



January 28, 2012

Anthony Geddes, Deputy Ada County Public Defender
Ada County Public Defender's Office
200 W. Front Street, Suite 1107
Boise, ID 83702

RE: Lloyd Harden McNeil
Date of Loss: 03-05-11
Case #: CR-FE-2011-0003601
BPA File #: 31-3586 SL

Dear Mr. Geddes,

Pursuant to your case assignment of September 9, 2011, I am providing you with this preliminary report concerning the above captioned matter. The specific assignment was to review the discovery documents, reports, videos and photographs provided by your office, and to formulate an opinion as to the origin and cause of a fire that occurred on the above date at 1209 South Lincoln Avenue, Boise, Idaho. The opinions and conclusions stated in this report are based solely on the documentation and photographs provided to this investigator.

BACKGROUND

At 1205 hours on March 5, 2011, Boise Fire Department was dispatched to a structure fire at 1209 South Lincoln Avenue; they arrived on scene at 1209 hours. Upon arrival firefighters entered the structure through the back (south) door and proceeded to the southwest bedroom where they encountered heavy smoke and discovered fire on a queen size mattress. They doused the flames with water and pulled the mattress off of the box springs and removed it to the backyard, leaving the box springs in place. After removal of the mattress a search of the room was conducted and the body of Natalie Davis was found on top of the box springs, at which time fire personnel ceased operations in the fire room and secured the scene for fire and police investigators.

Boise Fire and Police personnel investigated the fire. They identified the area between the south edge of the mattress and the south wall as the area of origin. Potential ignition sources identified near the area of origin and later collected as evidence include an empty match book, a relocatable power tap (power strip), a heating pad, a duplex electrical outlet on the south wall, and an unidentified power cord, plugged into the power strip that terminated in the burned material. That power cord was traced to, "...what appeared to be the remnants of electronic components, possibly a radio."

At the conclusion of their investigation the Boise investigators concluded that the fire was intentionally set. Under the heading "Conclusions" in his Origin and Cause Report dated September 29, 2011, Fire Captain/Investigator Thomas N. Gairor wrote the following:

Based on the scene examination and subsequent laboratory examination and testing, it is my conclusion that the fire was intentionally set.

Accidental ignition sources have been ruled out by physical examination and laboratory testing. The location of, and physical damage to the electrical items in the room eliminate them as possible fire causes. The cigarette in the victim's mouth can also be eliminated due to its location, and the fact that the victim was deceased prior to the fire.

Aside from the elimination of accidental causes, a number of factors lead to the development of the hypothesis of an incendiary cause. **The location of the victim's body, between the mattress and the box spring**, coupled with the fact that she was deceased prior to the fire, is abnormal. The presence a quantity of a substance consistent with cooking oil on the mattress, discovered by detectives and submitted for laboratory testing, suggests that it may have been poured there. It is my belief that the fire was intentionally ignited, most likely with an open flame device, in the area between the mattress and the south (B) bedroom wall.

WITNESS STATEMENTS

The Boise Fire Department Incident Report states that the first firefighters in the fire room were James Rabbitt and John Suter who were on Engine 3. They were followed by James McCullough and Casey Wilson, who were on Truck 5. The following extractions are from their written statements:

Captain James Rabbitt

I opened the door to the fire room & found [the] room fully charged with smoke. Small flames were visible in the corner near the air conditioning unit. The fire was extinguished with a hose line. F.F. Suter & myself picked up the smoldering mattress from the box springs and carried it to the backyard. T 5 found victim on box springs. **The victim was not on top of the mattress that F.F. Suter and I carried to the backyard.** <

Firefighter John Suter

I followed Rabbitt in and we found a bedroom charged with smoke. I saw a small fire near the southern wall about 3' x 3'. I used a small amount of water and the fire went out. The fire appeared to be on or near the floor. As I stood by with the hose, Captain Rabbitt asked me to pull the mattress outside. I asked Rabbitt for help, as mattresses can be awkward to move by yourself. He grabbed one side, I grabbed the other, and we took it outside in the backyard. Firefighter Wilson said he found a body. I do not recall a body on top of the mattress we brought outside.

Acting Captain James McCullough

E-3 made entry into the structure with a hose line. F.F. Wilson and I followed them in. E-3 headed into the fire room, I looked into the fire room, saw that it was heavily charged with smoke and already had two Firefighters in it ... We then proceeded toward the fire room, E-3 was bringing the mattress out, so we entered the room. F.F. Wilson went to the right and I went straight in. The room still had a lot of smoke in it. The smoke level was down to my waist area. I made it to the foot of the bed and found what appeared to be the head of a woman who was lying on her back on the box spring of the bed ... I stepped out of the room to tell the E-3 captain that we had a victim. He called emergency traffic and for EMS. I then told him the victim was not viable, that she was on the bed and had to have been under the mattress they had pulled out.

Firefighter Casey Wilson

Upon arrival Senior Fire Fighter James McCullough and myself forced the rear door to home and began a primary search of the residence ... Due to the ongoing fire attack in the fire room we cleared the remainder of the home before returning to the fire room for a primary. As we approached, we were met at the door to the fire room by engine co. 3, as they were pulling out a burnt mattress from the room. They informed us that the fire was knocked down and so we entered to search the room. **The visibility in the room was limited due to smoke.** I began a left hand search pattern of the room and after clearing wall number one I went right along wall number 2 which brought me to a box spring on the floor. I quickly noticed a right-sided foot protruding from the mess of blankets on the box spring. In order to verify that what I had found was indeed a human being, I removed the blanket covering the sternum.

With the blanket gone it exposed the chest and neck area, and it became clear to me that I was looking at a nonviable female.

DISCUSSION

Based on an evaluation of the photographs and videos, I would agree with Captain Thomas Gainor that the fire originated in the area between the south wall and the queen size mattress. The burn patterns show the fire spreading upward and outward from that location.

The photographs of the electrical outlet and its lack of damage eliminate it as the ignition source. As noted above, while searching the area of origin for an ignition source Captain Gainor found a power strip, a heating pad and heavily damaged electrical components that he speculated could be the remains of a radio. The collected electrical evidence and a window air conditioning unit were subsequently sent to the ATF National Laboratories and were tested by Michael R. Keller, Senior Electrical Engineer. According to Mr. Keller the tests revealed "No evidence of arc melting or electrical failure resulting in fire causation was observed. All damage was consistent with external heat impingement." These results effectively eliminate those components as the fire cause. However there is no mention of the power cord and unidentified electronic components that was plugged into the power strip. The evidence lists and test results do not specifically identify those electrical components. Were they collected, tested and eliminated as the ignition source? ?

In the Origin and Cause Report Captain Gainor states that Acting Captain James McCullough found the body after the fire was extinguished and the mattress had been removed to the back yard. "Captain McCullough explained that the body was located on top of the box spring, and had been under the mattress." When Captain Gainor entered the scene he found that:

The victim's body was still in place on the box spring, on its back with the head toward the west (side C), partially hanging off the end of the box spring. The body was partially covered by a sheet or blanket. The body had been partially burned: the right arm, right side of the head, the face and upper chest.

Based on this information Boise Fire and Police investigators concluded that the deceased victim was found in the same place where she was before the fire and concluded further that she was intentionally placed between the mattress and box spring before the fire was set. However that conclusion is not supported by the evidence as demonstrated in the photographs below. <

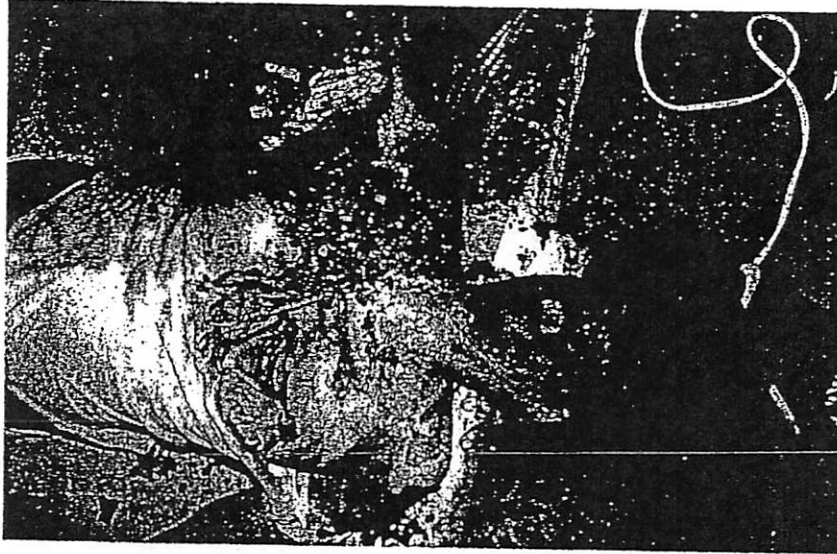


Figure 1. The position of the victim's head in relation to the top end of the mattress. (Coroner's photo IMG_2988.jpg)

Figure 1 demonstrates that the victim's head extended about 6 inches beyond the end of the mattress. Figure 2 shows that the victim's feet were approximately 10-12 inches from the bottom end of the mattress. Unfortunately no measurements were taken at the scene to establish those distances.

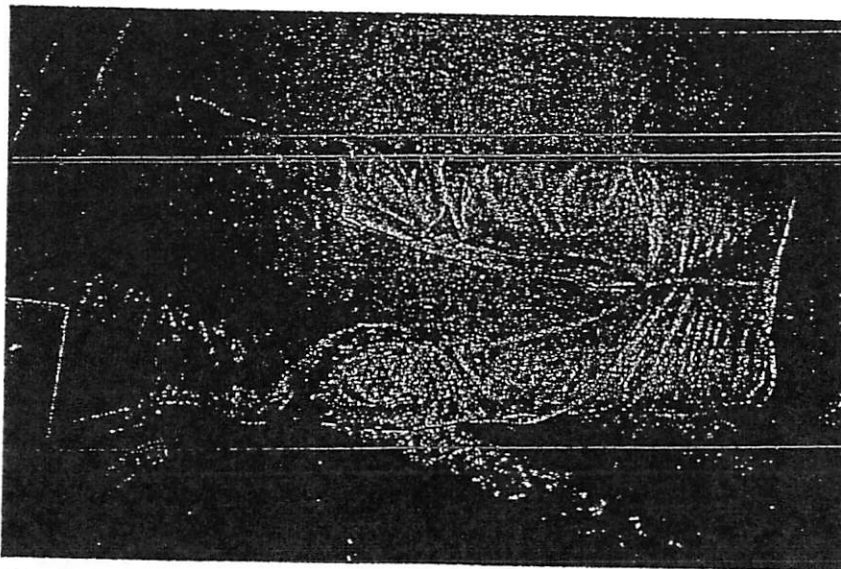


Figure 2. The position of the victim's feet in relation to the bottom end of the mattress. Note the smoke stains on the feet. (Coroner's photo IMG_2991)

The Ada County Coroner's Office Autopsy Report states that the victim Natalie Davis had a body length of 175 cm (68.9 inches). The victim's Idaho Identification Card (#: ZF385893J) lists her height as 5 foot 8 inches (Boise Police photo Set0004 - IMG7093). A standard queen size mattress is 60 inches wide and 80 inches long. Thus the victim was roughly one foot shorter than the mattress so that if her head was hanging off of one end of the mattress, her feet would not have reached the other end. Therefore if she was between the mattress and the box springs with her head extending beyond the end of the mattress at the time of the fire, as concluded by the Boise investigators, her lower body and feet would have been shielded from smoke and soot by the mattress. In this instance that was not the case. Figure 2 and Figure 3 clearly show smoke and soot on her feet and on the blanket she was found under. Note also that the shadowing on her feet seen in Figure 2 roughly corresponds to the

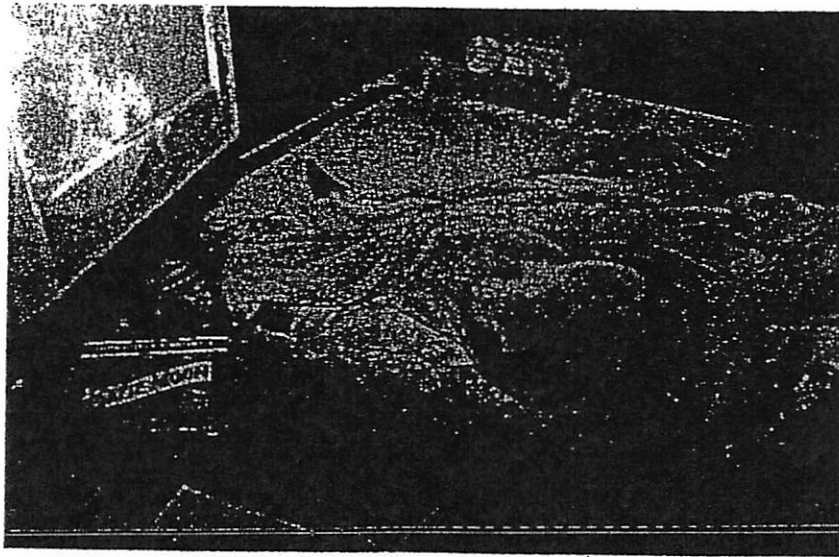


Figure 3. Note the smoke and soot on the blanket and the victim's feet.
(FD photo 1209 Lincoln, 3-5-11 052)

position of the blanket in Figure 3. Compare the soot and smoke on her feet and the blanket with the unstained box springs cover on which she is laying. The condition of the box springs cover indicates that the staining on her feet and the blanket did not occur after the mattress was removed from the room, and must have occurred during the fire. This evidence clearly undermines the hypothesis that the victim and blanket were under the mattress during the fire. A more likely hypothesis is that the victim was on top of the mattress and rolled or slid off of it as it was pulled from the box spring.

NFPA 921, *Guide for Fire & Explosion Investigations* as promulgated by the National Fire Protection Association is a set of guidelines for fire investigations. While not a standard, the document is the de facto set of guidelines and practices accepted throughout the fire industry. In NFPA 921, chapter 4, the basic methodology of fire investigations is outlined based on the scientific method as used by the physical sciences. This systematic approach to investigations is applied using the following steps.

1. Identify a problem
2. Define the problem
3. Collect data
4. Analyze the data
5. Develop a hypothesis
6. Test the hypothesis
7. Select a final hypothesis

Critical to this method is the analysis of the data or evidence and the formation of a hypothesis based solely on the empirical data or evidence observed and collected at the fire scene. If the hypothesis is not supported by the empirical evidence, the hypothesis must be discarded and alternate hypotheses should be developed and tested (NFPA 921 chapter 4.3.6). Based upon these guidelines the hypothesis that the victim was between the mattress and box springs should be discarded in favor of hypotheses that are supported by the evidence. <

In their written statements each of the first four firefighters who entered the bedroom commented that the room was charged with heavy smoke. Three of the four, McCullough, Suter, and Rabbitt, all assume that the victim was between the mattress and box springs during the fire. However, they offer no empirical evidence to support that conclusion.

In my experience as a career firefighter for over 21 years, when a firefighter enters a smoke charged room wearing protective gear and self-contained breathing apparatus (SCBA) it is nearly impossible to see anything and primary searches are usually conducted by crawling around the perimeter of the room and feeling with your hands and hand tools for any victims. That situation is so common that during training SCBA masks are often covered with a material such as aluminum foil before a firefighter is sent into a room to locate a mock victim. It is unlikely therefore that John Suter and Jim Rabbitt, who first entered the room and subsequently removed the mattress, would have been able to see if

the victim was on top of the mattress or under it. What is clear is that neither of them noticed the victim as they extinguished the fire and removed the mattress. John Suter noted that it was difficult to move the mattress and said that the corner "... seemed glued to the bottom mattress" indicating that it took extra force to break it loose from the box springs. ~~The mattress was probably jerked out from under the victim.~~ <

ATF TEST BURNS

Seven full scale fire tests were conducted at the ATF Fire Research Laboratory. According to the National Laboratory Report, 11F0027_Sub 1, dated October 21, 2011, and authored by Fire Research Engineer Adam D. St. John, the purpose of the tests was to gain a better understanding of fire development within the room of fire origin and to establish a general timeline for fire growth based on witness statements and the documented damage to the room contents. The report explains the construction materials used to build mock-up rooms. The walls and ceilings were finished with painted 1/2 inch gypsum wallboard. A variety of queen size mattress brands were tested due to the fact that the brand of mattress from the fire scene could not be determined. The tests also used various ignition sources and points of ignition. In his conclusions Mr. St. John wrote the following.

Based on these tests, 1 min. 30 sec. to 8 min. 50 sec. elapsed from ignition to when smoke first vented from the window

The resulting damage to the fuel packages in the area of origin in Tests 5, 6 and 7 was similar to what was observed at the actual scene. In addition, small flames on the mattress were evident as described by firefighters at the time of fire suppression in these tests. Tests 5, 6 and 7 each had a total burn time from ignition to suppression of ranging from 20 min. 32 sec. to 21 min. 40 sec.

While these test burns establish a general timeline for the fire, ~~none of the tests left smoke stains on the victim's feet and blanket but not on the box springs cover.~~ In addition, gypsum wallboard was used on the walls and ceilings as opposed to plaster on lath as in the actual fire scene.

The composition of the mattresses used in the tests varied as listed in Table A1. Therefore, lacking the specific brand and composition of the mattress from the

fire actual scene, no direct correlation to it can be drawn from the fire spread and fire growth rates of the test mattresses. <

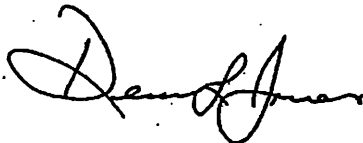
CONCLUSIONS

Based on my analysis of the submitted materials the following conclusions have been reached.

- The fire originated in the southwest bedroom in the area between the bed and the south wall however the first fuel ignited and the point of ignition remains undetermined.
- The submitted materials do not include documentation that the damaged power cord, and unidentified electronic components connected to the cord, found in the area of origin were tested and eliminated as a possible ignition source. Absent that testing and documentation all potential accidental ignition sources have not been ruled out and the ignition source remains undetermined. <
- The empirical evidence undermines the hypothesis that the victim was between the mattress and box springs during the fire. The mattress was removed before the scene could be documented as a result the exact location of the victim is undetermined.
- The evidence supports the hypothesis that the victim was on top of the mattress during the fire. <
- In light of these findings and unanswered questions, a determination of arson is premature. <

The conclusions reached in this preliminary report reflect the professional opinions and judgment of this investigator and were the result of careful inductive and deductive consideration, as well as cognitive testing of any alternative hypothesis. As more relevant evidence and/or information become available, this investigator has the duty and reserves the right to adjust, update, or change the conclusions presented herein.

Sincerely,



Lloyd Hardin McNeil
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Dennis L. Jones, IAAI - CFI
BURN PATTERN ANALYSIS, INC.

Thank you for
being so fucking awesome
I love you!
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