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U.S. Department of the Interior

Division of Fire & Aviation

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Questions and Answers for the Daniel Holmes Fatality Accident Investigation

Q-1. What was the cause of death of Dan Holmes?
The cause of death was a basilar skull fracture inflicted by the top of a burning snag striking his head; a hemothorax was a significant condition contributing to death.

Q-2. Was there any delay in medical care to Dan Holmes due to the remote location?
Response was immediately provided by eight Arrowhead crew members, as well as other fire personnel, who were Emergency Medical Technicians (EMTs). As immediate care was provided to Holmes, the park ambulance was summoned and a medical helicopter was requested. Initial responders fully recognized the potential danger of the location, yet fearing they might injure him further by moving him without a backboard, the EMTs treated Holmes where he fell until the appropriate medical equipment arrived. Once stabilized with a backboard the responders moved Holmes to a safe location. He was soon carried to the road by firefighters, loaded into the ambulance and transported to a helicopter landing area. En route, Holmes stopped breathing and further efforts to revive him were not successful.

Q-3. What is the basic level of training and experience required to be a firefighter?
Entry-level firefighters are required to complete the basic wildland firefighting training, which constitutes 32 hours of classroom instruction and 8 hours of field training. Applicants hired for firefighter positions are required to pass the work capacity test (WCT) as condition of employment. The WCT is a test administered to measure the fitness level for duties associated with firefighting positions. The “arduous” level requires a firefighter to be able to carry a 45lb pack for three miles in 45 minutes or less.

Q-4. What was the level of training and experience required to be a hotshot?
Holmes was a crewmember on the Arrowhead Interagency Hotshot Crew (IHC), an elite firefighting crew that responds to large fires across the country. The National Park Service has two such crews: Arrowhead Hotshots at Kings Canyon and Alpine Hotshots at Rocky Mountain National Park. As mandated in the Interagency Hotshot Crew Operations Guide, 80% of the crew members on an IHC shall possess at least 1 year of experience on wildland fires. Physical conditioning is the cornerstone of the IHC. Applicants are strongly suggested to maintain a rigorous, structured physical training program before the season starts and be prepared to describe their training schedule. The job requires tough, knowledgeable individuals with strength, stamina, and an ability to remain level-headed in an extremely intense and hazardous environment.

Q-5. Did crewmembers meet the training requirements for their positions and were they properly documented?

All firefighters assigned to the Grant West Prescribed Fire were "red-card" qualified for the positions.

Q-6. What are the standard rules, regulations and/or safety standards for firefighting activities? Were any of these compromised?

All 10 Standard Fire Orders were followed during the course of the incident as well as the 18 Watch Out situations.

In addition, numerous other established safety procedures and practices related to the days' activities were followed. The SAIT learned that the Arrowhead Hotshots had established sound and sensible procedures of their own, more stringent than mandated by NPS policy. The 10 and 18 are listed here for reference purposes.

10 Standard Fire Orders	**18 Watch Out Situations**
1. Keep informed on fire weather conditions and forecasts.	1. Fire not scouted or sized up
2. Know what your fire is doing at all times.	2. In country not seen in daylight
3. Base all actions on current and expected behavior of the fire.	3. Safety zones and escape routes not identified
4. Identify escape routes and safety zones, and make them known.	4. Unfamiliar weather and local factors influencing fire behavior
5. Post lookouts when there is possible danger.	5. Uninformed on strategy, tactics and hazards
6. Be alert. Keep calm. Think clearly. Act decisively.	6. Instructions and assignments not clear
7. Maintain prompt communications with your forces, your supervisor and adjoining forces.	7. No communication link between crewmembers and supervisors
8. Give clear instructions and insure they are understood.	8. Constructing line without safe anchor point
9. Maintain control of your forces at all times.	9. Building line downhill with fire below
10. Fight Fire Aggressively but provide for safety first	10. Attempting frontal assault on fire
	11. Unburned fuel between you and the fire
	12. Cannot see the main fire, not in contact with anyone who can
	13. On a hillside where rolling material can ignite fuel below
	14. Weather gets hotter and drier
	15. Wind increases, and/or changes direction
	16. Getting frequent spot fires across the line
	17. Terrain or fuels make escape to safety zones difficult
	18. Feel like taking a nap near fireline

The 10 Standard Fire Orders were developed in 1957 by a task force studying ways to prevent firefighter injuries and fatalities. Shortly after the Standard Fire Orders were incorporated into firefighter training, 18 Watch Out Situations were developed. These 18 situations are more specific and cautionary than the Standard Fire Orders and describe situations that expand the 10 points of the Fire Orders. If firefighters follow the 10 Standard Fire Orders and are alerted to the 18 Watch Out Situations, the risk involved in firefighting activities is dramatically reduced.

Q-7. What was the condition of forest fuels in the area at the time of the Grant West fire?
The area for the Grant West project was a combination of smaller burn units that were ignited between 1990 and 1995. The burn was designed to consume the dead and down material created by the first fires and mimic the frequent natural fire cycle in the area. Fuel in the project included short-needle conifers (white fir, incense cedar and giant sequoia) and understory species of dogwood, manzanita, bear clover, ribes and white thorn. Scattered heavy fuel concentrations including heavy timber litter and larger limb wood are typified throughout the project.

Q-8. Why was the prescribed burn being conducted? How does this fit in with the efforts of the National Fire Plan and the efforts to improved forest conditions?
The burn was designed to restore natural forest conditions and create a defensible barrier for Grant Grove communities from wildfires both inside and outside the park.

Under the National Fire Plan, hazardous fuel reductions provide for management treatments (i.e., prescribed fire and mechanical thinning), to address dense forest vegetation resulting from decades of wildland fire suppression and fire exclusion on forest and rangelands. Hazardous fuel reduction activities under the National Fire Plan focus on wildland urban interface areas to reduce risks to people and property, as well as forested areas at high risk to catastrophic fire.

Prescribed burning or reducing hazardous fuels on public land is not new. Federal land management agencies have been conducting this type of work for over fifty years. Because of the severity of recent wildland fires, land management agencies are intensifying efforts by initiating more projects. As a result of the National Fire Plan, funding for hazardous fuel treatments has increased.

Q-9. Is air quality a factor when planning prescribed burns?
The National Fire Plan requires treatment of increasing amounts of acreage to reduce the threat of wildfire to communities. Like fire management, air quality is a concern for many communities across the nation. Standards for air quality (particulate matter) are established by a set of regulations, apart from those established for fire management activities. Frequently, local air quality districts mandate limited smoke duration, which may impact prescribed fire activities. As a result, at times fuels treatments and air quality regulations conflict. To meet the air quality mandates, federal land managers have been required to reduce the size of burn units by segmenting them into smaller units. More fireline must be constructed in order to treat the same total acreage, which results in additional days of exposure of firefighters to hazardous conditions.

Federal, state, and local officials must work together as a team to develop strategies for prescribed fire and wildland fire use, reducing risks to firefighters as well as achieving air quality and National Fire Plan objectives.

Q- 10. The tree from which the top fell and struck Dan Holmes had been identified as a snag. Why was it left in place? Is it NPS policy to leave snags remaining for preservation and wildlife purposes?

Public and firefighter safety is the top priority of Sequoia & Kings Canyon National Parks staff, as well as the rest of the National Park Service and the interagency fire community. In preparing for the Grant West burn numerous hazardous snags were identified and a number of trees were felled.

This snag was identified in the preparation for the burn. In the assessment of certified fallers, it was **not** deemed to be a threat to safety. After evaluation, it was believed to be more of a risk to fell this tree than to leave it standing. While the National Park Service considers resource preservation as much as possible, it **never** takes priority over human safety.

Q-11. What are the significant factors that led to the fatality?

The direct cause of the fatality was the top of the burning snag falling and striking Dan Holmes while he was walking underneath. The SAIT determined a number of "indirect causes" in its investigation, such as conflicting standards and policies related to hazard tree safety as well as a lack of standards to mitigate the danger associated in the immediate vicinity of hazard trees including burning snags. The BOR reviewed the recommendations found within the SAIT Report and developed recommendations for follow-up actions, along with a few additions.

Q-12. Were there any factors identified that were not considered contributory?

The investigation team considered whether or not failure of the helmet was a causal factor; they determined that the helmet was not designed to protect from an impact of this magnitude.

On page 22 under "Other Findings," the SAIT Report reveals that the toxicology test for Daniel Holmes indicated a blood-alcohol content (BAC) of .06%. After extensive evaluation of the facts and interviews it was determined that there was no conclusive evidence suggesting that the BAC was a result of alcohol consumption on the day of the accident. Scientific information suggests that the BAC may have been the result of post-mortem decomposition (see pages 22-23 of the SAIT report for a detailed description of the investigation surrounding this finding.) Final conclusions indicated that Daniel Holmes was not impaired in any way on the day of the accident. This conclusion is based on the SAIT report investigation, SAIT interviews, additional interviews, and the deliberation of the Board of Review. Additionally:

- **SAIT Investigation:** The elevated BAC level was discovered one month after the accident when the toxicology report was complete. If alcohol use had been a contributing factor in the accident, the Board of Review determined that corroborating evidence would have appeared during the course of the SAIT investigation. Prior to receiving the autopsy report, nothing in the investigation had indicated that alcohol was a factor in the incident.
- **SAIT Interviews:** The SAIT team re-interviewed Daniel's crew members who stated that Daniel behaved as a fully functioning firefighter on the day of the accident and they observed no evidence that he was under the influence of alcohol. An Arrowhead crewmember stated, *"I*

worked very closely with [Daniel]. [. . .] I paid attention to him because in this line of work you've got to watch out for each other . . . If I had in any way suspected there was an issue, I would have addressed it. It would have been unacceptable." Due to the consistency of these statements, the Board of Review believes the crewmembers are credible.

- **Additional Interviews:** New information was obtained after the conclusion of the SAIT investigation by Robert Wilson, Law Enforcement Specialist at Sequoia & Kings Canyon National Parks. Wilson interviewed the non-fire EMS personnel who responded to the accident including an NPS ranger, a private flight nurse, and a private helicopter paramedic. All three individuals indicated that there was no evidence of alcohol on Daniel Holmes during resuscitation efforts. Both the flight nurse and paramedic regularly encounter patients under the influence of alcohol and stated that they believed they would have detected the odor had it been present on Holmes. Given that these statements came from unbiased, third-party professionals, the Board of Review concluded that these statements provided additional credibility to the statements provided by crew members.

Q-13. What are the NPS investigative and reporting procedures for this type of incident?
In order to meet the requirements of the Departmental Manual (DM-485, Ch.7), NPS Director's Order/Reference Manual 18: Wildland Fire Management and NPS Director's Order/Reference Manual 50B: Occupational Safety and Health, the following process occurred:

- A Serious Accident Investigation Team (SAIT) was ordered on October 2, 2004. The team leader for the SAIT was James Loach, Associate Director for Operations, NPS Midwest Region. As team leader, he was responsible for the development of the formal briefings and reports according to the Department of the Interior's Departmental Manual 485, Chapter 7 (DM-485, Ch.7). The team itself was an interagency team which consisted of fire management safety, behavioral, and technical specialists. The team's role was to conduct the investigation in an objective manner in order to gather the facts and evidence, including causal and contributing factors related to the fatality. Reports produced included the Preliminary Brief and Expanded Brief (respectively the 24 and 72 hour reports); and an Accident Investigation Report that included their findings and causal factors for this incident.

- The SAIT presented the Final Draft Investigation Report to the Park Superintendent, Dick Martin and the National Fire Management Officer, Sue Vap on January 12, 2005.

- The Park Superintendent convened a Board of Review (BOR) to evaluate the *draft* Holmes Accident Investigation Report. The purpose of the BOR was to evaluate this report, develop conclusions and recommendations with implementation assignments and follow-up dates.

- The Park Superintendent and National Fire Management Officer presented the full text of the SAIT report and the Board of Review Management Review and Corrective Action Plan to a "Senior Executive Board" consisting of the Pacific West Regional Director, Jon Jarvis; the NPS Risk Management Program Manager, Dick Powell and the NPS DASHO, Karen Taylor-Goodrich. Subsequently the Senior Executive Board reviewed and approved the final draft reports and the documents were forwarded to the Solicitor for review.

- After the Solicitor review was completed, the DASHO surnamed the reports and forwarded them to the NPS Director for final approval.

- Once the NPS Director approved the final documentation, the family was briefed and release of the reports, findings, recommendations and follow-up actions followed.

According to the Department of the Interior's Departmental Manual 485, Chapter 7, the investigation report consists of two reports, the Factual Report and the Management Report. The Factual Report is a written report to a bureau head and bureau DASHO by the SAIT completed within 45 calendar days of an accident. (Extensions can be granted by the DASHO after a formal request has been made, and that is the case in the Holmes Incident.) The factual report contains only the bare facts related to the serious accident without any inferences, conclusions, or recommendations. Copies of the factual report or factual information gleaned from the report may be distributed to other bureaus and agencies.

The Management Report is also a written report by the SAIT to a bureau head and bureau DASHO completed within 45 calendar days of an accident. The Management Report contains all of the bare facts that are contained in the Factual Report, but also contains the results of the investigation - the SAIT opinions as to why management control systems did not prevent the accident, and recommendations for preventing similar accidents.

The Board of Review (BOR) reviewed and accepted the SAIT report and concluded that the *SAIT report is the equivalent of the Factual Report* as defined in the Departmental Manual 485, Chapter 7. The SAIT report also provided recommendations that were considered by the BOR. *The BOR Report serves as the Management Report and the Corrective Action Plan for this incident.*

Q-14. How do we get copies of the reports and the recommendations that will follow?
The Reports are posted on the NPS Fire & Aviation website at www.nps.gov/fire. A hard copy of the report can be obtained by contacting Sequoia & Kings Canyon National Parks, ATTN: Fire Management, 47050 Generals Highway, Three Rivers, California 93271-9651.

Q-15. Who were the members of the Serious Accident Investigation Team, and what credentials do these members have that qualify them to be on the team?
The investigation team for the Holmes fatality investigation consisted of individuals highly experienced in public land management with expertise in the fields of suppression tactics, fire operations, safety, fire-crew skills, training and equipment. Several key members of the team--including the team leader-- have prior experience in serious accident investigations.

Team Members:

Name	Title	Home Unit
James Loach	Team Leader	Associate Regional Director, NPS Midwest Region

Name	Title	Home Unit
Vern E. Hurt	Safety Manager	Chief of Public Health & Safety, NPS Midwest Region
Daniel Horner	Lead Investigator	Special Agent, NPS Pacific West Region
David McCandliss	District Fire Management Officer (FMO)	Sierra National Forest, USDA Forest Service
Kevin Chambers	Field Office Fire Management Officer (FMO)	Bakersfield Field Office, US Bureau of Land

(List of SAIT members can be found in Appendix C.)

Q-16. Who were the members of the Board of Review?

Name	Role	Title
Dick Martin	Chair	Superintendent, SEKI
Richard Powell	Member	Chief, Division of Risk Management
Edy Williams-Rhodes	Member	Chief, Division of Fire and Aviation
Marti Leicester	Member	Associate Regional Director of Operations, Pacific West Region

Q-17. Do the parks have a current Fire Management Plan? How often are these plans updated?
Sequoia & Kings Canyon National Parks completed a new Environmental Assessment and Fire & Fuels Management Plan in 2003, reflecting the most current conditions and identifying fuel management priorities. The parks began revising that plan in 1999 and hosted nine public meetings to capture ideas and comments at different stages during the planning process. Fire Management Plans should be reviewed annually and updated as necessary.

Q-18. To what compensation are family members entitled?
The survivors of Federal employees whose death was work-related are entitled to benefits in the form of compensation payment, funeral expenses, transportation expenses for the remains, if necessary, and payment for termination of the deceased's status as a Federal employee**.**

Q-19. Why were Appendixes 9 and 10 withheld?

- **Appendix 9:** Daniel Holmes' family requested that the coroner's and autopsy report not be distributed publicly and the National Park Service is respecting the family's request.

- **Appendix 10:** Department of the Interior, Departmental Manual Part 485, Chapter 7, Appendix 1 provides that all interview and witness statements are to be treated as confidential. After consultation with Office of the Solicitor, it was determined that the identity of those interviewed and their interview transcripts, are to be protected from disclosure under 5 U.S.C. 552(b)(6), of the Freedom of Information Act.

Q-20. Was the U.S. Department of Labor, Occupation Safety and Health Administration (OSHA) involved in the overall accident review?

OSHA reviews wildland firefighting incidents involving serious accidents and/or fatalities, based upon the Occupational Safety and Health Act of 1970, the Executive Order 12196, and 29 CFR 1960, Basic Program Element for Federal Employee Occupational Safety and Health Programs and Related Matters.

On March 3, 2005, OSHA issued Sequoia & Kings Canyon National Parks a "Notice of Unsafe or Unhealthful Working Conditions," indicating that the Type of Violation was Serious.
The park is actively working with OSHA on further clarification and mitigation measures. (From OSHA March 3, 2004 citation.)

[End of Questions and Answers.]