INVESTIGATION REPORT

CASE NUMBER: 21CALNU007449
CASE NAME: UC DAVIS – SOLANO
DATE: MAY 8, 2021
INCIDENT TYPE: STRUCTURE FIRE WITH FATALITY
INCIDENT INVESTIGATOR: Bryan GOUGÉ
Senior Arson & Bomb Investigator #4048
Fire Engineering & Investigations Division
CAL FIRE – Office of the State Fire Marshal
1 - VIOLATIONS

No violations identified at time of report.
2 - SUMMARY:

On Saturday, May 8, 2021 at approximately 11:22PM, a fire was detected within apartment located at 2100 Solano Park Circle Davis, CA 95616, within the UC Davis Campus. The UC Davis Police and Fire Departments responded to the address, finding many tenants of the complex waiving to emergency personnel, and directing them to the involved, second story apartment. Witnesses indicated they thought someone was still inside and smoke was showing from the apartment. Emergency vehicle access was initially hindered by bollards at the pathway entrance, signage, and tenant vehicles parked in proximity to the emergency entrance [SEE EVIDENCE #7].

Upon arriving at the three story, multifamily apartment building, smoke could be seen coming from the second story apartment door, which appeared to have been already opened. Based on witness statements at scene, indicating someone may still be trapped inside, the Fire Department initiated a rescue operation, sending a Firefighter in without an attack line to conduct an immediate righthand search for victims. This was conducted while suppression activities were simultaneously put into place. Zero visibility heat and smoke conditions were reported, with no visible fire reported.

The search of the apartment resulted in an unresponsive female victim being found on the floor of the bathroom. The victim was removed from the apartment by the Firefighter and brought out to the second story landing where emergency medical treatment, including Cardiopulmonary Resuscitation (CPR), were initiated by the rescuing Firefighter and additional emergency personnel on scene, before being transported to UC Davis Medical Center by code 3 ambulance.

The fire was discovered and extinguished, and the scene was secured. UC Davis Police Department identified witnesses and gathered statements on scene. CAL FIRE – Office of the State Fire Marshal was notified of the incident and I responded at approximately 1:30AM, Sunday, May 9, 2021, to conduct an origin and cause investigation of the fire. The fire scene examination and documentation were completed, and the property was turned back over to the UC Davis Fire Marshal and UC Davis Housing Representative.
at approximately 6:30AM Sunday, May 9, 2021. The following investigation into the incident was conducted with the assistance of UC Davis Police Department and Yolo County Sheriff’s Office.
3 - SUSPECT(S)/SUBJECT(S)

SUSPECT-1

DOB: AGE: SEX: 

CDL: 

UC Davis Student
### 4 – VICTIMS/WITNESSES:

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| **V-1** | STATE OF CALIFORNIA  
University of California Davis  
2710 Hutchison Drive  
Davis, CA 95616  
*Property Owner* |   |   |
| **V-2** |   |   |
| **W-1** | 2100 Solano Park Circle  
Davis, CA 95616  
*UC Davis Staff* |   |   |
| **W-2** | 2100 Solano Park Circle  
Davis, CA 95616  
*UC Davis Student* |   |   |
| **W-3** | 2100 Solano Park Circle  
Davis, CA 95616 |   |   |
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Address</th>
<th>Cellphone:</th>
<th>DOB:</th>
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<tr>
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<td>8</td>
<td>UC Davis Student</td>
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<td>5</td>
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<tr>
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<td>15</td>
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<td>2100 Solano Park Circle</td>
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<td>20</td>
<td>UC Davis Student</td>
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<td>24</td>
<td>W-7</td>
<td>Steven Paul Dunn</td>
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<tr>
<td>25</td>
<td>UC Davis Fire Captain</td>
<td>625 Kleiber Hall Drive</td>
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</table>
W-8  Corey COATES  
UC Davis Resident Director  
Phone: [Redacted]  
coreycoates@ucdavis.edu  
Representative who worked with S-1/V-3  

W-9  Lisa PAPAGNI  
UC Davis Associate Director of Housing  
Phone: [Redacted]  
lisapapagni@ucdavis.edu  
Representative who worked with S-1/V-3  

W-10  Timothy M. ANNIS  
UC Davis Deputy Campus Fire Marshal  
UC Davis Safety Services  
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UC Davis Fire Marshal who reported fire to OSFM  

W-11  Ali HAIDER  
Patrol Officer  
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Davis, CA 95616  
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Patrol Officer on scene at night of fire  

W-12  Jenny CHOC  
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UC Davis Police Department  
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Patrol Officer who responded

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Patrol Officer who responded

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Patrol Officer who responded

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Patrol Officer who responded

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Lead Detective
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   Detective

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   Attorney representing S-1/V-3

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   Representative for Royal Consulate of Saudi Arabia in Los Angeles, CA

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Representative for Royal Consulate of Saudi Arabia in Los Angeles, CA

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Attorney representing the Royal Consulate of Saudi Arabia

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harrison.furmidge@yolocounty.org
Lead Death Investigator

W-23  Bryan GOUGE'
Senior Arson & Bomb Investigator #4048
CAL FIRE Office of the State Fire Marshal
Fire Engineering & Investigations Division
2251 Harvard Street, Suite 421
Sacramento, CA 95815
bryan.gouge@fire.ca.gov
Lead Fire Investigator
5 - EVIDENCE:

1. UC Davis Fire Incident 5-7-2021FP.pdf Duty Chief Report obtained by Investigator GOUGE on 05/07/2021
2. UC Davis Fire Incident 5-8-2021FP.pdf Duty Chief Report obtained by Investigator GOUGE on 05/09/2021.
3. Apple I-Phone, Red in Color, Discovered by Investigator GOUGE and collected by Officer DIAZ #1027 and held by UCDPD on 05/09/2021 (#000001).
4. Two hundred and seventy-four (274) Photographs of Fire Scene taken by Investigator GOUGE on 05/09/2021 (001 – 274).
5. Google Earth Map - 2100 Solano Park Circle.pdf created by Investigator GOUGE on 05/11/2021.
6. UCDPD INCIDENT REPORTS.pdf obtained by Investigator GOUGE on 05/11/2021.
7. Solano Park Fire statements.pdf obtained by Investigator GOUGE on 05/12/2021.
8. __________.mp3 audio recording obtained by Investigator GOUGE on 05/14/2021.
9. __________.INTERVIEW TRANSCRIPT.pdf obtained by Investigator GOUGE on 05/16/2021
10. Fifty-three (53) Photographs of V-2, __________.Autopsy, taken by Investigator GOUGE on 05/24/2021.
11. Photographic Logs (1-327) created by Investigator GOUGE on 05/24/2021.
12. __________.Kingdom of Saudi Arabia Passport.pdf obtained by Investigator GOUGE on 05/25/2021
13. Solano Park Apartment Fire Time Analysis.pdf obtained by Investigator GOUGE on 05/25/2021
14. UC Davis Plates Search.pdf obtained by Arson and Bomb Investigator SCHROEDER on 05/25/2021
15. UCDAVIS SOLANO Diagram.pdf created by Investigator GOUGE on 05/25/2021
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08/24/2021


17. www.amazon.com: Three Kings Charcoal 33mm(small).pdf obtained by Investigator GOUGE on 09/05/2021.


19. Alien Vape & Smoke Shop Receipt.pdf obtained by Investigator GOUGE on 09/05/2021.


22. YOLO SO Coroner's Report.pdf physically obtained by Investigator GOUGE on 04/04/2022.

23. PRA 21CALNU007449.pdf request received on 04/14/2022 by Investigator GOUGE.


27. MMEXReport1 A0069.pdf obtained by Investigator GOUGE on 05/31/2022.

28. MMEXReport2 A0069.pdf obtained by Investigator GOUGE on 05/31/2022.

29. salono park 2100.pdf obtained by Investigator GOUGE on 05/31/2022.

30. Solano Park 2100 Cover.pdf obtained by Investigator GOUGE on 05/31/2022.

31. Solano Park 2100Annual.pdf obtained by Investigator GOUGE on 05/31/2022.
6 – CONDITION(S):

Weather Observations:

Historical weather conditions reported for the times between 10:53PM and 11:53PM were recorded by Sacramento International Airport Station, 38.75 °N, 121.59 °W. and accessed at URL https://www.wunderground.com/history/daily/KSMF/date/2021-5-8. Temperature ranged between 73-72 degrees Fahrenheit, Humidity 26-28%, 14-15 mph Northwest winds and Fair skies.

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7 – VEHICLE(S)/EQUIPMENT:

Toyota Camry

CLP: [Redacted]

Vehicle Location Data

Through the course of the investigation, on Tuesday, May 25, 2021, I assigned Arson and Bomb Investigator Nicholas Schroeder to conduct an online search, using Vigilant Solutions, for S-1 [Redacted] California License Plate [Redacted]. The search was for a date range before, during and after the fire. Two (2) locations were identified. Sacramento, CA on 05/01/2021 and Dixon, CA on 05/13/2021 [SEE EVIDENCE #10].

This information was provided to UCDPD Detectives for their investigation of the incident [SEE EVIDENCE #11].

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8 - PROPERTY:

The involved State property included a University of California Davis Solano Park Apartment Building located at 2100 Solano Park Circle, Davis, CA 95616. The three (3) story, multi-family structure included twelve (12) apartment units, four (4) on each level. The fire was contained to apartment [redacted], on the second floor.

Information provided by the UC Davis Fire Marshal’s Office and open-source information found online indicated the buildings within the complex were built between 1962 and 1965. The involved building in the complex was classified as an R2 occupancy, Type V-B unprotected wood frame construction. The involved Unit was one of 276 Units administered at Solano Park under the UC Davis Student Housing and Dining Services Program. 1 bedroom/1 bath Units were approximately 449 square feet in size, while 2 bedroom/1 bath Units were approximately 559 square feet in size. The three-story buildings were partially retrofitted with fire suppression sprinklers in 1980. Only the first (1st) and second (2nd) floor exterior walkways and patios were covered by this system.
Fire safety systems installed included localized, battery operated, carbon monoxide (CO) detectors and monitored smoke/heat detectors within each apartment. An external fire suppression system, a wet pipe fire sprinkler system, automatic extinguishing system (AES), was installed on the 1\textsuperscript{st} and 2\textsuperscript{nd} floor exterior near the wooden balcony/stairs, to assist with occupant egress, in the event of a fire. Fire alarms pull stations were located on the exterior of the structure.

Solano Park Apartments were reserved for married and/or parenting students. Meal plans, gas, electrical and telephone service were not included in rent but no charge for water or garbage. UC Davis participates in the Section 8 Voucher Program for low-income residents.

During this investigation it was determined, although apartments are intended for and reserved for married and/or parenting students, not all current residents were students at UC Davis.
9 - NARRATIVE:

05-08-2021

Fire Scene Investigation

On Saturday, May 8, 2021, I, Bryan GOUGE, Senior Arson and Bomb Investigator for CAL FIRE – Office of the State Fire Marshal (OSFM), received a phone call on my State issued cellular phone from UC Davis Fire Marshal Tim ANNIS, telling me he had just been notified of a structure fire on the UC Davis campus, with at least one female victim being reported. Immediately following this call, I received a phone call from the OSFM Duty Chief, Fred PAISANO, notifying me of the incident and an email containing the OSFM Duty Chief notification information.

I responded to the scene code 2, driving my unmarked State issued law enforcement vehicle, in plain clothes, with my State issued firearm and law enforcement tools concealed. I arrived on scene at approximately 2:20AM.

Upon arrival, I positioned my vehicle near emergency vehicles already on scene in the complex parking lot, secured the vehicle, and left my emergency lights activated in the dark for safety. I walked and discovered UC Davis Fire Department Engine 34 positioned next to what appeared to be the involved building [SEE EVIDENCE #5]. I observed a 1 ¾ inch pre-connect attack hose line deployed from the left side of Engine 34 and stretched towards an external staircase on what was later identified as Building #2100. The staircase and access to the building appeared secured with yellow Police line.

After contacting the Incident Commander (IC), UC Davis Fire Marshal (UCDFM), Fire Department (UCDFD), and Police Department (UCDPD) representatives on scene and identifying myself, I was briefed on what had occurred prior to my arrival. In summary, I was told a fire had occurred in a second story apartment, where a female victim had been pulled from the apartment and life saving measures performed. She was transported from the scene by code 3 ambulance. The fire was extinguished, and fire damage was kept to the involved apartment, later identified as apartment...
Exterior of Building

During the briefing, I observed a large amount of people around the involved building and surrounding areas. Persons were in various states of dress, from sleepwear to fully dressed individuals. UCDPD Officers were interviewing the witnesses in the area. I returned to my vehicle to obtain additional equipment, including my camera, and returned to the bottom of the staircase on the involved building to begin documenting the exterior [SEE EVIDENCE #2, PHOTOS 1-29]. I began by photographing the external electrical utilities and then made my way towards the stairs.

At the A-B corner of the building, I discovered a red portable fire extinguisher, which appeared to have been used, with dry chemical residue around the nozzle. An examination of the gauge confirmed this with the needle indicating recharge needed. The extinguisher appeared in serviceable condition, with current annual service tags indicating a service date of April 20, 2021 punched [SEE EVIDENCE #2, PHOTOS 8-10].

As I made my way up the stairs to the first landing on the second floor, I discovered another red portable fire extinguisher staged to the right of the stairs. This fire extinguisher appeared to be in working order and not used, with the nozzle still in the bracket and plastic security tag still intact [SEE EVIDENCE #2, PHOTOS 11-12].

Once on the second story, balcony landing, I immediately spotted what I recognized as a red medical equipment bag and a black/yellow automatic external defibrillator (AED), commonly carried by Basic Life Support (BLS) and/or Advanced Life Support (ALS) first responders to render emergency first aid in the field. These were located just north of the open doorway to apartment #2124 [SEE EVIDENCE #2, PHOTO 13]. I continued to photograph the exterior conditions, noting both doorways to apartments #2124 and were open, with yellow Police Line tied in an X across the entryways. The fire hose previously mentioned was flaked into a deployment position outside apartment and appeared to still be charged with a combination nozzle attached [SEE EVIDENCE #2, PHOTO 16]. A fire alarm pull station was located between apartment...
I continued photographing the scene and made my way to the A-B corner of the building on the second floor. I observed a large sliding glass window located on the B side corner. The slider appeared to be in the open position, the screening material was removed and laying on the landing, exterior to the apartment. The large glass panels showed heavy dark-black sooting down to approximately two (2) feet above the floor and the glass was intact. A small amount of smoke staining was visible above the top left opening, on the exterior wall of the apartment. An unburned backpack was visible on the floor. With the totality of these observations, an initial hypothesis was considered, indicating the sliding glass door was closed when the fire occurred. The fire did not reach progression to flashover conditions and/or temperatures high enough to cause failure of the glass panels [SEE EVIDENCE #2, PHOTOS 18-23].

A portion of an external fire sprinkler system was observed, installed externally above apartments [REDACTED] and #2124. This system presumably was a retrofit to the existing building to provide emergency egress protection to tenants, should a fire occur [SEE EVIDENCE #2, PHOTOS 24-26]. The automatic extinguishing system’s sprinkler heads looked intact and in service, indicating the fire did not occur on the exterior of the apartment and then enter the interior. No additional external fire effects or fire patterns were discovered on the exterior of the apartment or building.

**Interior Entryway to Apartment**

I then made my way to the front entryway of [REDACTED] and began to document the interior of the apartment. Initial observations were the overall living room space appeared to have suffered convective and radiant heat uniformly through the upper portions of the front living spaces. Surface effects were observed as large paint blistering on the upper portions of the wall, transitioning to smaller blisters, and then the absence of blistering below the hot gas layer line of demarcation. Char observations appeared to be localized to the kitchen area, most notably, the wooden cabinetry. Suppression and overhaul
operations conducted by the fire department, during and immediately following the fire, appeared minimal and focused. A hot gas layer line of demarcation was visible throughout the main living area, roughly two (2) feet above the floor area. Furnishings and personal items below this level in the front living room area showed little to no thermal damage or soot discoloring [SEE EVIDENCE #2, PHOTOS 30-43].

An examination of the front door showed damage indicative of forced entry into the apartment. A locking doorknob set was intact with an external keyed entry and internal push button lock. Above this set, a deadbolt set was present with an external keyed entry and an internal manual throw lever. Damage to this device and the surrounding area indicated the deadbolt was in the locked position, when the fire occurred, and the door was forced open. It was later determined through witness interviews; the door was forced open by civilians trying to rescue the victim prior to first responder arrivals. Specific persons were never positively identified, and a rescue did occur from their efforts. Fire effects and fire patterns on the interior of the door and the surrounding door jamb area supported this hypothesis [SEE EVIDENCE #2, PHOTOS 42-44, 46-47].

On the east wall, I observed and documented a wall mounted air conditioning unit plugged into an adjacent electrical outlet. The thermoplastic coverings had melted and fallen directly on a sofa positioned below it. Fire effects and fire patterns observed around the unit were uniform with the rest of the damage observed within the upper portions of the living room area. The melting appeared to have occurred from the top down, indicating higher heat levels at the upper portions [SEE EVIDENCE #2, PHOTOS 46-47, 51-52]. This is consistent with the fire progression within a compartment and the development of a hot gas layer filling the top portions of the ceiling area and lowering as the space is filled and the fire progresses. Thermoplastics soften and melt over a range of relatively low temperatures, from around 167 degrees Fahrenheit (F) to near 700F [NFPA 921-2021 Edition 6.3.10.4]. Approximate melting temperatures of common materials including Plastics (Thermo) are listed between 167F to 509F [NFPA 921-2021 Edition Table 6.3.10.2]. The air conditioning unit and associated power cord and surrounding area did not show fire effects/damage supporting the origin of the fire.
therefore, it was eliminated and determined a target fuel.

Above the entryway door in the interior of the apartment, a plastic mounting plate was observed consistent with a residential, battery-operated smoke detector or carbon monoxide (CO) detector. It appeared the device had melted and fallen from the mounting plate and was no longer in its original location [SEE EVIDENCE #2, PHOTOS 47, 49-50]. It was later identified as a battery-operated CO detector.

Upon entry into the apartment, I observed a ceiling mounted light fixture with a circular fluorescent tube bulb covered in soot but still intact. The light switch controlling this light appeared to be installed on the east wall, near the front door. It was found to be in the ‘ON’ position, indicating the victim was possibly not asleep when the fire occurred [SEE EVIDENCE #2, PHOTOS 30, 48].

As I continued to document the living room area, I observed fire effects and fire patterns along the north wall, where wooden cabinetry, a countertop with appliances, a refrigerator and a wooden coat closet were located. Fire effects indicated an arrow or pointer type pattern visible on the north wall. Showing a gradual lowering of the line of demarcation along these items, towards the west wall in the kitchen, and down to floor level. There was visible char and blistering to the wood cabinetry and coat closet. Thermoplastics, attached to the appliances, showed melting from the top, down. The west or left side of the kitchen area showed more damage than the east or right side, indicating fire travel from west to east or left to right. These fire effects and patterns indicated fire progression originating from the kitchen area, outward into the entryway and living room area. The north wall showed increased thermal damage, where most of the blistered paint had cracked and fallen, exposing the papered gypsum board beneath. Hose streams to this area from fire department suppression activity may have contributed to the loss of paint on this wall, as well [SEE EVIDENCE #2, PHOTOS 36-44, 53-54].
Facing south, I began to document the living room area. Initial observations of many light combustible items were located below the approximate two (2) foot demarcation line, showing little or no signs of melting or pyrolysis from the radiant heat layer above, during the fire. These included wood, thermoplastics, flowers, candy wrappers, plastic wrap, paper napkins, papers, books, fiberboard, and assorted fabrics. A two (2) person love seat type sofa was positioned facing south towards a small table. A large flat screen television was positioned in front of the sliding glass window, on a small entertainment center. A black cell phone and white earbud type speakers were located on the sofa near the east wall. A plastic armless chair was found positioned near the table but appeared to have been moved, either during the rescue search, fire suppression, or overhaul operations conducted by UCDFD. The carpet showed little to no damage in this area [SEE EVIDENCE #2, PHOTOS 55-60].

A small work desk, office style chairs, computers/monitor, backpack, small waste bin, and a card table were in the living room area. The table appeared to have been moved to its current position, either during the rescue search, fire suppression, or overhaul operations conducted by UCDFD. This was determined by the ceiling and/or wall debris found on the table, away from the areas where it had originated, and by matching heat shadowing on the west wall between the kitchen area and the wall furnace [SEE EVIDENCE #2, PHOTOS 34-35]. A light switch was located above these patterns and was determined to be in the ‘OFF’ position. Items on and around the desk area showed heat shadowing and/or protection areas indicating they were in their original location and position from the time of the fire [SEE EVIDENCE #2, PHOTOS 61-64]. Possible ignition sources in the Living Room area included the air conditioning unit, electrical wall outlets, power cords, power strips, pole lamp, laptop computer with monitor, computer printer, wireless router, television with remote control, strand of decorative lights, cell phone with lithium battery technology, candle lantern, cable outlet and associated cable wire. The entire area and each item listed showed no fire effects/damage or fire patterns supporting the origin of the fire; therefore, each was eliminated and determined a target fuel, or victim of the fire. This eliminated the fire origin from the Living Room area and eliminated the listed items as possible fire causes.
Interior Kitchen Area

Next, I moved back to the north wall, next to the kitchen, and began to document the area more closely. An appliance identified as a microwave, revealed more fire effects to the west or left side of it, than the east or right side. A closer examination of the edge of the countertop revealed the same [SEE EVIDENCE #2, PHOTO 65], supporting the original hypothesis of fire movement or progression. An electrical appliance was located on the floor in front of this area, exhibiting significant melting to the upper portion of the thermoplastic body, but the base remained intact with labeling still affixed [SEE EVIDENCE #2, PHOTOS 67-68]. Based on the shape, color, size, characteristics, and label, it is believed this electrical appliance was a small bug/mosquito zapper used for pest control. Based on the visual damage and location of the device, it does not appear to have been plugged into an electrical outlet and in use at the time of the fire. The device was ruled out as a possible cause of the fire and determined to be a target fuel or victim of the fire.

I then faced towards the northwest corner of the kitchen, where I photographed the stovetop and counter area, identifying many recognizable items found in an ordinary kitchen [SEE EVIDENCE #2, PHOTOS 69-70]. A wire dish drying rack was positioned diagonally on the stovetop next to a large cooking pot with a lid on it. Items in the rack appeared to include several dishes, a wire mesh kitchen skimmer ladle, and a wooden rolling pin. Countertop items identified near the northwest corner included: vertical metal-wire paper towel rack, with paper towel roll, one (1) bunch of bananas or plantains fruit, four (4) individual, plastic water bottles, an electric blender base plugged into an adjacent electrical outlet, metal wire basket filled with assorted spice or seasoning containers, a large glass bottle consistent with a bottle of oil, electric water kettle, electric water kettle base plugged into adjacent electrical outlet, and a dish towel or rag. Based on the fire effects to these items and the fire patterns, it was determined the heat and/or fire damage occurred from top-down, from radiant and convective heat transfer. Damage to the electrical appliances and associated electrical outlet was consistent with these items being target fuels or victims of the fire and not the cause. These competent ignition sources were ruled out as possible causes of the fire.
Facing the west wall of the kitchen, towards the kitchen sink area, I continued to examine and document the area with photographs. The wall above the countertop and below the upper cabinets appeared damaged, with wall material spread across the countertop area and the inside of the wall visible. This damage was consistent with Fire Department suppression activities and overhaul procedures, searching void spaces for fire extension. I observed no fire damage within the open wall area, disproving a hypothesis the fire may have originated from this internal wall space. Extensive fire damage/charring was visible across the entire outer surface of the upper cabinetry and most of the lower cabinetry, floor to ceiling. Fire effects and fire patterns indicated more damage toward the south of this area, than the north, indicating the fire travelled from left to right, or south to north, in this area [SEE EVIDENCE #2, PHOTO 70].

Facing south in the kitchen, additional overhaul damage was identified on the south wall beneath the upper cabinetry to the floor. I identified an electrical outlet on the south wall, above the countertop area, which showed significant fire damage [SEE EVIDENCE #2, PHOTOS 71-75]. Further inspection of this area showed little to no damage to the internal wall structure in this area. Fire effects and fire patterns indicated smoke sooting, from below the counter level area, on internal plumbing pipes. Outer paint covered wall surface in this area was missing and exposed charred dry wall material was identified. Wooden cabinetry above this area was heavily charred on the exterior. The electrical outlet in this area was identified as a Ground Fault Indicator (GFI) outlet, based on exemplar comparison from apartment #2124 [SEE EVIDENCE #2, PHOTOS 72-76]. Based on the examination of fire effects and fire patterns in this area, a hypothesis was developed the fire may have originated from this area, but further investigation was needed.

Facing north in the kitchen, an examination of the electric stove determined all the control knobs were in the “OFF” position. An examination of the lidded pot on the stove indicated it was full of roughly two (2) inches of a liquid resembling cooking oil. No other food items were identified within the pot. Further examination of the west wall of the living room between the kitchen and the bedroom entrance [SEE EVIDENCE #2, PHOTOS 77-83].
PHOTO 80] showed the kitchen light switch in the “OFF” position, little to no thermal
damage to the electrical outlet in this area, and heat shadowing related to the card table
with flowers, originally positioned in this area. An examination of the kitchen light fixture
indicated targeted thermal damage and not significant damage indicating a possible fire
origin. This, and the indication the light switch on the west wall was in the “OFF”
position, indicated the light fixture was a target fuel and not the origin of the fire.

An examination of the interior of the kitchen cabinetry, showed the interior was
protected from damage and the fire was on the exterior surface of the wooden cabinetry
only [SEE EVIDENCE #2, PHOTOS 83-90]. Additional examination of the west wall,
between the kitchen and the bedroom entrance, revealed little to no damage to the wall
furnace in this area. Had this furnace been involved in the origin and cause of this fire,
additional damage and mass loss would have been expected to this area and the
appliance. When asked later during an interview, S-1 said he thought the fire originated
from something around the heater, but it hadn’t been used recently [SEE EVIDENCE#
8-9].

Interior Bedroom Area

Examination of the exterior of the bedroom door indicates the door was in the closed
position when the fire occurred, exterior of the bedroom area. Examination of the
bedding material, and sooting patterns, indicates the bed was made and appeared
unslept in when the fire occurred. Sooting patterns show the bed was unoccupied and
only disturbed during the search and rescue efforts [SEE EVIDENCE #2, PHOTOS 100-
104].

Electrical outlet adapters consistent with United Kingdom Model BS 1363 were
discovered on a wooden nightstand located to the left of the bed, at the southwest
corner of the bedroom. Also, on the nightstand were, a laptop computer, a watch, a ring,
and two (2) bracelets. Further examination of these items indicated they were consistent
with female jewelry items. Fire effects in this area were limited to very light sooting on
items [SEE EVIDENCE #2, PHOTOS 104-107]. The south bedroom wall had an
electrical outlet, a large, covered window, and what appeared to be a grey colored
men’s thobe, or traditional Arabic ankle length robe, hanging in the southwest corner of
the room [SEE EVIDENCE #2, PHOTOS 101-104, 139].

Examination of the north wall area of the bedroom, further confirmed the hypothesis the
bedroom door was closed during the time of the fire, and was opened at some point in
time, prior to the fire being extinguished. The exterior of the bedroom door showed a
significant fire pattern. The fire effects to the door created an angled line of demarcation
consistent with the door being opened sometime during the fire, allowing heated gases
and products of combustion to enter the bedroom area [SEE EVIDENCE #2, PHOTO
108, 111]. Examination of the closet indicated it was a shared space by the occupants.
The closet sliding doors were found pushed together and opened predominately on the
side containing what appeared to be female articles of clothing, indicating it was the
side used by V-2 [555]. I observed areas of flooring where soot deposit had been
wiped clean and were consistent with where V-2 [555] was reported to have been
dragged out of the apartment during rescue operations conducted by the Fire
Department [SEE EVIDENCE #2, PHOTOS 110, 112, 116, 118].

A second wooden nightstand was located to the right of the bed, on the west wall of the
bedroom. On the nightstand were, a box of tissues, a three (3) wick candle in a glass jar
and a white cardboard box. Further examination of these items indicated fire effects in
this area were limited to very light sooting on items. The candle had been used at some
point but was discovered extinguished and intact [SEE EVIDENCE #2, PHOTOS 116-
117]. A pink colored travel suitcase could be seen underneath the right side of the bed
and a brass-colored metal lid, consistent with possibly an incense or charcoal resin
burner, was on the floor near the closet [SEE EVIDENCE #2, PHOTO 121]. This item
later resembled the description S-1 provided of the ‘Arabian Kettle’ used to burn
charcoal and a resin called ‘Oud’ as a perfume or essential oil fragrance within the
apartment on rare occasions by V-2 [555].

The eastern wall of the bedroom contained a blue colored clothes hamper, and an
electric radiator style heater, that did not appear to be powered or in use, a black
colored suitcase, assorted clothing, and electrical outlet with an air freshener plugged
into it, and a light switch near the bedroom door, in the ‘OFF’ position, when
photographed. Markings in the soot, seen midway up the walls of the bedroom, were
consistent with known firefighter search pattern techniques.

Bathroom Area

Examination of the interior of the bathroom revealed a large amount for soot deposit on
the walls, appearing to have run down the walls with moisture, and on the floor area. I
observed an area of flooring, starting from the bathmat on the floor, where soot deposit
had been wiped clean and were consistent with where V-2 was reported to
have been discovered lying supine on the floor and dragged out of the apartment during
rescue operations conducted by the Fire Department. Additionally, two (2) white colored
slippers, with what appeared to be a panda bear on them, a blue colored water pitcher,
and a small waste basket with plastic liner were located on the floor of the bathroom. A
cellular phone was discovered lying on the bathmat [SEE EVIDENCE #2, PHOTO 125].

The bathroom contained a combination shower/tub with curtain and rod, a small vanity
mirror and sink, toilet, two (2) wall mounted towel racks, two (2) small wall hooks, small
ceiling vent fan, fluorescent light fixture, GFI electrical outlet, medicine cabinet, assorted
clothing items, assorted bathroom products, and a wall mounted toilet tissue dispenser.
A single light switch to operate both the vent fan and bathroom light was located to the
left of the doorway, facing south, and appeared to be in the ‘ON’ position when
photographed [SEE EVIDENCE #2, PHOTOS 126 – 138].

A cellular phone was discovered face up, and upon further examination, was
determined to be an Apple I-phone, red in color, with the flashlight app activated and the
light visibly on. The phone was powered on and appeared to show two (2) messages or
missed phone calls, listed in a non-English language [SEE EVIDENCE #2, PHOTOS
140-142]. The phone was collected upon my request by UCPD and held for safe
keeping [SEE EVIDENCE #11].
Upon exiting the bedroom area, what appeared to be a brass or gold colored item, with perforated holes in it, was discovered and photographed among the overhaul debris on the floor from the kitchen. This item appeared consistent with a candle or incense burner base [SEE EVIDENCE #2, PHOTOS 143-144]. This item also later resembled the description S-1 provided of the ‘Arabian Kettle’ used to burn charcoal and a resin called ‘Oud’ as a perfume or essential oil fragrance within the apartment on rare occasions by V-2.

I returned to what appeared to be the fire’s area of origin in the kitchen and documented it further [SEE EVIDENCE #2, PHOTOS 144-150]. I then exited the apartment and entered the adjacent apartment, #2124, and photographed the inside layout as an exemplar for the involved apartment [SEE EVIDENCE #2, PHOTOS 151-164, 268-274].

Upon re-entering the involved apartment, I documented with photographs, the fire alarm system mounted on the ceiling of the bedroom and what appeared to be the remnants of a battery-operated smoke and/or carbon monoxide detector mounted on the interior of the apartment, above the entry door. An Energizer Ultimate Lithium Brand battery was identified directly below the mounting area, just exterior of the entryway threshold [SEE EVIDENCE #2, PHOTOS 167-173]. These items were later identified as a battery-operated CO detector.

Additional Findings
A glass blender jar and a broken drinking glass consistent with a martini glass were observed in the kitchen sink during the examination of the apartment. Further examination of the base of the glass showed an IKEA Brand label with an article code [004.693.04] [SEE EVIDENCE #2, PHOTOS 195, 197]. This article code was later researched online and identified as an 8 oz IKEA – STORSINT Brand Martini Glass. Although no drinking alcohol was discovered during the examination of the apartment, V-2 provided during his interview of what he uses for his smoothie meals.
Observance of Islamic Holy Month of Ramadan April 12, 2021 – May 12, 2021

Ramadan is the ninth month of the Islamic lunar calendar, observed by practicing Muslims as a month of fasting, reflection, and prayer. It commemorates the first revelation of Muhammed and, as such, observance of the month is considered one of the five pillars of Islam.

Ramadan for the year 2021 started on the evening of Monday, April 12th lasting 30 days and ending at sundown on Tuesday, May 11. Islamic holidays always begin at sundown and end at sundown the following day/days ending the holiday or festival.

Based on the statements of S-1 [SEE EVIDENCE #8, 9], both V-2 were in observance of Ramadan when the fire occurred. During the month of Ramadan, Muslims are obliged to abstain from eating or drinking during daylight hours. This would explain V-2 actions of preparing food late at night, before the arrival of S-1 back to their apartment [SEE EVIDENCE #2, PHOTOS #218, 219].

Package of Charcoal Tablets Found in Kitchen Drawer

Following discovery of opened and unopened foil packages labeled “MADE IN HOLLAND”, “THREE KINGS CHARCOAL”, “JAN 2009”, and an International Article Number (EAN) of “8716294330106”, additional information was investigated online regarding this product. Using a free online search database, URL www.EAN-Search.org, the items were positively identified as ‘Three Kings Charcoal – 33mm (Small) – Single Roll of 10 Tablets. Issuing country: NL [Netherlands] [SEE EVIDENCE #16]. The opened package discovered at scene appeared to be partial, less than 10 tablets, indicating the missing tablets may have been used at some point by the

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Officer Initials [BG]
occupants.

Additional open-source online investigation revealed they are sold under the following sub-categories as: Health & Household > Household Supplies > Tobacco-Related Products > Hookah & Accessories > Charcoal, on URL www.amazon.com. They are described on the site as “Quick Light shisha coals for hookah pipes that can be lit with a torch or open flame”. “Three Kings supplies your hookahs with 25-35 minutes of burn time.” “These Easy Lite accessories and parts have a chemical that allows for instant lighting of your coals.” [SEE EVIDENCE #17].

Open-source online investigation of the URL www.threekings.com/en-us/ revealed a description by the manufacturer, “For us it is important that end users are satisfied and are able to enjoy the full shisha experience. Our charcoal positively influences the overall experience, considering that we only sell quick-light charcoal of the highest quality. Our quick-light charcoal is the best of its kind and comes in different sizes. Our charcoal has a burning time of almost one hour, it is produced with natural ingredients, and it does not affect the taste of your tobacco. This provides a more pleasant smoking experience and offers many other unforeseen benefits. For example, the coals are odorless and tasteless, they leave behind a limited amount of ash and burn smoothly and evenly. In just a few seconds, the charcoal briquettes can be lit with a lighter. We also offer the best quality incense. Our incense, based on natural tree resin, is available in a range of different varieties.”

“Three Kings’ Quick Light charcoal is disc-shaped and available in two sizes, measuring 33 mm or 40 mm in diameter. The tabs can be used for smoking shisha or for burning incense and ignite much quicker (what’s in a name) than other charcoal tabs on the market. This makes them highly convenient and easy to use. The tabs are made of 100% European beech wood and are odorless. They have a smooth, long and even burn, and produce very little ash – offering a consistent quality level. Make sure to store the charcoal tabs in a dry place.”
Incense mixtures sold on this site provided the following description: “Three Kings incense is made of the best natural resins sourced from Europe, Africa and Asia. The main ingredient of incense is Olibanum, also known as frankincense. Olibanum is taken from the Boswellia tree (the Boswellia Papyrifera), which grows in the Eastern region of Africa. The milky juice that is taken from the tree dries up into light-yellowish granules. The granules are washed in natural perfume oil and can be colored with (EU-approved) pigments. Three Kings’ incense is used in many religious and spiritual ceremonies around the world, including meditation purposes. Charcoal tabs are needed to burn it.”

Resin

Resin sold on this site provided the following description: “Three Kings natural resins originate from Africa and the Far East. Our natural resin is used in many religious and spiritual ceremonies, but also for meditation and relaxation. While most people are familiar with incense sticks, resin is really the original incense, as it is obtained from refined tree and plant sap and has been used all over the world for thousands of years, even in Ancient Egypt times. The burning of natural resin was central to the worship of the gods and large quantities of incense were burned every day in temples throughout Egypt. Compared to incense sticks, resin offers a stronger scent and doesn’t contain any unwanted additives. The aromas produced by myrrh, frankincense, benzoin, and copal resins are deep and rich. As natural resin doesn’t burn on its own, you’ll need charcoal tabs to burn resin incense. Simply light the charcoal, spread the resin on the charcoal using a small spoon and enjoy the rich resin fragrances.” [SEE EVIDENCE #18].

09-05-2021

I was able to locate and purchase three (3), Three Kings Charcoal – 33mm (Small) – Single Roll of 10 Tablets from the Alien Vape & Smoke Shop located at 7529-Watt Avenue #120 North Highlands, CA 95660, as exemplars and for testing purposes [SEE EVIDENCE #19].
At approximately 8:24AM, Detective SCHNEIDER from UCDPD emailed me, telling me the Police Investigation Report had been completed and he was printing a copy for release. At approximately 11:00AM, I received a call on my State cellular phone from Deputy Coroner II Harrison FURMIDGE about Coroner Case #21-0475. FURMIDGE told me in summary, the report was pending completion. FURMIDGE requested a letter be sent to him, to receive a copy of the report. I drafted a request letter on Department letterhead [SEE EVIDENCE #20] and emailed it to FURMIDGE, Tuesday, March 22, 2022 at approximately 11:47AM.

At approximately 03:30PM, I traveled to UCDPD headquarters on campus, in my State issued vehicle, and physically picked up a printed copy of the Police Investigation Report C21-0364 from Detective SCHNEIDER [SEE EVIDENCE #21].

At approximately 02:30PM, I traveled in my State issued vehicle to the California Natural Resources Building, located at 715 P Street, Sacramento, CA 95814, and physically picked up a printed copy of the Yolo County Sheriff's Office Coroner Autopsy, Toxicology, and Investigator’s Report for V-1, mailed to that location.

Fire Testing / Experimentation

At approximately 09:00AM I conducted a series of fire testing experiments as a tool to collect additional data and test a fire cause hypothesis. To avoid presumptions, these tests were not conducted until data was collected through the entire investigative process [NFPA 921-2021 Edition Figure 4.3.8].

- **Test #1** – A single charcoal tablet was placed on a small cast iron plate and ignited using a wooden match. This was conducted indoors, on a stove top, to
observe overall burning characteristics of the charcoal tablet.

The open flame of the wooden match was placed against the edge of the charcoal tablet, and it easily ignited. No open flame was visible, instead something like electro-pyrography occurred, with a visual thin line of combustion working its way across the surface of the tablet, with a small amount of visual smoke and spark, and an audible crackling noise.

Once this combustion had moved across the entire surface of the tablet, all audible and visual signs of combustion were gone. No odor was detected from the burning tablet. The tablet slowly began to turn from unburned black charcoal to white ash, uniformly, around the outer ring, with the inner center remaining black. A heat could be felt above it, using the back of a hand, but no other signs indicated it had been ignited and was actively burning, other than the forming of white ash and a color change. The tablet continued to burn, with the center finally turning to ash and white. The tablet continued to keep its shape and size throughout the entire process. Once this had occurred, the tablet was picked up using a pair of metal tongs and set back onto the plate. The tablet stayed intact and only showed a mild indentation where the tongs had come in contact. The test was concluded when it appeared the tablet had self-extinguished and turned to complete ash, losing its complete form when disturbed.

The remainder of the test experiments were moved outdoors. Each of them was timed, to further benchmark findings. Each additional test was intended to be a duplicate, with only one variable intentionally changed. This variable was the overall burn time of the tablet before introduction to the waste container. The plate and container used during each experiment was cleaned and cooled in between tests. The testing was conducted in the shade of the sun and fuels were kept out of the sun to prevent preheating. Weather was moderate, with no wind and temperatures between 74 degrees and 86 degrees Fahrenheit during the testing period.
Test #2 45 Minute Burn Time - A single charcoal tablet was placed on a small cast iron plate and ignited using a wooden match. It was then introduced to the fuel arrangement, prepared to simulate the area of origin, a black plastic kitchen waste container with ordinary combustible products inside. Products used in each fire test included a single sheet of newspaper, 4 sheets of binder paper, 4 sheets of 20lb office print paper, 2 pieces of cardboard, and 1 piece of poster board card stock. All items were crumpled up and dispersed into the waste can with no organized fashion. This fuel load represented a mix of Class A combustibles, also known as ordinary combustibles. It’s recognized that this arrangement of wastepaper represented a kind of worst-case scenario in terms of ordinary combustible materials contained within the waste container. Although the contents of the involved kitchen waste container were unknown, other than discarded food products discovered during the examination, it most likely also contained a mix of ordinary combustibles and assorted plastics, to include the polypropylene plastic kitchen waste container itself.

At approximately 50 seconds after ignition, the smoke and visual effects of combustion disappeared.

At approximately 3 minutes, the white ash ring had developed on the tablet.

At approximately 14 minutes, the entire top surface of the tablet developed white ash.

At approximately 40 seconds, the cast iron plate was able to be picked up and held. Although still warm, it was not at a temperature to burn the skin or cause physical discomfort while holding.

At approximately 45 minutes, the cast iron plate was picked up and its contents dumped into the metal waste container full of ordinary combustible [as described above] from approximately a foot in height above the container.

At approximately 46 minutes, a small amount of smoke was visible from the container.

At approximately 47 minutes, the remaining piece of intact tablet burned through
the ordinary combustibles it originally landed on, and fell deeper into the
container, creating additional white smoke from this pre-ignition phase.

- At approximately 50 minutes and 10 seconds, the ordinary combustibles within
the container ignited into flame and continued to burn, eliminating most of the
smoke, until extinguished and ending the test experiment.

- **Test #3 1 Hour Burn Time** - A single charcoal tablet was placed on a small cast
iron plate and ignited using a wooden match.

- At approximately 3 minutes, the white ash ring had developed on the tablet.

- At approximately 13 minutes, the entire top surface of the tablet developed white
ash.

- At approximately 40 minutes, I was able to hold my hand approximately 2 inches
from the top surface of the charcoal tablet indefinitely, where the heat felt warm
but did not produce a burn or discomfort.

- At approximately 53 minutes, I was able to hold my hand approximately 1 inch
from the top surface of the charcoal tablet indefinitely, where the heat felt less
significant than earlier in the test and still did not produce a burn or discomfort.

- At approximately 60 minutes (1 hour), the cast iron plate was picked up and its
contents dumped into the metal waste container full of ordinary combustibles [as
described above] from approximately a foot in height above the container.

- At approximately 61 minutes, a small amount of smoke was visible emitting from
the container.

- At approximately 63 minutes, the ordinary combustibles within the container
ignited into flame and continued to burn, eliminating most of the smoke, until
extinguished and ending the test experiment.

- **Test #4 1 Hour and 15 Minute Burn Time** - A single charcoal tablet was placed
on a small cast iron plate and ignited using a wooden match.

- At approximately 35 seconds, active initial surface burn and smoking stopped.

- At approximately 3 minutes, the white ash ring had developed on the tablet.
At approximately 60 minutes [1 hour], I was able to lay the back of my hand almost on the surface of the charcoal tablet. Very little heat felt from the surface.

At approximately 1 hour and 15 minutes the cast iron plate was picked up and its contents dumped into the metal waste container full of ordinary combustible [as described above] from approximately a foot in height above the container.

At approximately 1 hour and 16 minutes, a small amount of smoke was visible from the container.

At approximately 1 hour and 19 minutes, the ordinary combustibles within the container ignited into flame and continued to burn, eliminating most of the smoke, until extinguished and ending the test experiment.

**Testing Observations**

Rigorous testing failed to disprove or falsify the hypothesis a smoldering charcoal tablet discarded into the polypropylene kitchen waste container may have caused the fire. The additional data collected following the test experimentation seemed to strengthen the plausibility a smoldering charcoal tablet could have been discarded by V-2 [REDACTED] in the polypropylene kitchen waste container, thinking it had self-extinguished after use, and it could still contain enough heat energy to ignite ordinary combustibles within. It was reported by S-1 [REDACTED] V-2 [REDACTED] rarely used them, so she may not have been familiar with the burn characteristics.

**Fire Protection Systems**

Additional information about the fire protection systems and associated maintenance records were received from UC Davis Fire Marshal, Timothy ANNIS, on Tuesday, May 31, 2022 and Thursday, June 2, 2022 by email. Upon review of these records, the fire protection systems installed in the #2100 building, at the time of the fire, were in good working order [*SEE EVIDENCE #24-31*].

The Fire Alarm PM Zone Checklist [*SEE EVIDENCE #24*], dated 05/10/2021, showed a

The Inspection and Testing Form [SEE EVIDENCE #25], dated 04/07/2021, 04/08/2021 showed two (2) remote power supply batteries had been replaced after a FAIL of Load Tests on those dates. Event History Reports were included for the alarm tests [SEE EVIDENCE #27-28].

The Inspection Report – Fire and Life Safety [SEE EVIDENCE #26], dated 04/21/2021 showed a Re-Inspection of the entire complex occurred on this date. One violation was noted [Violation Code 3.19a] at building/apartment #4121. No violations were documented for the involved building #2100.

In accordance with the National Fire Protection Association [NFPA] 25, as amended by the California Code of Regulations [CCR] – Title 19, the automatic sprinkler system Quarterly, Annual, and Five-Year Inspection, Testing, and Maintenance reports were included and reviewed [SEE EVIDENCE #29-31].

The 5-Year Report [SEE EVIDENCE #29], for the Wet Pipe Fire Sprinkler System installed at building #2100 was dated 04/01/2021 and showed a Pass for all applicable sections under Inspection, Testing and Maintenance, with no noted deficiencies or comments.

The Quarterly and Annual Report for the Wet Pipe Fire Sprinkler System installed at building #2100 was dated 04/12/2021 and showed a Pass for all applicable sections under Inspection, Testing and Maintenance, with no noted deficiencies or comments.

CONCLUSIONS:

FIRE ORIGIN

Based on my knowledge, training, and experience, while applying the Scientific Method
outlined in *NFPA 921 Guide For Fire and Explosion Investigations-2021 Edition*, working hypotheses of the origin were developed through the course of my investigation. These were tested and repeated, including alternate hypotheses, as new information was discovered or became available [*NFPA 921-2021 Edition Figure 18.2, 18.2-18.2.1*]. Using a systematic approach, a preliminary fire spread analysis was determined early in the investigation and sequential pattern analysis conducted by examining fire effects and fire patterns throughout the involved apartment.

The fire patterns generated throughout the lifetime of the event within the involved apartment appeared to be relatively intact and unobscured. Through this examination, I determined the fire did not reach flashover conditions within the compartment and did not self-ventilate or was not ventilated, until the door was forced open by bystanders, just prior to the Fire Department’s arrival. Therefore, overall fire patterns did not appear to be obscured or obliterated as a result [*NFPA 921-2021 Edition 18.2.3*]. Fire Department overhaul operations did obscure fire patterns in a localized area in the kitchen, but were kept to a minimum, and the area remained largely intact.

Based on this methodology, the systematic examination conducted, and outlined within this report, the area of origin was determined to be within an alcove area, near the south wall of the kitchen, below the cabinets [*SEE EVIDENCE #2, PHOTOS 71-75,145-150*]. Once the final fire spread analysis and the identification of the fire origin area was determined, the area was systematically examined and fire debris was removed by delayering to the floor of the kitchen [*SEE EVIDENCE #2, PHOTOS 174-187*].

Through delayering of fire debris within the area of origin, protected plastic material was discovered beneath fire debris, a size consistent with a 10–13-gallon plastic kitchen waste container, along with unidentifiable refuse or waste material. The type of plastic used to make the product was indicated on the bottom of the protected piece by a chasing arrows triangle symbol, with the number five [5] in it. Directly below the triangle were the letters 'PP', indicating the product was made of polypropylene plastic. A plastic commonly used for furniture, consumers, luggage, toys, as well as bumpers, lining, and
external borders of cars. An injection mold double date stamp clock appeared to be next to the recycling number. This appeared to indicate the product was manufactured in December (12) of 2020 (20). The numbers ‘2165-1’ also appeared on the item [SEE EVIDENCE #2, PHOTO 186]. A make and model of the product could not be determined based on this information. Polypropylene is a flammable carbon and hydrogen-based plastic that may burn very well, unless chemicals combined with the plastic during manufacture are added to reduce combustibility.

The item first ignited could not be determined due to fire and suppression damage but included the interior waste contents of the discovered container in the area of origin.

FIRE CAUSE

The area of origin was examined to identify fuels, identify potential ignition sources, identify an oxidizing agent, and the circumstances that brought these together. Although the hypothesized ignition source of a discarded charcoal tablet into the waste container was not physically discovered at the origin, the hypothesized ignition source was determined to be a plausible and/or probable scenario based on the evidence discovered and experiments conducted during the investigation. It was determined the identified charcoal tablet could hold sufficient heat energy, following typical reported combustion times, to ignite the probable first fuels in the area of origin, if introduced. The statements of S-1 [SEE EVIDENCE #8-9] during his interview support the use of these items.

Although this hypothesis seemed probable (more likely, than not) based on this investigation, an additional hypothesis of a discarded wooden match causing the fire in the same area of origin could not be disproven. Having more than one hypothesis that could not be disproven, the Fire Cause was listed as Undetermined at this time.

The final hypothesis was selected keeping Expectation and Confirmation Bias in mind.

OPINIONS

Based on my knowledge, training, and experience, and combined with the findings of...
this investigation, I believe the following factors contributed to the fatal outcome of this fire:

- Human actions or inactions contributed to both the cause and effects of this fire.
- The fire protection systems in place were in working order and properly maintained, according to records.
- V-2 [redacted] was likely in the bathroom and/or shower when the fire occurred.
- The fire occurred late at night while the other occupant, S-1 [redacted] was away, delaying discovery by external witnesses in the area.
- The unmonitored, battery-operated, CO detector installed above the front door may have sounded and then become inoperable due to fire and heat damage in the area, prior to being heard by V-2 [redacted] in the bathroom, with one or both doors closed.
- V-2 [redacted] may or may not have been familiar with what the CO alarm sounded like and/or what it meant.
- The only monitored smoke/heat detector located in the bedroom likely didn’t activate until V-2 [redacted] opened the bedroom door and discovered the fire, which may have already transitioned from a fuel driven fire to a ventilation driven fire in the front half of the apartment prior to discovery.
- Heat, gas, and CO levels would have been high, with low oxygen levels, in the apartment when the fire was discovered.
- The fire did not reach full room involvement (flashover) conditions.
- The fire did not self-ventilate and remained confined to the apartment of origin.
- A large bedroom window was not used to escape the fire. It was located behind a full-size window covering, with a garment hanging over a portion of it. V-2 [redacted] likely forgot this window was located there, following the discovery of the fire.
- V-2 [redacted] toxicology report indicated a high level of CO and a high level of ethanol (drinking alcohol). Based on the levels reported, a sense of euphoria, sedation, impaired coordination, decreased sensory responses to stimuli, and decreased judgement would have occurred. The combined effects of both on V-2
would have further increased disorientation, hindering any self-rescue efforts by V-2. Cultural differences may have contributed to the inability and/or delay of V-2 to report the fire to emergency services for response. V-2 was still learning English. V-2 called S-1 to try and communicate. S-1 called emergency services from a remote location, not being able to communicate details of the incident.

According to S-1, V-2 only reported a knocking sound and asked for the Police to be called. She did not mention a fire during their phone conversation.

Cultural differences may have contributed to the actions or inactions of V-2. She may not have been familiar with basic western fire prevention and/or fire safety practices taught at an early age in the United States of America to help both children and adults prevent and/or escape a fire.

It's possible the knocking sounds S-1 said V-2 reported to him and wanted the Police to respond for, may have been witnesses outside the front door of the apartment, trying to get her attention and/or trying to gain entry to help her. She may have become frightened and stayed in the bathroom, initially unaware a fire was in the front half of the apartment, until she succumbed to her injuries after discovery and exposure to the environment.

At any time, should additional information or evidence be discovered that changes or alters information provided in this report, all involved parties will be notified, and a supplemental report will be prepared, as applicable.
10 – ATTACHMENTS

See Section 5 – EVIDENCE for all Attachments.

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1 On Thursday June 9, 2022, at approximately 2:12PM, I received a call on my State issued cellular
2 phone from Yolo County Sheriff’s Office Deputy Coroner II Harrison FURMIDGE. As the Lead Death
3 Investigator, FURMIDGE indicated he was giving me a courtesy call regarding the UC DAVIS –
4 SOLANO case, involving the death of (V-2).
5
6 FURMIDGE, in summary, told me he understood I had completed a Fire Origin and Cause Report,
7 where I had expressed an opinion based on their pathological and toxicological examinations (Case
8 # 21-0475). My opinions were specifically based on the notable high levels of Carbon Monoxide
9 (CO), reported as Carboxyhemoglobin levels (46.8%) and high levels of Ethanol (101 mg/dL)
10 reported within the report.

11 As indicated in the report [SEE EVIDENCE #22], Ethyl alcohol (ethanol, drinking alcohol) is a central
12 nervous system depressant and can cause effects such as impaired judgement, reduced alertness,
13 and impaired muscular coordination. Ethanol can also be the product of decomposition or
14 degradation of biological samples.
15
16 As explained in NFPA 921-2021 Edition Guide for Fire and Explosion Investigations, alcohol and
17 prescription and illegal drugs can lead to impairment of a victim. The impairment can decrease the
18 response to fire indicators such as smoke, noise, flames, or alarm activation resulting in delayed or
19 no notification of the adverse conditions. Refer to the toxicology report for pertinent information
20 regarding alcohol and drugs. The toxicology report may report the blood alcohol content (BAC) in %
21 ethanol or g/dL ethanol. As a reference point, 0.08 g/dL is considered by some states to indicate that
22 a driver is impaired, although studies have reported impairment to alcohol at even lower blood
23 concentrations. The investigator should keep in mind that the effect of alcohol and drugs is additive
24 with carbon monoxide (CO), hydrogen cyanide (HCN), and other fire gases so the total level of
25 impairment may be due to a combination of pre-ignition and post-ignition effects [NFPA 921-2021
26 Edition 24.10.3].
A relationship exists between the nature of a fire, i.e., smoldering, flaming, post-flashover, and the production of toxic gases such as carbon monoxide (CO) and hydrogen cyanide (HCN). Because of this relationship, reliable toxicology data from a fire victim, in combination with fire models, and other available tools, can provide the Fire Investigator, with useful evidence [NFPA 921-2021 Edition 24.10.8*].

Based on this information, V-2 [*redacted*] reported levels of Ethanol at 101 mg/dL, would equate to 0.101 g/dL. Above the 0.08 g/dL BAC comparison given for recognized impairment.

FURMIDGE, in summary, further explained the toxicology samples obtained were post-mortem. Interpretation of the high levels of Ethanol found in V-2 [*redacted*] should be attributed to the decomposition or degradation of biological samples. In his opinion, they found no evidence of drinking alcohol in V-2 [*redacted*] body. He again stated it was a courtesy call, further explaining their findings based on the fire death pathological and toxicological examinations conducted.

As a result of this additional information and analysis provided by FURMIDGE on Thursday, June 9, 2022, I conducted further analysis of the information found and contained in my original Fire Origin and Cause Report and the toxicology report contained within the Yolo County Sheriff’s Office Coroner’s Report.

I confirmed, the only physical evidence found during my examination of the fire scene, supporting a hypothesis V-2 [*redacted*] may have consumed alcohol prior to the fire, was the broken martini glass found in the kitchen sink [SEE EVIDENCE #2 PHOTOS 195, 197].

Further review of the Yolo County Sheriff’s Office Coroner’s Report confirmed:

On May 9, 2021 V-2 [*redacted*] was transported from the fire scene to the UC Davis Medical Center, where she was admitted. Upon admission to the hospital carboxyhemoglobin levels were reported at 46.8%.

On May 11, 2021, V-2 [*redacted*] was pronounced deceased.
On May 24, 2021, the autopsy was conducted on V-2, where postmortem femoral blood and gastric fluid was collected for toxicological examination.

On March 28, 2022, the Coroner’s Report, including the toxicology, was released.

Normally, upon hospital entry of the patient with fire-related injuries, a blood sample should be taken and analyzed for percent saturation of carboxyhemoglobin, HCN concentration, blood alcohol, drugs, and blood pH to aid in the diagnosis and treatment of the individual. These measurements may be valuable in assessing the conditions of the individual at the fire scene and the fire environment to which the individual was exposed. In particular, the percent of carboxyhemoglobin is a valuable indicator. However, since the percent of carboxyhemoglobin begins to be reduced as soon as the individual is removed from the fire environment, it is important that the blood sample be taken as soon as possible [NFPA 921-2021 Edition 24.8.3].

Based on this information, the carboxyhemoglobin levels reported for V-2 collected upon her hospital admission, while alive, appeared to accurately represent the conditions of the individual at the fire scene and the fire environment to which the individual was exposed.

Based on this information, the Ethanol levels reported for V-2 appeared to be related to the separate, postmortem collection of gastric fluid during the autopsy for toxicological examination. It did not appear to accurately represent the conditions of the individual at the fire scene and the fire environment to which the individual was exposed.

Any further analysis or interpretation of the Coroner’s Report findings should be referred to Yolo County Sheriff’s Office Deputy Coroner II Harrison FURMIDGE.

At any time, should additional information or evidence be discovered that changes or alters information provided in this report, all involved parties will be notified, and a supplemental report will be prepared, as applicable.

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