

G. Accountability

General Background: Accountability

Fire and Rescue Departments employ a variety of operational measures to improve firefighter safety during an incident.³⁴ One operational measure that is widely used and accepted is the development and implementation of an accountability system. Accountability, as defined in the National Fire Protection Association (NFPA) 1561 Standards on Emergency Services Incident Management System and Command Safety, refers to the process or system used at an incident scene to track resources, including personnel. A Personnel Accountability System (PAS) is one that, "readily identifies both the location and function of all members operating at an incident scene."³⁵

NFPA has developed voluntary national consensus standards regarding firefighter occupational health and safety. Under the 2018 NFPA 1500 Standards on Fire Department Occupational Safety, Health, and Wellness Program, Section 8.5 outlines personnel accountability standards for fire and rescue services departments to improve personnel safety during a fire incident. This standard requires a fire department to, "establish written standard operating procedures for a personnel accountability system that is in accordance with NFPA 1561."³⁶ Additionally, under this standard, "[T]he incident commander shall maintain an awareness of the location and function of all companies or crews at the scene of the incident."³⁷

Aligned with the national standard, the Maryland Occupational Safety and Health (MOSH) consensus standard requires fire departments to develop, "a resource and personnel accountability system that meets the general concepts of NFPA 1500, and NFPA 1561."³⁸ More specifically, under the MOSH standard the system must include:

- (a) Activation of the system upon arrival at all emergency incidents
- (b) A provision for requirements for a Personnel Accountability Report (PAR) at specified times during the incident, as identified by the AHJ, including each of the following:
 - i. The time of a change from offensive to defensive operations
 - ii. The occurrence of a significant event, such as a building collapse;
 - iii. The time when a known life hazard is eliminated...and;
 - iv. MAYDAY situation

³⁴ Kumar Kunadharaju, Todd D. Smith, David M. DeJoy, Line-of-Duty Deaths Among U.S. Firefighters: An Analysis of Fatality Investigations, 43 ACCIDENT ANALYSIS & PREVENTION 1171-1180 (2011).

³⁵ NATIONAL FIRE PROTECTION ASSOCIATION, STANDARD ON EMERGENCY SERVICES INCIDENT MANAGEMENT SYSTEM AND COMMAND SAFETY 1561 (2014).

³⁶ NATIONAL FIRE PROTECTION ASSOCIATION, STANDARD ON EMERGENCY SERVICES INCIDENT MANAGEMENT SYSTEM AND COMMAND SAFETY 1500.8.5.1 (2014).

³⁷ NATIONAL FIRE PROTECTION ASSOCIATION, STANDARD ON EMERGENCY SERVICES INCIDENT MANAGEMENT SYSTEM AND COMMAND SAFETY 1500.8.5.1 (2014).

³⁸ MD. OCC. SAFETY. AND HEALTH: MARYLAND FIRE SERVICE HEALTH AND SAFETY CONSENSUS STANDARD (MD. DEPT. LABOR, LICENSING, AND REG. 2002).

- (c) All emergency responders operating at an emergency operation shall participate in the AHJ's personnel accountability system.

This section addresses only the accountability of personnel at an incident, not the responsibility that is assigned to department members in the care, understanding, and use of their assigned apparatus and equipment. The accountability as to apparatus and equipment will be addressed in a [Section III.L Apparatus and Equipment](#) of this report.

Policies and Standards Applicable to Howard County Department of Fire and Rescue Services: Accountability

HCDFRS [General Order 300.02: Personnel Accountability](#) established its personnel accountability system on February 2, 1993 (revised on June 4, 2013), with the goal being, "...to efficiently account for personnel responding to and operating on the scene of an emergency incident. The personnel accountability system gives incident commanders a fast and efficient means to account for all fire and rescue personnel responding to or on the scene of an emergency."³⁹

When the Howard County Communications Center (Communications Center) dispatches units to a fire incident, the dispatchers, "monitor and record the number of personnel responding to an incident."⁴⁰ After all units report as responding for the initial alarm and each subsequent alarm, the Communications Center will report total staffing numbers to the Incident Commander. Additionally, in the time between the arrival of the first unit and the transmission of the "fire out" benchmark by the Incident Commander, the Communications Center will transmit an alert tone every fifteen (15) minutes. On hearing the fifteen (15) minute duration reminder, the Incident Commander or Accountability Manager will request Personnel Accountability Reports (PARs) from all supervisors.

The HCDFRS incident scene personnel accountability system relies on the use of Personnel Accountability Tags (PATs) and Personnel Accountability Reports (PAR). All HCDFRS personnel are issued a PAT, attached to a snap fastener, which they are to keep on their turnout using an existing "D" ring when not responding to an incident. HCDFRS personnel place their PAT on a collector ring inside the cab of their assigned unit, usually at the beginning of a shift. While operating within the hazard zone, personnel assigned to divisions, groups, or units will provide periodic PARs to signify that, "all personnel assigned to that division, group, or unit operating in the hazard zone have been identified, positively located, and accounted for."⁴¹



Figure 27 HCDFRS Collector Ring

Under the HCDFRS Personnel Accountability System there

are three levels of accountability. Level I Accountability, the minimum for an incident, requires that supervisors, "maintain a constant awareness of the position and function of all personnel

³⁹ Howard County Dept. of Fire and Rescue Services, General Order 300.2 Personnel Accountability (1993).

⁴⁰ Howard County Dept. of Fire and Rescue Services, General Order 410.01 Communication (2005).

⁴¹ Howard County Dept. of Fire and Rescue Services, General Order 300.2 Personnel Accountability (1993).



Figure 28 HCDFRS Accountability Tag

assigned to operate under their supervision.”⁴² As a practical matter, at this level the PATs are on the dispatched units’ respective collector rings and maintained in the cab of each unit. For any responder on scene that was not on a dispatched unit, they must report to the Incident Commander for assignment. After assignment, their PAT should be added to the collector ring of their assigned unit.

Level II Accountability, which is activated when conditions within the hazard zone may pose a danger to operational personnel, an Accountability Manager (or the Incident Commander) gathers and organizes the PAT collector rings on an Accountability Control Board located near the Command Post. Additionally, the Accountability Manager or Incident Commander will seek PAR Status Reports from all units

operating within the hazard zone at fifteen (15) minute intervals.

Level III Accountability is activated by an Incident Commander when the Incident Commander determines an incident requires, “more stringent accountability.” At this level there is “Point of Entry” accountability, which involves a designated division or group supervisor assigned to every point of entry to a structure or confined space. Additionally, supervisors should monitor air supply and work period longevity, recording the name, company number, duration of air supply, time of entry, and assignment on an Entry Control Chart.

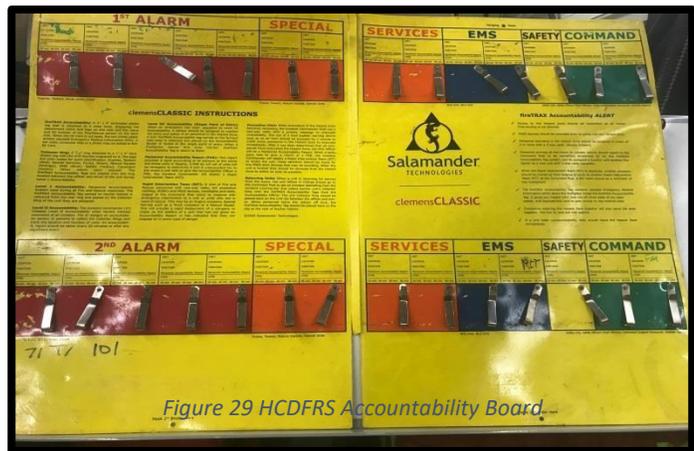


Figure 29 HCDFRS Accountability Board

When personnel exit a control point, the supervisor at that area should record it while the personnel inform their division or group supervisor of their exit. Should there be personnel unaccounted for, the supervisor will report the “missing” personnel to the Incident Safety Officer, with that information then being relayed to the Incident Commander. If the crew is unable to contact the “missing” personnel through either a physical search or radio contact, a MAYDAY is declared.

⁴² Howard County Dept. of Fire and Rescue Services, General Order 300.2 Personnel Accountability (1993).

Beyond the Accountability measures in HCDFRS [General Order 300.02: Accountability](#), HCDFRS [General Order 310.01: Single Family and Townhouse Structure Fire Operational Guidelines](#) requires PAR. Specifically, in [General Order 310.01: Single Family and Townhouse Structure Fire Operational Guidelines](#) the Incident Commander is to,

“actively request and receive ongoing **Unit Status Reports** from the units (or their division or group supervisors) that have been assigned tasks in the hazard zone. When reporting status, units should report the conditions they have, the actions they have taken, and their needs for additional resources or actions of others, and end the report with their PAR status.” (emphasis in original).

Woodscape Drive Incident Overview: Accountability

The Communications Center dispatched Paramedic 56, Engine 51, Engine 101, Tower 10, and Battalion Chief 1 at 01:52:14 on July 23, 2018 for a Local Box Alarm 5-62 after receiving a resident call advising of an odor of smoke but no visible flames. Tower 10 acknowledged with four personnel and Engine 51 acknowledged with five personnel at 01:54. There were no radio acknowledgements of personnel numbers from Engine 101, Paramedic 56, or Battalion 1. Engine 51 arrived on scene at 02:00:29 and upgraded the assignment to a full Box Alarm.

Upgrading to a Full Box Alarm assignment, the Communications Center dispatched Truck 7, Paramedic Engine 71, Paramedic Tower 3, Engine 111, and Paramedic 105 at 02:01:56. Paramedic Engine 71 acknowledged with 4 personnel at 02:03:11. Paramedic 105 acknowledged the call, but did not state its staffing levels. There were no radio acknowledgements of personnel numbers from Truck 7, Engine 111, or Tower 3.

Incident Command was established at 02:03:55 with Battalion Chief 1 as Command. Engine 51 was assigned Fire Attack at 02:04:31. At 02:19:10 Command acknowledged the fifteen (15) minute mark and requested a task force, for which the Communications Center dispatched Squad 1, Engine 61, and Engine 91. Before the Incident Commander was able to call for a PAR, there was a MAYDAY call from Engine 101A at 02:20:11. After the MAYDAY call, the Communications Center stopped fifteen (15) minute notifications and activated channel markers (a periodic audible tone) indicating a restriction on non-essential radio communications. The Channel markers continued until FF Flynn was removed from the dwelling, the Incident Commander issued an evacuation order and switched to a defensive strategy, and a PAR was completed of all units. Specifically, channel markers were activated at 02:21:13 and continued until 02:47:00. The only indication of a fifteen (15) minute marker was the Incident Commander's acknowledgement at 02:19:10, although the channel markers stopped at 02:47:00 and the Incident Commander had not issued the requisite "fire out" benchmark.

After the MAYDAY was called by Engine 101A, the Incident Commander issued a number of PARs for operating units. The initial PARs were disjointed because Engine 51 and Engine 101 lacked crew integrity, as discussed in [Section III. H Crew Integrity](#) of this report. The Incident Commander conducted PARs of operating units, but his confusion as to where crews were operating and the crew leaders' lack of crew accountability undermined the PARs. A particular note of confusion was from Engine 51A, who was unable to account for the location of his crewmembers after the MAYDAY.

Findings and Recommendations: Accountability

Personnel Accountability was generally lacking throughout this incident due to a number of factors. First, some of the responding units lacked Level I accountability because of inconsistent collection and organization of PATs. Some responding personnel used Level II Accountability before it was established by Incident Command. Specifically, a few units brought their collector rings to the Command Post before Level II Accountability was established. The rings were left either on the vehicle hood or on the ground next to the vehicle hood. This action caused problems for the Battalion Aides as they attempted to locate and place collector rings on the Personnel Accountability Control Board once Level II Accountability was established. Although well intentioned, this practice caused delays in establishing Level II Accountability and could negatively impact future incidents. This common practice with HCDFRS should be changed to ensure accountability in future incidents.

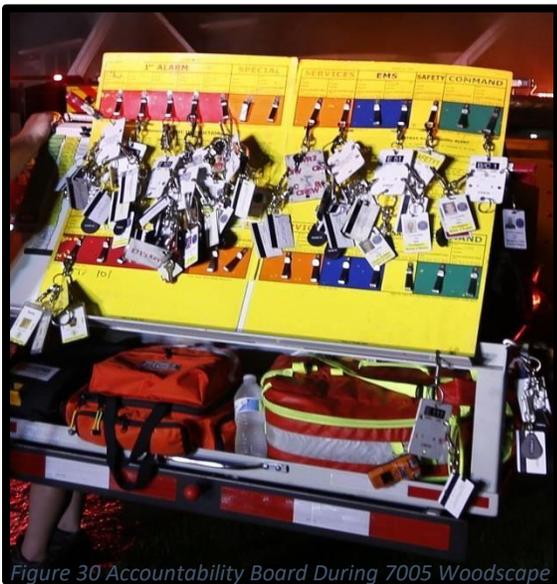


Figure 30 Accountability Board During 7005 Woodscape Drive Incident at 0353.

Second, the Incident Commander's understanding of crew location and deployment did not match the actual locations of the crew. At 7005 Woodscape Drive, the Incident Commander arrived on location, assigned a Fire Attack group, and then ordered tactical assignments including confirming Initial Rapid Intervention Crew (IRIC) duties, assigning Rapid Intervention Crew (RIC) duties, addressing water supply, and having an engine company on-deck for any needed assignment. During this time, communications between the Incident Commander and members

operating in the offensive suppression mode as the Fire Attack group became confused. One possible reason for the confusion is that responding crew did not use the multi-story numbering convention outlined in HCDFRS [General Order 300.07: Incident Command System](#). Instead, there were different terms used to describe similar areas of the structure, referencing "basement,"

FLOOR NUMBER 4	
FLOOR NUMBER 3	
FLOOR NUMBER 2	
FLOOR NUMBER 1	
SUB-FLOORS AND LEVELS DESIGNATED AS ACTUAL NAME OF THE SUB-FLOOR	
"BASEMENT FLOOR"	
"MEZZANINE LEVEL"	
PARKING LEVEL 1"	

"ground level," "first level," "floor number one" and "lower section" all within the first 28 minutes of the incident to communicate geographical information to the Incident Commander. The lack of common terminology created different mental pictures in the operating members and the Incident Commander.

Third, although the Incident Commander had a general understanding of staffing levels from Engine 51, Engine 101, Tower 10 and later

responding units — and the officers of those units clearly know the number of firefighters, their names, and their crew numbers — there is no indication that the Incident Commander had foreknowledge of additional staffing provided by volunteer firefighters on Engine 51 or any other volunteer station. Additionally, it is unlikely that the Incident Commander could have known that Engine 111A ordered Tanker 11 and Paramedic 115 to initiate a self-dispatched response to the scene via telephone. This action is not a common practice in HCDFRS. There was no indication that the Incident Commander knew that these crews arrived, and the crews divided and assumed operational tasks without being assigned by the Incident Commander.

Separate of any requirement by HCDFRS, it is common practice for operational Battalion Chiefs to carry a printout of daily TeleStaffing which is the Department's electronic staffing management program. An issue identified with this practice is that station officers may rotate assignments of firefighters to meet daily operational needs. Thus, what is depicted in TeleStaff does not always represent unit assignments within a particular station.

Fourth, in reviewing the policies and practices of Heavy Vehicle Operators (HVOs), the ISRB found that there is understandable confusion about whether HVO PATs should remain with their assigned apparatus or be included on the collector ring with the crew. If the HVO's tag is not included as part of the crew's collector ring, the HVO may inadvertently be missed in a PAR check. However, an HVO tag included on the collector ring while the HVO remains outside of the hot zone could lead to confusion.

Fifth, it is unclear whether personnel who responded to the scene, but were not dispatched, followed the appropriate protocols for accountability. Under [General Order 300.02: Personnel Accountability](#) responders that are not on a dispatched apparatus must:

1. Report to the Incident Commander and identify themselves on arrival
2. Await assignment from the Incident Commander
3. Place their PAT on the assigned unit collector ring

The purpose of this policy is to provide the Incident Commander awareness of the incident while maintaining flexibility to incorporate personnel for larger incidents in Howard County and surrounding jurisdictions. On this incident various personnel responded, but the ISRB was unable to determine if these responders followed these requirements. One notable instance, however, was the notification of Station 11 by the officer of Engine 111's cell phone. From that call, Tanker 11 and Paramedic 115 responded to the incident instead of being dispatched by the Communications Center or requested by the Incident Commander. These units responded and notified the Communications Center on Alpha 1, then switched to Bravo 6.

Sixth, while there are clear guidelines for the Communications Center responsibilities to support accountability efforts, the ISRB found a conflict between the Communications Center's practices and the General Orders. In a December 2, 2016 email from the Fire Department Liaison, dispatchers were instructed to no longer, "do personnel counts on box alarms." An email dated December 3, 2016 from the Assistant Chief of Emergency Services explained that notations

concerning staffing will no longer appear in Computer Aided Dispatch (CAD) notes. This was corroborated by a December 12, 2016 email from the Fire Department Liaison Supervisor to the 911 Center. The sum of all three emails creates a conflict with [General Order 300.02: Personnel Accountability in the Procedures Section](#), Item 11, which requires dispatchers to include personnel counts on box alarms. These inconsistencies could cause confusion between the dispatchers and the Incident Commanders.

Seventh, the Communications Center discontinued the fifteen (15) minute notifications during the incident after the MAYDAY transmission. The IRSB understands that, in general, units and Communications Center limited their radio transmissions on Bravo 1 so as not to interfere with the RIC operation, however, a continuation of the notification (possibly on a different tactical channel) may have improved incident management. The Communications Center did provide the Incident Commander with a delayed fifteen (15) minute notification which the Incident Commander acknowledged at 02:19:10. In this particular incident, the notification was delayed four (4) minutes due to heavy radio traffic. Also, the Incident Commander received various other face-to-face communications in quick succession at this same time and the MAYDAY occurred a minute after the Communications Center fifteen (15) minute notification.

Eighth, HCDFRS General Order 300.02: Personnel Accountability does not reflect current fireground operations. Under the MOSH Consensus Standard, departments should routinely review and update procedures. It is unclear when General Order 300.02: Personnel Accountability was last reviewed, but its most recent revision was on June 4, 2013.

Ninth, the current system for accountability using verbal PAR reports is time consuming and requires significant radio communications. For example, Engine 101's officer declared a MAYDAY at 02:20:11 before Incident Command initiated PAR at the fifteen (15) minute notification mark. After the initial MAYDAY, there were no additional MAYDAYs. The Incident Commander on receipt of the MAYDAY initiated efforts to determine which members of each operating crew were missing (02:23:47 to 02:29:33). Seven (7) minutes (02:27:10) after the MAYDAY the Incident Commander conducted a formal PAR, which took five (5) minutes to complete (02:32:09). During that time, the Incident Commander and operating crews identified that FF Flynn was missing and located all other firefighters and officers from Engine 51, Engine 101 and Tower 10. This entire process took twelve (12) minutes to complete. This delay could be shortened, and radio traffic lessened, by new technologies available.

Tenth, the Charlie Division supervisor was unclear as to which crews were assigned to his division during the incident. Although the Incident Commander believed that he had clearly communicated which crews had been assigned to Charlie Division, an accumulation of factors, including imprecise wording, led to confusion. HCDFRS should assign an accountability manager to Incident Commanders, as well as division and group supervisors, to assist with accountability when the situational demands exceed the ability of an incident commander and division supervisors to make decisions and maintain accountability of units and personnel.

Lastly, crews were provided specific assignments, but did not consistently refer to themselves by their assignments. Clear and consistent communication is an important component of crew accountability. Based on a review of radio transmissions, Engine 51A was assigned as the Fire Attack group supervisor and Engine 51 and Tower 10 were assigned to the Fire Attack group. However, Engine 51A continued to refer to himself as “Engine 51” and not “Fire Attack.” Tower 10A attempted to contact Fire Attack after Engine 51’s assignment, but Fire Attack failed to respond back to Tower 10. HCDFRS should provide additional training on proper radio procedures pursuant to [General Order 310.01: Single Family and Townhouse Structure Fire Operational Guidelines](#) and [General Order 300.07: Incident Command System](#). Additionally, training should be provided on the use of the “communications order model” as specified in [General Order 410.01: Communications](#), Section 9.3.

Findings	Recommendations
<p>G.1 Some responding units lacked Level I accountability established under HCDFRS General Order 300.02: Personnel Accountability because of inconsistent collection and organization of Personnel Accountability Tags.</p>	<p>G.1.1 Revise General Order 300.02 Personnel Accountability. Specifically, an accountability manager is critical to the safety of operating crews and there should be a standard process to quickly appoint one on all multi-unit responses.</p> <p>G.1.2 All members of HCDFRS shall be provided accountability and crew integrity training so they understand the necessity for and implementation of accountability relating to incident management, PARs, and MAYDAY situations.</p> <p>G.1.3 HCDFRS must revise the personnel accountability control boards to better meet the intent of NFPA 1561 4.5.2, particularly to identify units’ geographical location and functional assignments.</p> <p>G.1.4 HCDFRS should provide initial and continuous training to responders on General Order 300.02: Personnel Accountability and, in particular, identify the need for use of remote accountability boards at incidents that involve large structures or large incident scenes. This should include training for initial responders serving</p>

Findings	Recommendations
<p>G.2 The Incident Commander’s understanding of crew location and deployment did not match the actual locations of the crew.</p>	<p>as an accountability manager for an incident commander or division and group supervisors.</p> <p>G.2.1 HCDFRS should initiate the use of common terminology when referencing occupancies in all communications, to maintain a shared mental model. In particular, all HCDFRS members should reference occupancies based on NIMS Incident Command System.</p> <p>G.2.2 General Order 310.01: Single Family and Townhouse Structure Fire Operational Guidelines (41) should be revised to reflect this recommendation and crews should use “floor number ____” in all communications when referencing floors of a structure in conjunction with basement, attic and roof as specified in General Order 300.07: Incident Command System (Line 278).</p> <p>G.2.3 HCDFRS crews should state Location in addition to Conditions, Actions and Needs (LCAN) when an assignment is completed or when requested by the Incident Commander. This change should be reflected in the applicable General Orders.</p> <p>G.2.4 In revising General Orders, HCDFRS should consider emphasizing reporting a PAR at the end of an LCAN report.</p>
<p>G.3 Although the Incident Commander had a general understanding of staffing levels from Engine 51, Engine 101, Tower 10 and later responding units—and the officers of those units clearly know the number of</p>	<p>G.3.1 HCDFRS should examine how volunteer member accountability is maintained and should determine a means of tracking volunteer member’s starting on units as it changes throughout any particular shift.</p>

Findings	Recommendations
<p>firefighters, their names, and their crew numbers—there is no indication that the Incident Commander had foreknowledge of additional staffing provided by volunteer firefighters on Engine 51 or any other volunteer station.</p>	<p>G.3.2 Use of new or existing technologies could assist in identifying staffing levels. HCDFRS should explore technologies and procedures available to address volunteer and career staffing assignments.</p>
<p>G.4 In reviewing the policies and practices of Heavy Vehicle Operators (HVOs) there appears to be room for interpretation of whether HVO PATs should remain with their assigned apparatus or be included in the collector ring with the crew.</p>	<p>G.4.1 HCDFRS should establish a procedure to account for an HVO and the HVO's PAT when a HVO operates separate of a crew as represented on the crew's collector ring.</p> <p>G.4.2 Establishing a procedure for PATs and collector rings to account for a firefighter who moves between crews.</p>
<p>G.5 It is unclear whether personnel who responded to the scene, but were not dispatched, followed the appropriate protocols for accountability.</p>	<p>G.5.1 HCDFRS should review associated General Orders and modify as needed to restrict an officer from self-dispatching units by phone or radio to an incident, separate of the Incident Commander.</p>
<p>G.6 While there are clear guidelines for the Communications Center responsibilities to support accountability efforts, the ISRB found a conflict between the Communications Center's policies and practices and the General Orders.</p>	<p>G.6.1 The HCDFRS and Communications Center must agree upon how unit staffing information will be relayed from units and summarized to the incident commander on multi-unit responses. The result should be consistent written policies and training for both HCDFRS and Communications Center staff.</p>
<p>G.7 Communications Center discontinued the fifteen (15) minute notifications during the incident after the MAYDAY transmission.</p>	<p>G.7.1 HCDFRS should establish a command channel on incidents as needed.</p> <p>G.7.2 To align with NFPA Standard 1500, Section 8.2.5.1, HCDFRS should</p>

Findings	Recommendations
	<p>adjust its interval notifications from fifteen (15) minutes to ten (10) minutes.</p> <p>G.7.3 The practice of time interval notifications from Communications Center to the Incident Commander is a critical task that should be continued. During a MAYDAY, the notifications should be restricted to a command channel. After the MAYDAY situation is resolved, interval notifications should resume on the operations channel.</p>
<p>G.8 HCDFRS General Order 300.02 Personnel Accountability does not reflect current fireground operations.</p>	<p>G.8.1 General Order 300.02 Personnel Accountability should be reviewed, updated, and republished.</p> <p>G.8.2 All General Orders that reference or discuss Accountability procedures should be congruent to the revised General Order 300.02: Personnel Accountability.</p>
<p>G.9 The current system for accountability using verbal PAR reports is time consuming and requires significant radio communications.</p>	<p>G.9.1 HCDFRS should consider moving to an electronic or radio-based PAR system.</p>
<p>G.10 The Charlie Division supervisor was unclear as to which crews were assigned to his division during the Incident.</p>	<p>G.10.1 HCDFRS should consider division and group supervisors having an accountability manager to assist with accountability when the situational demands exceed the ability of a group or division supervisor to make decisions and maintain accountability of units and personnel.</p>
<p>G.11 Crews were provided specific assignments but did not consistently refer to themselves by their assignments.</p>	<p>G.11.1 HCDFRS should provide additional training on proper radio procedures pursuant to General Order 310.01: Single Family and Townhouse Structure Fire Operational Guidelines</p>

Findings	Recommendations
	and General Order 300.07: Incident Command System . Additionally, training should be provided on the use of the "communications order model" as specified in General Order 410.01: Communications , Section 9.3.