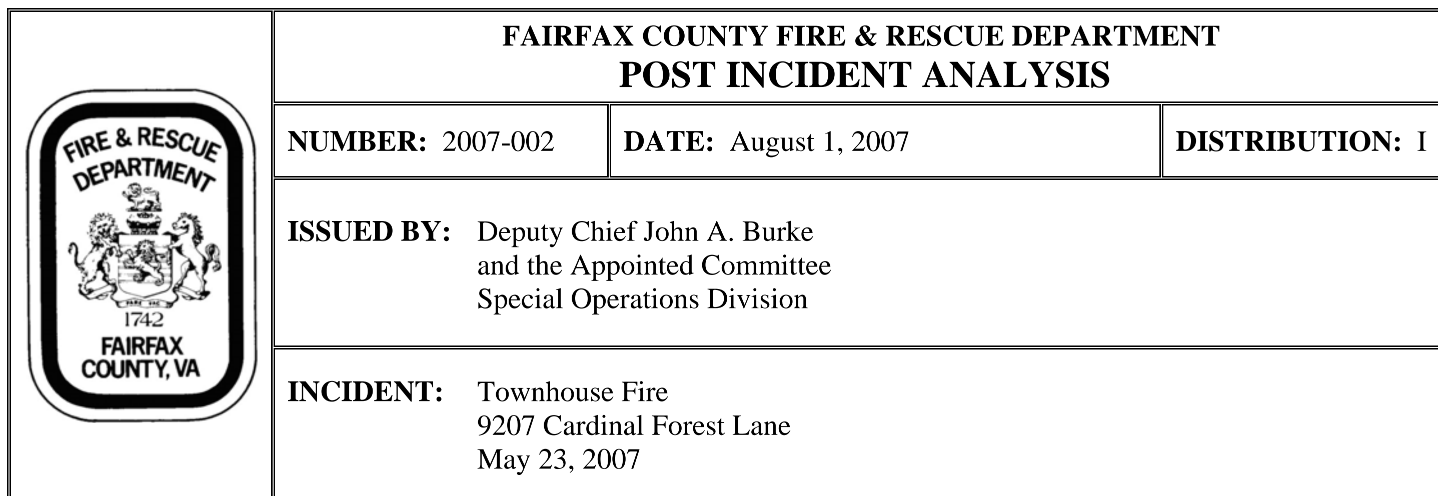


FAIRFAX COUNTY FIRE & RESCUE DEPARTMENT

POST INCIDENT ANALYSIS

NUMBER: 2007-002	**DATE:** August 1, 2007	**DISTRIBUTION:** I

ISSUED BY: Deputy Chief John A. Burke
and the Appointed Committee
Special Operations Division

INCIDENT: Townhouse Fire
9207 Cardinal Forest Lane
May 23, 2007

Incident

At 00:59:58 hours on May 23, 2007, Fairfax County's Department of Public Safety Communications (DPSC) received a 9-1-1 call from an occupant of 9207 Cardinal Forest Lane reporting that there was a fire in her house. Fire and Rescue Department units were immediately dispatched and were supplied with information indicating that people were trapped in the house. Two occupants exited the house without the assistance of firefighters. One occupant who was on the phone with DPSC died at this fire.

Weather

The weather was cool (61° F), winds were calm, skies were mostly cloudy, and the humidity was 57 percent.

Resources

First Alarm (FBLDG) - 01:00:40 hours
Engines: E419, E441, E420, E435
Trucks: T441, T422
Rescue: R419
Medic: M419
Command: BC405, BC463, EMS407, EMS406

Added – 01:11:28 hours
Safety Officer: SAF401

Special – 01:12:49 hours
Medic: M441

Second Alarm – 01:15:33 hours
Engines: E437, E422, E466
Truck: T463
Medics: M422, M424 (second medic requested)
Command: BC406, EMS405, DFCO
Special: LA437, CAN422

Prior to Arrival

A fire started in the microwave oven in the first-floor kitchen. The occupants (two on the third floor and one on the second floor) awoke to find smoke throughout the house. There were no working smoke detectors as they had been disabled some years prior to this event. The occupant of the second floor went to the first floor and discovered a fire in the kitchen. He opened the front door in an attempt to remove smoke from the house and then tried to extinguish the fire utilizing the spray hose in the kitchen sink, but he was unsuccessful. This occupant also removed one dog from the first-floor bathroom. He heard glass breaking and the fire intensified, causing him to evacuate.

One occupant on the third floor used her cell phone to call the occupant of the second floor prior to calling 9-1-1. The third-floor occupants retreated to the bathroom and attempted to escape the smoke by closing the door and blocking the gaps with towels. The situation eventually forced one occupant to seek fresh air by leaning out the third-floor bedroom window where he lost consciousness and fell to the ground. The remaining occupant stayed in the bathroom and called 9-1-1 a second time and remained on the phone with the call taker until she lost consciousness, approximately two minutes after the first units arrived on scene.

Conditions from Dispatch

Fairfax County's DPSC received a 9-1-1 call at 00:59:58 hours from a woman stating her house was on fire and the house was full of smoke. Shortly afterward, at 01:00:40, Incident # 20071430093 was dispatched. Dispatch information verbalized on Channel 4-A reported only that the "house was full of smoke." CAD information indicated there were two people on the second floor and two people on the third floor (as well as dogs in the house). All were unable to get out of the house due to smoke.

At approximately 01:04 DPSC informed E419 via radio that a female was in the bathroom blocking the door with towels. This information was repeated a second time for BC405; both transmissions took place on Channel 4-C after all units except E435 were en route either via MCT or radio.

Initial Actions

R419 was the first unit to arrive (01:06:50 via CAD). The unit positioned at the end of Cardinal Forest Lane beyond the fire building and well out of the way of other units. The crew exited the unit, collected their tools, and proceeded to the front of the fire building.

E419 arrived immediately behind R419 (01:06:54 via radio). E419 positioned at a hydrant seven addresses beyond the fire building. E419 reported they were on the scene of a three-story townhouse with black smoke showing on Side A. E419 further reported they had their own water supply and wanted the first truck to 'ventilate this place.' Immediately following this on-scene report, DPSC informed E419 that the resident was on the third floor. E419 and BC405 both acknowledged receiving this information.

E419's firefighters deployed the leader line to the building, and the gated wye reached the front yard of the fire building. An injured, conscious, and slightly confused or disoriented victim was found on the ground at the front of the fire building. The victim appeared to have jumped

from an upper floor window. He indicated there was still someone inside the house. E419's medic called M419 on the radio and stated they had a patient in front of the building.

R419 arrived at the front of the fire building and observed thick, black smoke issuing from the door, windows, and siding under pressure. R419 notified M419 via radio that there was a victim on Side A. The officer instructed a crewmember to "read the smoke" and stated it was an indication of a pre-flashover condition. R419 vented one first-floor window which resulted in fire issuing from the window and the doorway.

E419's line was charged and preparation was made to enter the building. Problems were encountered with the line as there was insufficient pressure at the nozzle. A request was made via radio to E419's driver to increase the pressure. At the same time, several kinks were found in the 1 ¾-inch portion of the leader line in front of the address. After the kinks were removed, the line was ready to advance. While the line was being deployed, E419's officer walked to the D end of the building and around to Side C to assess the rear of the townhouse. Only after the officer noted addresses at the doors did he realize that there were separate townhouses on Side C. *E419's response map (Attachment 1) lacked the detail necessary to assist units/personnel who were not familiar with the complex. These were back-to-back townhouses although throughout the incident they were referred to as piggyback townhouses.* No smoke or fire was observed in the rear.

E419's line was operated from the exterior through the doorway to knock down some of the fire. The line was advanced into the building with R419's crew behind E419's. R419's officer entered and assisted with E419's attack line; however, he believed that further entry ahead of the line was not a viable option, and he and his crew (R419 only) withdrew. This withdrawal was not communicated to E419. R419's officer split his crew and sent teams into Exposures B-1 and D-1 while on SCBA breathing air to conduct a primary search and to ascertain a floor layout. One member of R419 searched both exposures during this period. Conditions were reported to be clear in both exposures.

E419 advanced its line through the front entrance and made good progress toward the seat of the fire.

E435 arrived at 01:08:30 hours (via CAD). They had been dispatched as the fourth-due engine, but arrived ahead of all units except Station 19's. While responding, the officer relayed their dispatched position and associated responsibilities (Rapid Intervention Team [RIT] and secondary water supply) to the crew. E435 rounded the corner onto Side A and, immediately recognizing they had arrived out of sequence (there was no supply line on the ground or other apparatus), attempted to contact E419 to determine if they had water supply. No contact was made.

E435's officer redirected the driver to back up in order to free the front of the building for the truck company and positioned E435 to allow a water supply to be established. E435's officer observed heavy black smoke pushing from all openings on Side A.

E441 arrived at 01:08:35 (via CAD) and having heard E419 report that they had their own water supply, positioned on Snowy Egrit Way (immediately adjacent to the fire address) to allow access for T441. There was a slight delay in positioning as they waited for E435 to back up. Fire was visible from the front door and window. T441 had just arrived and as E441's

officer moved around the truck, he observed E419 deploying their leader line with R419's crew gathered around them. E441's officer directed his crew to pull and disconnect 150 ft. of a crosslay and connect it to E419's gated wye for use as a 1 ¾" backup line. E441's crew began to work on this assignment, but stopped when they saw E419's driver already in the process of completing this task.

With no command statement having been made, E441's officer asked DPSC if a battalion chief was on the scene. DPSC asked BC405 for his ETA, BC405 replied he would be there in about a minute. E441's officer then established Cardinal Forest Command at T441 and provided a brief situation update. DPSC acknowledged and informed Command they had lost contact with the caller. *The call taker had actually lost contact almost three minutes prior to this information being relayed.*

E435's crew proceeded to Side A. The officer told Command (E441's officer) face-to-face he was going to conduct a search of the third floor. E435 did not inform the other engines that he had changed his assignment (RIT duties). E435's officer told his crew they would conduct a search of the third floor. While the officer was waiting for the crew to finish donning their personal protective equipment (PPE), he assisted T441 with placing a ground ladder to an upper floor window.

E435 entered the building after a brief delay while they waited for E419 to knock down the fire. They proceeded toward the third floor via the interior stairs; some difficulty was encountered locating the stairway. As E435 arrived on the second floor, they met the officer and firefighter from T441. E435 arrived on the third floor and initiated a search.

T441 arrived immediately behind E441 and positioned on Side A. While responding with a four-person crew, the officer told the crew they would split into two teams--one team to enter and search while the other team deployed ladders and vented. T441's teams proceeded with their assigned tasks. The interior team entered the building via the front door and followed the left-hand wall while conducting their primary search. The search was negative, and they immediately proceeded to the second floor to conduct a primary search. They were operating on the information that there were two people trapped on each floor with one of these people located in a bathroom. The exterior team began to deploy ladders, the driver deployed the aerial to the third floor, and the firefighter deployed 28 ft. ladders to the second floor. Both ladder operations included venting.

E441's officer ordered the exterior crew from T441 to deploy ladders and to get the aerial to the third floor, not being aware that T441's officer had already given the same order. E441 then established initial Command of the incident, and when BC405 arrived he assumed Command from E441's officer.

E420 arrived at 01:09:48 (via CAD) and anticipated taking the third-due engine assignment. E420 viewed Side C as they arrived and identified the townhouses as 'piggyback' style. Nothing was evident from Side C. E420, minus the driver who was getting dressed, proceeded to Side A and noted that no back-up line was in place, the officer ordered the crew to pull a line (250 ft. preconnect) from E419. E420's officer observed good smoke production from Side A.

E420, minus the driver who remained outside (driver arrived at Side A after getting dressed and was unable to locate his crew), advanced the 250 ft. of preconnect to the top of the third

floor where they met T441's officer and R419's crew. E420 backed the line down to the second floor and the officer told his crew to stand by. E420's officer then conducted a search of the second floor with negative results. E420 performed hydraulic ventilation which improved conditions on the second floor.

BC405 arrived at 01:12:33 (via CAD), backed his unit onto Sanderling Way and assumed Command. No briefing occurred between E441 and BC405 before or after BC405 assumed command. A second alarm and two additional medic units were requested. Command observed gray and black smoke issuing from the front of the building. BC405 had a high level of concern about the fire spreading to the attic and exposures.

E441's personnel saw that T441's aerial was in position at a third-floor window and called Command to determine if interior crews had accessed the third floor and informed Command they were in a position to access the third floor via the aerial. E441's officer directed T441's driver to notify Command of this action (entry into the third floor via the aerial), which he did. E441 proceeded to the third floor via T441's aerial and entered the third floor. Upon entering the third floor, E441's officer found that R419 was conducting their search. He also quickly determined there were too many people on the third floor and directed his crew to the second floor via the interior stairs. E441 maintained a position on the second floor anticipating they might be needed to assist with victim removal.

On the third floor, R419 and E435 conducted two independent, uncoordinated, and nearly simultaneous searches of the third floor. *E435 believed that R419 was on the third floor ahead of them; however, R419 believed that E435 was there first.*

R419, after splitting into two crews and conducting searches of Exposures B-1 and D-1 rejoined outside of Side A. R419 estimated the searches may have taken five to ten minutes and E419 had already advanced into the first floor of the fire building. One firefighter on R419 said they assisted a member of T441 in deploying a ground ladder. While this occurred, the remainder of R419's crew entered the first floor. After the ladder was thrown, the lone member of R419, upon realizing the rest of the crew could not be located, entered the fire building to search for them. The firefighter located E419's crew on the first floor and recognized that it was not R419's crew. The firefighter remained with this crew and assisted with line deployment. The firefighter said they attempted to call the unit officer via the radio to determine their location, but could not get air time.

The three-member crew of R419 advanced to the third floor via the interior stairs. The officer observed a member of T441 on the second floor as they moved up the stairs. One member of R419 moved ahead of the rest of the crew while ascending the stairs. Upon reaching the third floor, the forward member of R419 called out for any occupants, but didn't hear anything. R419 believed that E435 was already on the third floor. R419 initiated a right-hand search, but missed the bathroom door. While R419 was searching, T441's aerial broke one window. One member of R419 moved to the window and broke another window. The removal of both windows improved conditions.

After completing one search and realizing a bathroom had not been located, a second left-hand search was conducted. The bedroom was very cluttered, and one member of R419 believed he had circled the bed during his search. The bathroom, with an open door, was located and entered during the second search. The firefighter searched the bathroom and upon reaching the

shower believed that he was at the back of the bathroom. The firefighter, who now had a low-air alarm sounding, reported a negative search to the officer. The officer entered the bathroom and searched with the same results. The third crew member of R419 directed the thermal imager into the bathroom and saw nothing (white screen). The first firefighter, with a low air alarm continuing to sound and realizing that no victim had been found, reentered the bathroom to search a second time, again with negative results. R419's officer directed the crew to withdraw. While exiting, the member of R419 who remained on the first floor saw the rest of the crew and rejoined them as they exited.

E435 spoke to the initial Incident Commander (E441's officer) and informed him of their intent to search the third floor. E435 ascended the interior stairs to the third floor and initiated a right-hand search. They quickly located the bathroom; however, one firefighter reported to the officer that he could not enter because R419's crews were already inside. E435 searched for another bathroom but could not locate one. During E435's search, the officer observed a crew from E441 come onto the floor via the aerial ladder. E435 announced via the radio the primary search on the third floor was negative.

No communications occurred between the officers of R419 and E435 while they were on the third floor.

E435 proceeded to the second floor to conduct a secondary search (knowing T441 had conducted a primary search). Conditions on the second floor had improved and the secondary search was negative.

E435, having heard no reports about a victim being located returned to the third floor (where conditions had improved slightly) to search again. The thermal imaging camera was used during this search of the bathroom, but they did not locate the victim. E435, believing the victim must have self-rescued or had been removed because all searches had been negative, exited the building via the stairs with low-air alarms sounding.

There is some confusion as to the exact sequence of events on the third floor, for example, during E435's second search of the third floor they believe they encountered R419 again. At this time, based upon radio traffic, R419 had already exited the structure.

T422 arrived and proceeded to Side C where they met the occupants of Exposure C and the two addresses adjacent to this. All occupancies had been evacuated and were checked for extension. There was a light haze in the attic and an odor of smoke, but no evidence of extension. Ladders were deployed to the third floor of Exposure C. BC463 was assigned to the Division C supervisor position with T422 reporting to him.

T441 completed their search of the first and second floors with negative results. They prepared to go to the third floor and heard E435 report their search of the third floor was negative so they exited the structure. T441 exited the building and reported the results of their search to Command. T441 walked to the Command Post and was assigned to perform a secondary search of the first and second floors. This task was completed and a low-air alarm began to sound. T441 exited the building and was met by BC406 who was now operating as the Suppression Group Supervisor. T441 reported the results of their secondary search and was directed to Rehab.

After waiting on the second floor for approximately five minutes to assist with any possible victims, E441 descended to the first floor and exited. E441's officer reported their actions and findings to the Suppression Group Supervisor (BC406). E441 was then assigned to check the D-1 exposure; they completed this assignment and again reported to the Suppression Group Supervisor. E441 was then assigned to conduct a secondary search of the second floor while E422 was assigned to conduct a secondary search of the third floor.

E422 conducted a secondary search of the third floor and quickly located the victim inside the third-floor bathroom. The victim was assessed and was determined to be deceased.

M419 and M441 transported the two surviving occupants of the house to hospitals in a very timely manner. Difficulty was encountered tracking the disposition of these patients (and presumably the EMS units) when fire investigators arrived. The fire investigators arrived thirty minutes after the first units and twenty minutes before the third victim was found. Command was unable to account for the location of the transport hospitals for these patients when inquiry was made by the fire investigators.

Command Components

E419 arrived onscene and made no command statement in regard to retaining or to passing command. E441 arrived at the incident and radioed DPSC to determine if there was a battalion chief on scene yet and BC405 remarked he was one minute out. E441's officer assumed Cardinal Forest Command at T441's location.

Upon BC405's arrival, he assumed command of the incident and subsequently appointed EMS407 as the command aide, EMS406 as the Rehab officer, and BC463 was assigned to the Charlie Division. Upon arrival of the command staff from the second alarm, BC406 was assigned as the Suppression Group Supervisor and EMS405 as the aide to the Suppression Group Supervisor.

The Deputy Fire Chief of Operations (DFCO) was advised by the UFO of a reported working fire with people trapped at the time of initial dispatch. The DFCO monitored the call until he was dispatched with the second alarm.

Findings

1. The response map did not provide an accurate depiction of the address. Specifically, it did not indicate this address was part of a back-to-back style townhouse.

2. The first arriving engine selected and advanced an attack line that was too long. Additionally, the excess hose was not properly flaked out. These actions resulted in a delay in applying water to the fire due to kinks and a lack of pressure at the nozzle.

3. The first-due engine did not provide a situation report to include a command statement. Critical information such as the back-to-back townhouse feature, confirmation from an occupant of a person trapped, initial actions and assignments, command statement, etc. would have provided other responders with critical information and would have provided a foundation upon which to manage the incident.

4. Initial ventilation operations were uncoordinated. R419 broke out a first-floor window without orders before the attack line and crew were prepared to make entry, which resulted in fire issuing from the front door and window. Ventilation must be coordinated and serve a purpose. At this event, in addition to coordinating ventilation with the attack line, upper windows could have been vented earlier to possibly provide relief to occupants remaining inside (venting for life). Subsequent ventilation by Truck 441's outside crew was coordinated through the unit officer and Command and it was quite effective.

5. Units failed to follow their initial assignments based upon the order of dispatch. These actions resulted in confusion as to the location and tasks of several units. This includes the fact there was no initial RIT in place. At this event, the fourth-due engine company arrived second, initially positioned too close and had to back up, and then entered the building to conduct a primary search. No apparatus (engine or truck) positioned to cover Side C. Although the second truck handled all of the Side C duties and deployed the ground ladders, the truck was not positioned on Side C.

6. Primary search efforts were uncoordinated at the company and command level which resulted in overlapping primary searches. The result was that several crews repeatedly searched the same areas, often at the same time. This townhouse, like many structures, is too small to accommodate more than one crew per floor searching at a time.

7. Search efforts on the third floor were ineffective. The victim who died at this fire was found in a relatively small bathroom on the third floor. Despite statements from several personnel that they searched the bathroom--both physically and with thermal imagers--the victim was not located for over 40 minutes. The victim was located just inside the bathroom. There were no obstructions or obstacles to hinder locating her.

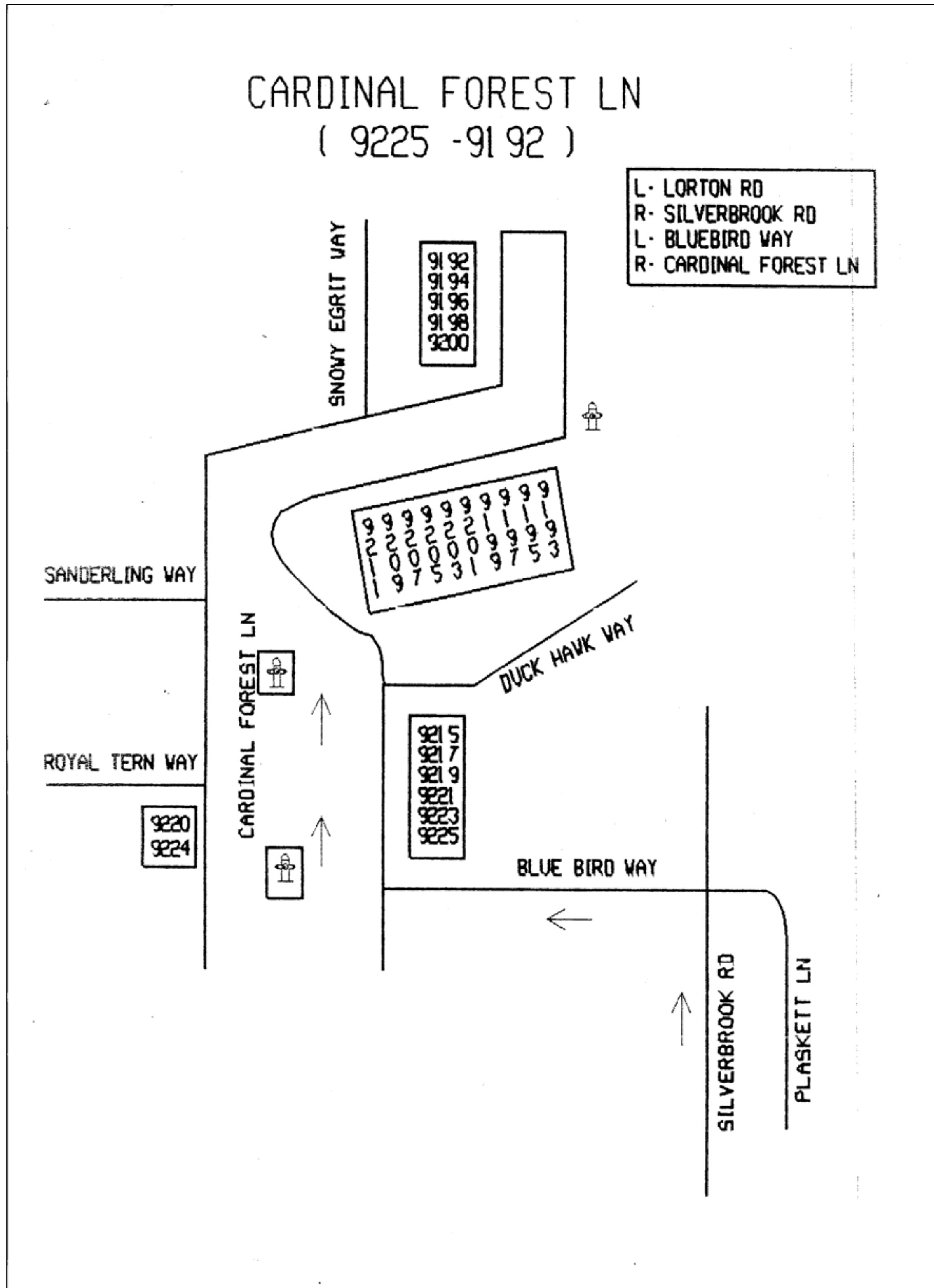
8. Crews inaccurately interpreted the fire conditions. R419 entered the front door with E419's crew, but then determined the conditions were too hazardous and the rescue crew withdrew; the engine crew was not withdrawn. Fire investigator's determined during their investigation of the incident that the fire was in the free-burning stage with relatively low heat above the first floor. Heat and smoke demarcation indicators were approximately three feet off the floor outside the first-floor kitchen area.

9. Crew integrity was not maintained. R419's crew was split into two teams to conduct searches of the exposures after the officer determined that the fire building was too dangerous; these teams did not remain intact. Following searches of the exposures, three members of the crew re-entered the fire building. However, one crew member did not enter with the rest of the crew. R419's officer was unaware that R419's full crew was not present. The fourth crew member, after realizing the crew was no longer in front of the building, decided to enter the building to search for them. The crew member located another crew on the first floor and remained with that crew until the remainder of R419's crew was observed exiting the structure following their search of the third floor.

10. Not all SCBA voice amplifiers were turned on which impaired voice communications.

The findings from this incident will be incorporated into future firefighter training.

Attachment 1:
Engine 419's Response Map



Attachment 2:
Investigative Team Map

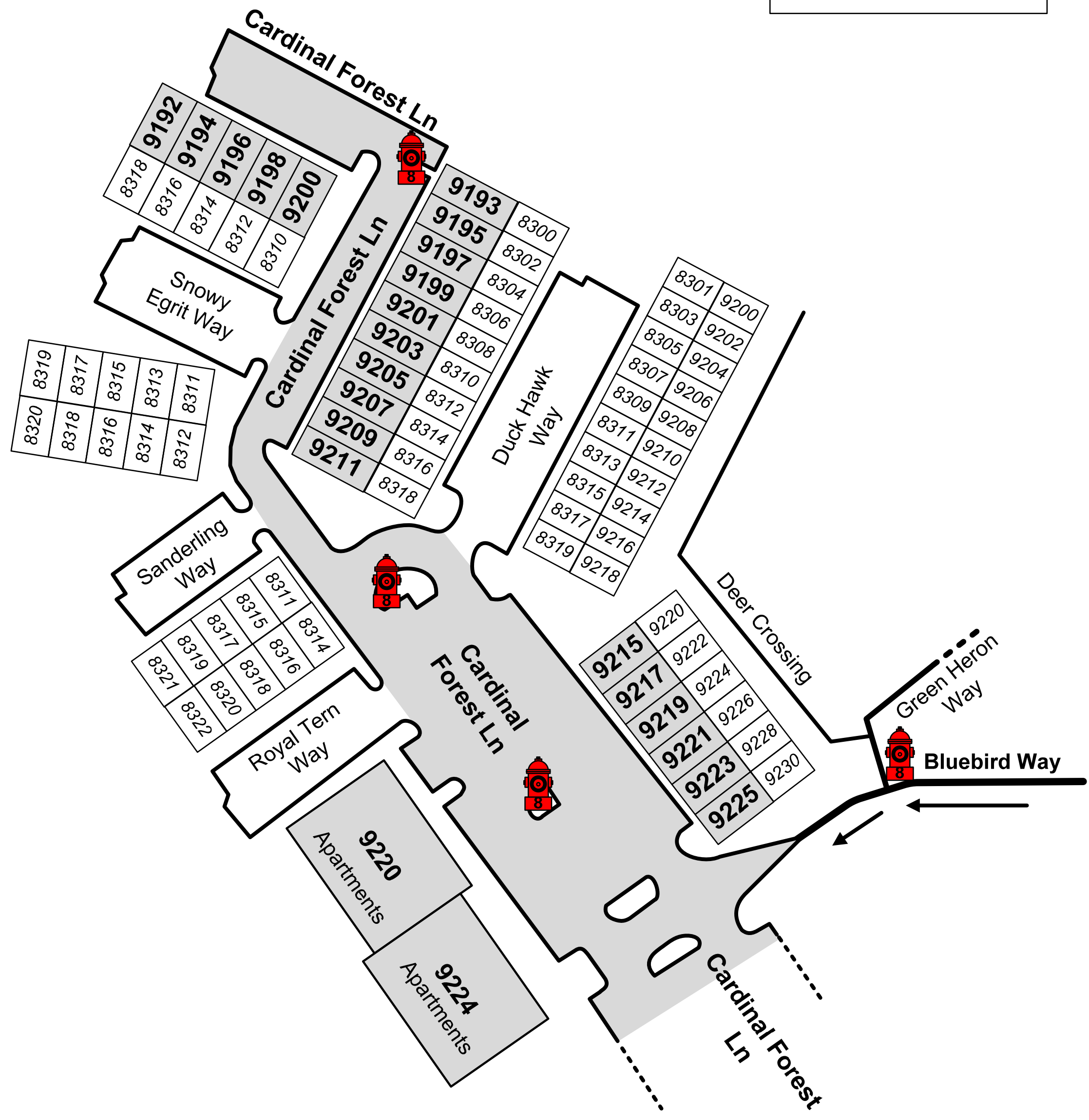
Box 1923

ADC Map
Pg 27, K-9

Cardinal Forest Ln

9192 - 9225

L - Lorton Rd
R - Silverbrook Rd
L - Bluebird Wy
R – Cardinal Forest Ln



Attachment 3: Apparatus Positioning

R419
E419
E441
T441
BC405
T422
E435
E420
Snowy Egrit Way
Sanderling
Royal Tern Way
Duck Hawk Way
Cardinal Forest Ln
9192
9194
9196
9198
9200
8318
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8314
8312
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9193
9195
9197
9199
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9203
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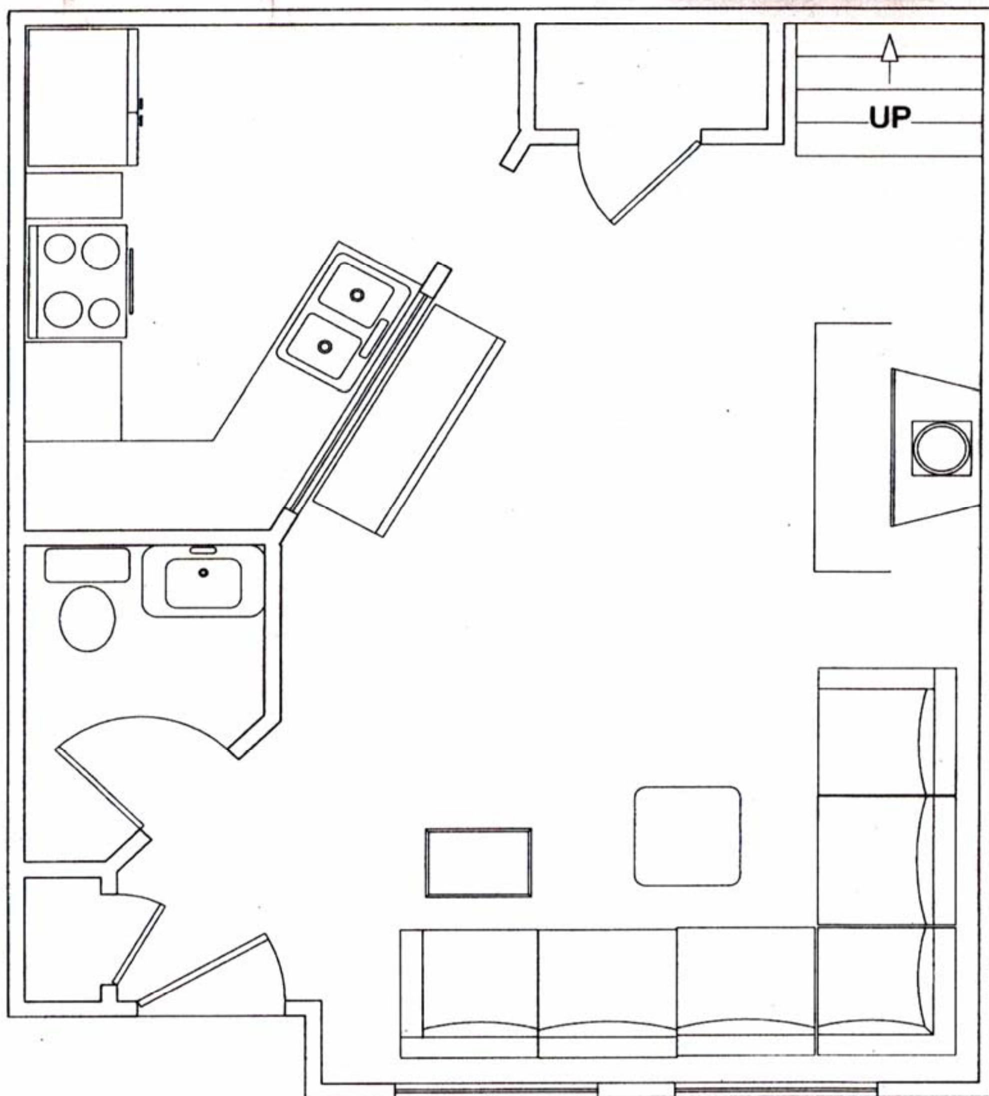
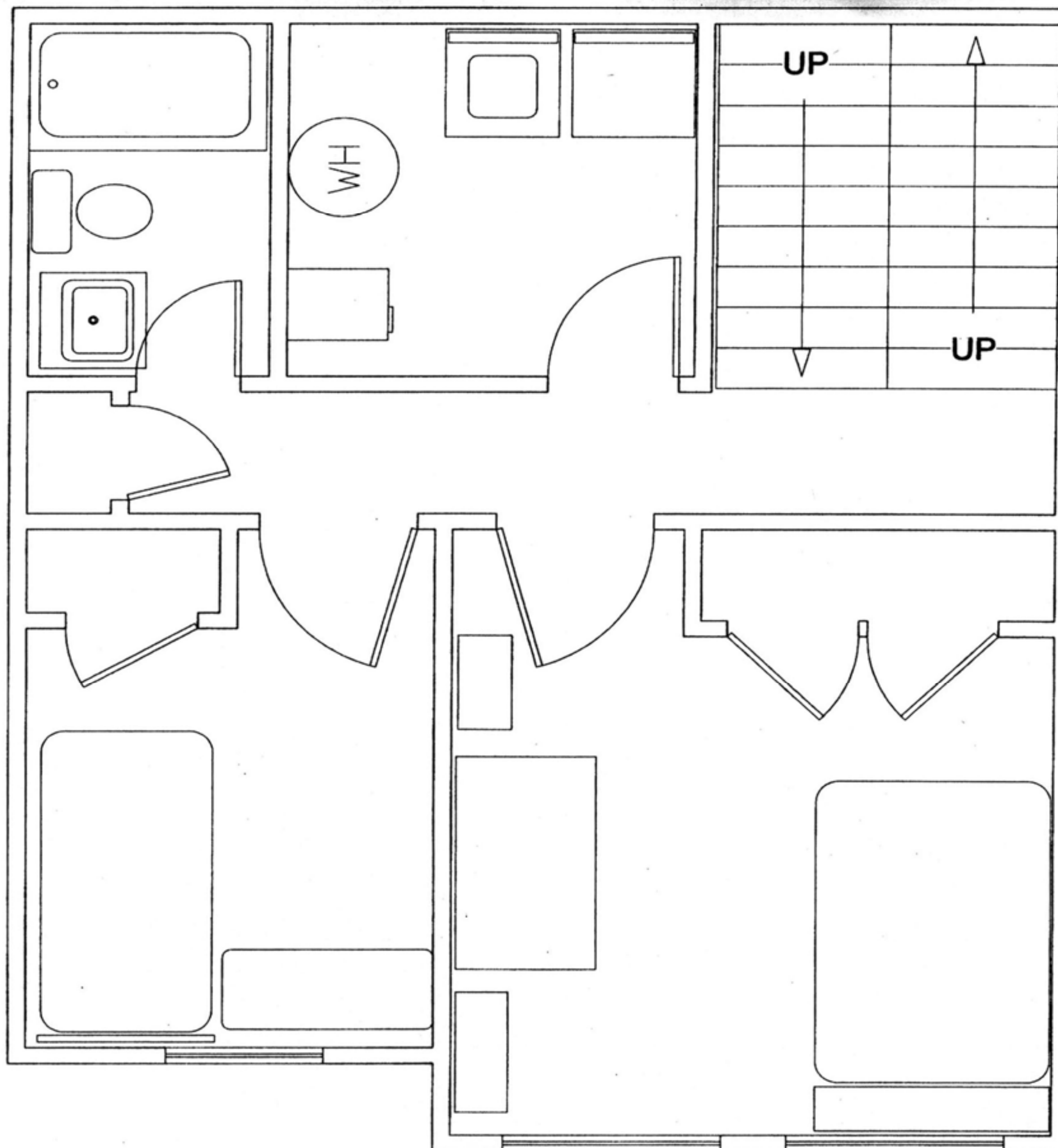
Attachment 4:
First-Floor Diagram



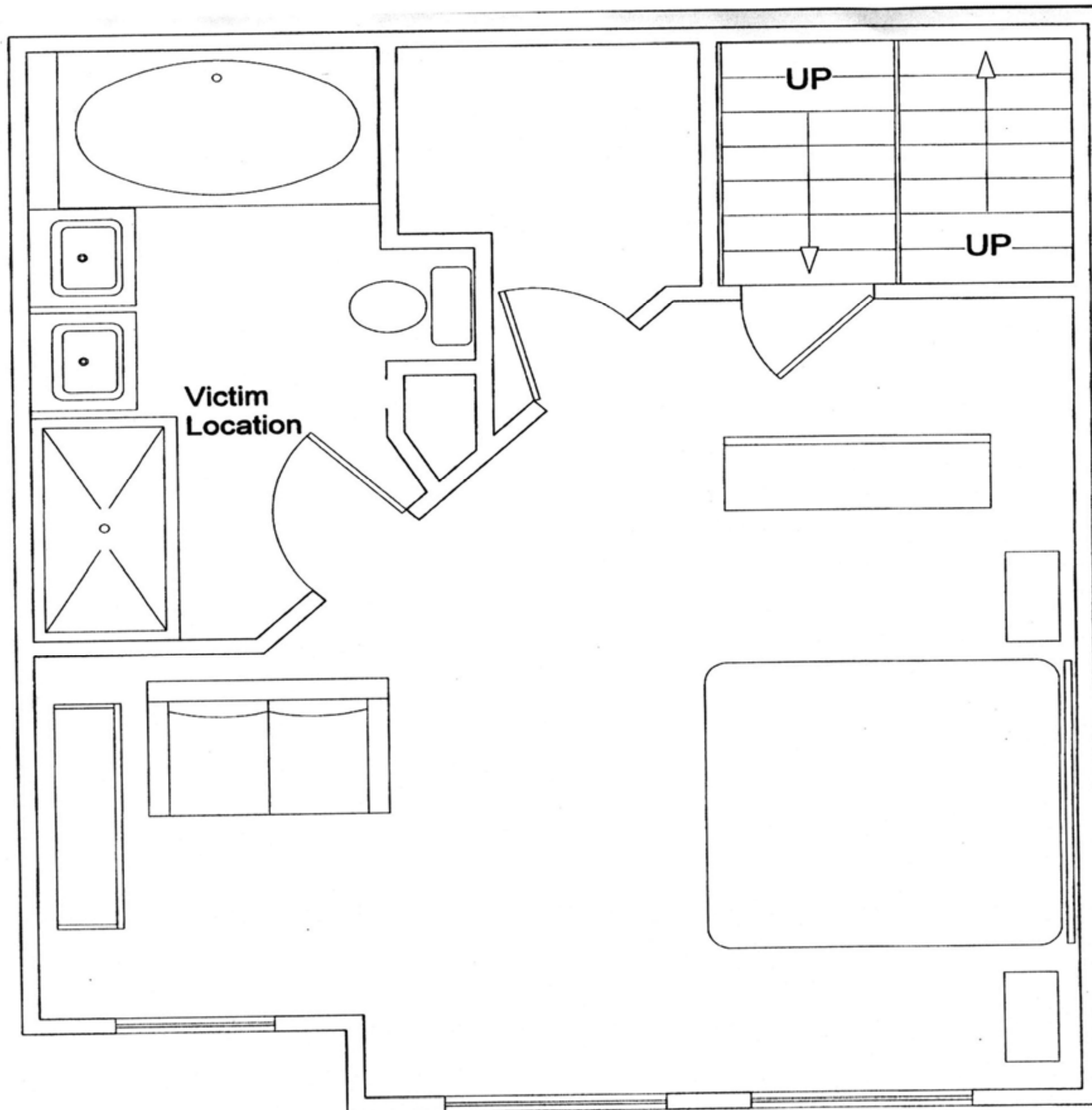
20071430093
9207 Cardinal Forest Ln.
Drawing Not to Scale
Side A - First Floor

Attachment 5:
Second-Floor Diagram



Side A - Second Floor

Attachment 6:
Third-Floor Diagram



Side A - Third Floor