
4 W-104 ADVISES FIRE IS OUT. CAUSE "UNKNOWN" APPROX "55 ACRES".
0 INCIDENT STATUS SUMMARY (ICS-209) FAXED TO TALLAHASSEE (FINAL REPORT)

CASE #93-0310-22-15 UB

WELLER BURN OVER

Ranger Weller arrived and reported to Gainesville that fire was about one (1) acre in size and that he could handle it.

It appears that Weller parked his transport at the heel of and across the road from the fire. He off loaded and walked the tractor along road for about 370 yards. Suppression action was started on north side of Janet Road at right flank of fire. Plowing north about 30 yards before making a left turn to the north-west, quartering through a palmetto patch into a shallow drain. Plowed for about 70 yards then started a right turn. Tractor blade struck a 7-8 inch pine tree. Weller backed tractor striking a pine with the right track. Weller resumed forward motion turning more to right. Plowing another few yards striking a 4-5 inch pine pushing it down. When this tree fell the root ball rolled up under front of tractor. At this point fire appeared to blow-up and the burn over occurred. No sign of disturbed ash was found to indicate that Weller dismounted the tractor. Whether tractor engine stalled or tractor was momentarily hung on root ball, only Ranger Weller can tell. After burn over Weller backed tractor striking a tree with left track. He then moved forward making a left turn and walked tractor back to road. He returned to road about 25 yards west of point of entry.

Captain Mike Deloach saw Weller returning to road. He also saw that Weller was badly burned. Deloach went to meet Weller Climbing onto plow tongue. When Weller walked tractor onto road he shut it down and dismounted. Deloach helped Weller to fire truck. Weller told Deloach to tell dispatch to send two more units. Weller asked for water and Deloach gave water and oxygen.

During interview with Deloach, he stated that he took one glove off and tried to remove the other but pain was too great. He removed Weller's glasses and put them in Weller's shirt pocket.

When asked to describe Weller's attire when he dismounted the tractor, Deloach said he was wearing gloves, glasses, a short sleeve tan shirt and green pants.

Subjects Interviewed:

Mike Deloach, Capt. Hollister V.F.D.
P.O. Box 114
Hollister, FL 32147

904-328-5695 residence
904-328-7547 work

James Godfrey, (Carol Marden's nephew)
Route 1, Box 328
Interlachen, FL 32148

904-684-6682

Danny Woodworth, Animal Control Officer
John Murriello, Animal Control Officer
P.O. Box 477
Palatka, FL 32178

904-329-0396 work

Carol Marden, Resident
P.O. Box 429
Hollister, FL

HOVER ROAD FIRE
CASE #93-0310-22-15UB

UNLAWFUL BURNING

On March 10, 1993, a wildfire occurred off of Janet Drive in Hollister area of Putnam County.

Origin area was located along a foot path which leads from Marden residence to Linda Avenue.

Interviews with Mike DeLoach, Capt. Hollister V.F.D., Danny Woodworth and John Murriello, Animal Control Officers, Mrs. Godfry, sister of Carol Marden and James Godfry, son of Mrs. Godfry, indicated that they were not in fire area until well after ignition.

Interview with Carol Marden and her children indicate the following:

Mrs. Marden was in house.
Christopher and Jennifer were riding bicycles outside.
Children had been out of house 45 minutes to 1 hour.
Christopher reported fire to Mrs. Marden.
Children saw no one prior to fire.
Mrs. Marden first said children were home because she got up late then later said they were sick.
Children first said they were riding on the road then during interview with State Attorney Investigator they said that they were riding "from fence line to fence line"

No lighting was reported in area on day of fire. No object could be found that would cause fire from solar radiation or spontaneous combustion.

No evidence or witnesses could be found that were in the area at the time of ignition or before, other than the Mardens.

Suspected cause is children playing with either matches or cigarette lighter.

