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# Report of Investigation (ROI)

United States  
Department of  
Agriculture

Forest Service



**Case #:** 22-03-MBEA19U  
**Case Name:** Tunnel Fire Investigation  
**Investigating Office:** 03  
**Investigator:** (b) (6), (b) (7)(C), (b) (7)(F)  
**Report Type:** Investigation Closed

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**USDA FOREST SERVICE**

Southwest Regional Office  
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**Report of Investigation**

**CASE NUMBER:** 22-03-MBEA19U  
**CASE TITLE:** Tunnel Fire Investigation  
**DATE OF REPORT:** 03/16/2023  
**CASE TYPE:** FIRE  
**PERIOD OF REPORT:** 08/15/2022 - 03/16/2023  
**STATUS:** Investigation Closed  
**REPORTED BY:** (b) (6), (b) (7)(C), (b) (7)(F)  
**VICTIM(S):** USFS

**STATUTE(S) INVESTIGATED:**  
18 USC 1855 - Timber set afire  
5100 - FIRE  
36 CFR 261.5A - CARELESS/NEGLIGENT W/FIRE  
36 CFR 261.5E - ESCAPE FROM CONTROL

**PREPARED BY / DATE:**  
(b) (6), (b) (7)(C), (b) (7)(F) / 03/16/2023

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**REVIEWED BY / DATE:**  
(b) (6), (b) (7)(C), (b) (7)(F) / 03/16/2023

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**APPROVED BY / DATE:**  
(b) (6), (b) (7)(C), (b) (7)(F) / 03/16/2023

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## SYNOPSIS OF INVESTIGATION

- On April 17, 2022, a fire was reported at 1614 hours to local 911 Dispatch on the Coconino National Forest, Flagstaff Ranger District near Forest Service Road 420 and 6064D. A wildland fire origin and cause determination investigation was conducted by Coconino National Forest, Forest Prevention Technician on April 18, 2022. The fire was put into containment status at 2 acres on the evening of April 18, 2022. The fire was named the Tunnel Fire.
- On April 19, 2022, at 0747 hours, the "Tunnel Fire" was reported to have crossed-over containment lines, resulting in a 19,000+ acre wildfire which damaged and / or destroyed numerous buildings in the area. USDA Forest Service Special Agent [REDACTED] conducted a wildfire origin and cause determination investigation and determined where and how the Tunnel Fire crossed its containment lines.
- Between the dates of April 20 and 21, 2022, the USDA Forest Service Region 3 Wildland fire Investigation Team (WFIT) reviewed new information and video footage of the Tunnel Fire taken by witnesses on scene when the Tunnel Fire first started. This new information warranted a new wildfire origin and cause determination investigation.
- On April 27, 2022, members of the wildland fire investigation team conducted the new wildfire origin and cause determination investigation on the Tunnel Fire.

## NARRATIVE

### INTRODUCTION

On April 17, 2022, a fire was reported to local 911 Dispatch at 1614 hours. The fire was located near National Forest System Road (NFSR) 420 and NFSR 6064D, on the Coconino National Forest, on the Flagstaff Ranger District, northeast of Flagstaff, Arizona. Fire and law enforcement units responded to the report. The fire was named the Tunnel Fire and was left in containment status with fire line completely around the fire's edge on the evening of April 18, 2022. On April 18, 2022, a USDA Forest Service (FS) Fire Prevention Technician (FPT) (b) (6), (b) (7)(C), (b) (7)(F) conducted the initial wildland fire origin and cause determination investigation and determined the Tunnel Fire was human caused but the ignition source was undetermined (See Attachment #1 – (b) (6), (b) (7)(C), (b) (7)(F) Origin and Cause Report).

On April 19, 2022, 0747 hours, the Tunnel Fire was reported to have crossed-over containment lines, resulting in a 19000+ acre wildfire which damaged and/or destroyed 31 structures in the area. FS Special Agent (SA) (b) (6), (b) (7)(C), (b) (7)(F) conducted a wildland fire origin and cause determination investigation to determine how and why the Tunnel Fire escaped its containment.

Between the dates of April 20 and April 21, 2022, FS Law Enforcement Officer (LEO) (b) (6), (b) (7)(C), (b) (7)(F) and FS LEO (b) (6), (b) (7)(C), (b) (7)(F) conducted interviews of the 911 callers and received information and video footage of the Tunnel Fire in its beginning stages. This information led to an additional wildland fire origin and cause determination investigation within the initial Tunnel Fire area that started on April 17, 2022.

On April 27, 2022, (b) (6), (b) (7)(C), (b) (7)(F), FS LEO (b) (6), (b) (7)(C), (b) (7)(F) and FS LEO (b) (6), (b) (7)(C), (b) (7)(F) conducted a wildland fire origin and cause determination investigation based on the video footage received from a witness to the fire when it was only approximately 30 feet by 30 feet in size. Due to the initial general origin area (GOA), identified by FPT (b) (6), (b) (7)(C), (b) (7)(F) being released back to the fire fighters after (b) (6), (b) (7)(C), (b) (7)(F) initial investigation, the new GOA that was identified by the WFIT was heavily disturbed by the fire suppression efforts.

### DETAILS OF THE INVESTIGATION

#### LE&I INVESTIGATION-

##### Initial Report, Tunnel Fire:

On April 17, 2022, approximately 1614 hours, a fire was reported to local 911 Dispatch by (b) (6), (b) (7)(C) as (b) (6), (b) (7)(C) and (b) (6), (b) (7)(C) girlfriend (b) (6), (b) (7)(C) was driving through the Flagstaff Ranger District, Coconino National Forest, near NFSR 420 and NFSR 6064D. According to an interview conducted by SA (b) (6), (b) (7)(C), (b) (7)(F) (b) (6), (b) (7)(C) stated that they were heading north on NFSR 420 in (b) (6), (b) (7)(C), when (b) (6), (b) (7)(C) spotted smoke near the junction of NFSR 420 and NFSR 6064D and turned right and parked near where they saw the fire. They walked from the road up to an area near the fire where they saw a large, maybe 30 feet, downed tree on fire. (b) (6), (b) (7)(C) said they saw other grass and small brush around the tree on fire, but because the tree was on a small rise, (b) (6), (b) (7)(C) could not see beyond it to determine the full coverage of the fire. (b) (6), (b) (7)(C) said they walked back to the vehicle and made the call to 911 and left the area. (b) (6), (b) (7)(C) said they did not see any people or vehicles in the area of the fire, nor passing them on their way to where the fire was found (See Attachment #2 – Memorandum of Interview – (b) (6), (b) (7)(C) (b) (6), (b) (7)(C)).

On April 17, 2022, approximately 1638 hours, another witness reported the Tunnel Fire to local 911 Dispatch. The reporting person, (b) (6), (b) (7)(C) was driving south on NFSR 420 with (b) (6), (b) (7)(C) friend (b) (6), (b) (7)(C), when they noticed white smoke on the east side of NFSR 420. As they got closer to the smoke, they noticed the smoke became darker in color. According to an

interview conducted by SA [REDACTED] and FS Special Agent (b) (6), (b) (7)(C) (SA [REDACTED] (b) (6), (b) (7)(C) and (b) (6), (b) (7)(C) continued south on NFSR 420 and pulled over to see what the smoke was. (b) (6), (b) (7)(C) stated that as they approached the area just north of the junction of NFSR 420 and NFSR 6064D, (b) (6), (b) (7)(C) observed two Utility Terrain Vehicles (UTV) driving west on NFSR 6064D past the fire but the UTVs did not stop. (b) (6), (b) (7)(C) and (b) (6), (b) (7)(C) walked east towards the fire and took video of the fire. After (b) (6), (b) (7)(C) took the video, (b) (6) called 911 to report the fire. (b) (6), (b) (7)(C) stated that they did not see anybody else at the fire but did see a new [REDACTED] pickup truck that past (b) (6), (b) (7)(C) and (b) (6), (b) (7)(C) on NFSR 420, heading north. (b) (6), (b) (7)(C) stated that the pickup truck was occupied by (b) (6), (b) (7)(C) and (b) (6), (b) (7)(C) stated that (b) (6) did not get the license plate (See Attachment #3 – Memorandum of Interview – (b) (6), (b) (7)(C)).

Local 911 Dispatch (Flagstaff PD) received several 911 calls to report the smoke. Some of the calls were from witnesses that were located far away but could see the smoke. Others were witnesses that were at their homes located east of the national forest and could see the smoke. A list of these calls was produced and follow up calls were conducted by investigators (See Attachment #4 – Investigative Follow Up of 911 Calls).

The first units on scene of the Tunnel fire were Coconino County Sheriff's Office (CCSO), Summit Fire Department, and FS firefighting personnel. The size of the Tunnel Fire was estimated between 1-2 acres, actively burning in grass and dead and down timber with light winds.

The Tunnel Fire was first investigated by FPT (b) (6), (b) (7)(C) on April 17 and April 18, 2022. After (b) (6) investigation was completed, (b) (6) released the Tunnel Fire to firefighting suppression operations.

On April 19, 2022, approximately 0747 hours, the Tunnel Fire had reportedly jumped over the containment lines resulting in a 19,000+ acre wildland fire which damaged and / or destroyed numerous buildings in the area driven by high winds.

SA (b) (6), (b) (7)(C), (b) (7)(F) responded to the Tunnel Fire to conduct a wildland fire origin and cause determination investigation to determine where and how the Tunnel Fire crossed its containment lines (See Attachment #5 – SA (b) (6), (b) (7)(C), (b) (7)(F) Origin & Cause Report).

Between the dates of April 20 and 21, 2022, the WFIT reviewed new information and video footage received of the Tunnel Fire taken by witnesses on scene when the Tunnel Fire first started. This new information warranted a new wildland fire origin and cause determination investigation.

#### Origin and Cause Determination Investigation, Tunnel Fire:

On April 27, 2022, SA (b) (6) and LEOs (b) (6), (b) (7)(C) and (b) (6), (b) (7)(C) conducted a second wildland fire origin and cause determination investigation of the Tunnel Fire based off the video footage received from a witness to the fire when it was approximately 30 feet by 30 foot in size (See Attachment #2 – Memorandum of Interview – (b) (6), (b) (7)(C)). Due to the initial GOA of the fire being released back to the fire fighters, the new GOA was heavily disturbed by the fire suppression efforts.

The GOA was identified utilizing a systematic method by investigating macroscale fire pattern indicators, examining the fire behavior context (topography, weather, fuel types, & degree of damage), and reviewing witness video footage taken from a cellular phone when the Tunnel Fire was in its infant stages.

The GOA was located on an approximate 1% slope along a flat aspect at a mean elevation of 7420 ft. After completing clockwise and counterclockwise reconnaissance around the GOA, the investigation team (SA Witt, LEO (b) (6), (b) (7)(C) and LEO (b) (6), (b) (7)(C) entered the Tunnel Fire from the northeast.

The advancing fire pattern indicators Angle of Char, Protection, Staining, Foliage Freeze, Cupping, and White Ash Exposure were followed across the fire's forward progression until the lateral transition vectors were observed along the northern and southern flanks. Fire pattern indicators Protection, Staining, White

Ash Exposure, Cupping, and Angle of Char were observed in the lateral transition zones. This pattern of movement was recurrent as the advancing and lateral fire pattern indicators were followed in a southwesterly direction through the GOA into the specific origin area (SOA).

Backing fire pattern indicators Protection, Staining, and Angle of Char were observed on the southwestern section of the Tunnel Fire. These fire pattern progression vectors exhibited the fire spreading in a backing fashion with low to moderate burning intensity away from the SOA. Advancing fire pattern progression vectors were located on the predominantly northeastern section of the GOA. These fire pattern vectors exhibited the fire progression spreading with moderate to high burning intensity in an advancing manner away from the SOA.

The GOA was photographed from the four cardinal directions (See Attachment #6-Tunnel Fire Photographs and Attachment #7-April 27, 2022, Origin and Cause Report).

Origin Examination, Specific Origin Area:

A visual examination, then a systematic method investigation (Perpendicular Lane Search Technique, Metal Detector, Visual & Magnification Search, Magnet, & Screening Debris) of the SOA was conducted. The SOA was an approximate 20ft. 6in. by 10ft. rectangular shaped area. The SOA was disturbed by wildland firefighting suppression operations prior to our arrival. No evidence was discovered within SOA.

The ignition area where the ignition source contacted the material first ignited was not discovered.

Documentation, Tunnel Fire:

As fire pattern indicators were observed, the indicators were identified with color coded pin flags. Red pin flags were utilized to document advancing fire pattern indicators. Blue pin flags were utilized to document backing fire pattern indicators. Yellow pin flags were utilized to document lateral fire pattern indicators. Photographs were taken of the GOA and the SOA, exhibiting the placement of the pin flags.

Reference Points (RP) 1 (RP1: GPS: N35 18' 16.76"/W111 35' 25.61" +8) and 2 (RP2: GPS: N3518' 16.88" /W111 35' 24.68" +8) were placed in the earth with large metal nails and left on site.

The reference line between them was 75 feet long extending west to east with RP2 furthest east bearing 90 degrees.

Measurements were compiled and recorded via the right-angle transect method. Advancing, lateral, and backing fire pattern indicators were measured as well as all 10 points of the perpendicular grid lanes along the distance from the center of the SOA to the nearest outside boundary of the hand lines of the original Tunnel Fire.

These measurements are all on a separate "Measurements" page and the Tunnel Fire diagram is a "near to scale" representation of such.

Cause Determination, Excluded:

During the examination of the SOA, seven of the nine cause determination categories were excluded:

Cause Determination: Lightning was EXCLUDED. No evidence of a recent lightning strike was located within the SOA. The electronic lightning map display received from the Flagstaff Fire Dispatch Center recorded no lightning strikes within the specific origin area from 4/10/2022 - 4/17/2022.

Cause Determination: Equipment Use was EXCLUDED. No evidence of mechanical equipment use was located within the SOA.

Cause Determination: Campfire was EXCLUDED: No evidence of a campfire or any fire kindled for warmth, cooking, light, religious and or ceremonial purposes were discovered within the SOA.

Cause Determination: Debris Burning was EXCLUDED. No prescribed burns on NFS lands took place on this day or within the week. No evidence of residential (pile, barrel, hazard reduction) or industrial (logging operations, land clearing, agricultural, right-of-way hazard reduction) debris burning was discovered within the SOA.

Cause Determination: Railroad was EXCLUDED. No locomotive/train or railroad lines were located within or near the SOA.

Cause Determination: Children were EXCLUDED. No evidence of children was present within the SOA and or within the vicinity when the wildland fire was first reported and or when the first responder units arrived on scene.

Cause Determination: Miscellaneous was EXCLUDED. No evidence of any of the miscellaneous factors listed (Blasting, Structure, Fireworks, Welding, Cutting, Grinding, Pest Control, Power Line, Glass, Target Shooting, Spontaneous Combustion, Other) was discovered within the SOA.

Cause Determination, Included:

Cause Determination: Incendiary & Smoking are POSSIBLE: A smoke report was reported to the Flagstaff Dispatch Center approximately 1628 hours on the northeast side of Schultz Pass.

Approximately 1651 hours, an unidentified caller indicates a fire about 300 ft. in size burning in trees and grass off Schultz Pass Road near Deer Pass.

Approximately 1701 hours, CCSO Deputies arrive on scene and indicate the fire is about .25 acre in size with a slow rate of spread, burning in grass with a light westerly wind.

No signs of human activity were observed leaving the area by both the unidentified caller and or CCSO deputies. No signs of recent human occupancy or lightning activity were discovered within the SOA.

A competent ignition source to produce sufficient heat over an ample duration of time capable to bringing forest fuels to their ignition temperature to sustain open flame combustion was not discovered within the SOA.

Smoking environmental ignition factors (Fine particulate fuel bed, Loose fuel arrangement, 80°F+ambient temperature, Microclimate location (temperature at ground level vs. temperature at higher levels), and Relative Humidity of 22% or less) were close to present at the estimated time of ignition. No evidence of smoking activities or accoutrements including matches, cigarettes, cigars, pipes, and or illegal substances were discovered within the SOA.

No reasonable accidental ignition source was discovered within the SOA after a systematic investigation.

With the origin area being released and disturbed by firefighting suppression operations on April 18, 2022, and with seven of the nine cause determination factors excluded, Incendiary and Smoking were identified as possible causes of the Tunnel Fire.

Investigation, Continued:

Search Warrant Execution

SA [REDACTED] executed a Google Geofence warrant for the purposes of obtaining information identifying any cellular devices that were within a limited geographic area of the Coconino National Forest near Flagstaff,

AZ, where, on April 17, 2022, the Tunnel Fire originated.

Using Google Earth, SA [REDACTED] plotted and labeled the overall origin area identified during the wildland fire origin and cause determination investigation. SA [REDACTED] also plotted, the distance from the Tunnel Fire origin area to the nearest residence and it is measured to be approximately 1.46 miles. Also on this plot, is a radius of 250 meters that encompasses the area where the Tunnel Fire began and is described in Attachment A of the search warrant and is labeled with a yellow circle (See Attachment #8 – Google Geofence Warrant).

The data returned to SA [REDACTED] from Google showed only one device in the origin area of the Tunnel Fire. The data showed the date and time stamp of the device and the device belonged to the first reporting party (b) (6), (b) (7)(C) who was interviewed by SA [REDACTED]. No other device was captured from the Google Geofence Warrant in the Tunnel Fire origin area.

No other information has been obtained on this incident.

END OF REPORT.



**PARTICIPATING INVESTIGATORS:**

(b) (6), (b) (7)(C), (b) (7)(F)

**VICTIM(S):**

USFS

Home Address: , Phone:

Work Address: Phone: