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# **Mid-level Manager's Survey: Assessing Contributions to Firefighter Entrapments**

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Technical Report Submitted to:

Paula Nasiatka  
Center Manager  
Wildland Fire Lessons Learned Center  
Marana, AZ

Technical Report Submitted by:

Curt Braun, Ph.D.  
John Grimes, MS  
Elise Lind, MS  
Benchmark Research & Safety  
Moscow, ID

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## Introduction

Firefighter entrapments continue to occur despite concerted efforts to prevent them. Investigations convened to identify and understand the possible causal factors have typically focused on the circumstances immediately surrounding the entrapment event. These investigations, dating back 45 years, have motivated changes in firefighter training and practice. Advent of the 10 Standard Orders and the Watch-Out Situations is a prime example of how findings from these investigations influence current practice. More recently, investigations have considered more macro-level factors that contribute to entrapments. For example, the investigation of the entrapment and subsequent fatalities at the 30-Mile fire prompted community-wide changes in how work/rest schedules are implemented. Given that entrapments continue despite efforts to modify firefighter behavior, the larger focus of investigations like that performed at the 30-Mile fire is encouraging. Consideration of how macro-level aspects of the firefighting process contribute to entrapments is likely to yield vital insight into prevention. The knowledge to be gained from the broader investigations, however, is limited.

A variety of factors limit the utility of entrapment investigations. Time pressure and investigative inexperience can reduce the insight gained from an entrapment. A far greater limitation is simply the small number of entrapments. Simply put, there are too few entrapments to allow comprehensive assessments of all salient factors. Other industries like commercial aviation experience similar constraints. Catastrophic accidents within this industry are rare. Because these events are rare, other methods must be used to identify and mitigate conditions that might contribute to an accident. The aviation community has begun to consider the precursors to accidents and mishaps. Similarly, the wildland fire community must also find ways of identifying and mitigating hazards without having to rely on the occurrence of entrapments. This report details **one method for considering precursors to entrapments**.

In a recent report prepared for the Wildland Fire Lessons Learned Center, Braun and Lind (2003) reviewed the investigative findings from the entrapment of a contract fire crew on a fire in 2002 and produced a variety of hypotheses that, if confirmed, might contribute to an entrapment. Some of these hypotheses explored how **mid-level managers** might be involved in wildfire entrapments and fatalities. For example, the authors hypothesized that, "Line level decision-makers have limited ability to interpret, integrate, and apply fire weather and fire behavior information" and "DIVSs [Division Supervisors] are not skilled in the management of resources in deteriorating conditions." Hypotheses related to seven aspects of the 2002 incident were created and serve to guide data and information gathering that can confirm or disconfirm their veracity. This report details the data collection effort taken to evaluate hypotheses about mid-level managers in the fire organization.

### Mid-Level Fire Managers

In the Incident Command System, as it is used in wildland fire, Branch Directors, Division Supervisors, and Strike Team Leaders serve as resource managers located between ground level firefighters and the Incident Management Team. Individuals in these positions manage suppression resources to fulfill the instructions outlined in the daily Incident Action Plan (IAP). To ground level firefighters, they might be the highest level of management with whom they interact. This is particularly true for division supervisors. For members of the command and general staff, they are likely to be the lowest level of the fire fighting organization with which they will have regular contact. Despite their unique position, Braun and Lind (2003) noted that little attention was given to their possible role in

the 2002 entrapment. Additionally, an on-going review of other fire entrapment and fatality reports has revealed few instances where the contributions of mid-level managers were assessed. Given their position and responsibilities, it is likely that these individuals can affect the occurrence or outcome of an entrapment.

## Hypotheses & Data Collection Methods

Based upon their review of the entrapment in 2002, Braun and Lind outlined seven different observations from which hypotheses were generated. These observations focused on the:

- 1) Division assignment and tactics
- 2) Decision-making and tactics of the Division Supervisor (DIVS)
- 3) Strategy outlined by the Operations Section
- 4) Tracking of the fire's progress
- 5) Crew and DIVS leadership interactions
- 6) Absence of mid-level management [in the investigation's chronology and evaluation]
- 7) Deployment circumstances and activities

The effort summarized in this report considered hypotheses from two of the original observations, Decision-making and tactics of the Division Supervisor, Crew and DIVS leadership. The hypotheses were used to generate a variety of talking-points, discussion topics that could be used to solicit data to confirm or disconfirm them. During August of 2003, the staff at the Wildland Fire Lessons Learned Center had an opportunity to interview mid-level managers on three separate fires in Montana and Idaho. Many of the talking points were used as questionnaire items.

In most cases, the talking points asked for information related to a specific hypothesis and did not state the actual hypothesis itself. This apparent lack of correspondence occurred for two reasons. First, the talking points were designed to elicit general information via a survey administered through a newsletter. Second, many of the statements in the hypotheses could not be asked directly because they appeared to prompt socially desirable responses. Social desirability describes the tendency for individuals to respond in ways that are socially acceptable even if it differs from their opinion, attitude, or experience. The table below shows the original hypotheses and the associated talking points. Additional survey items were also asked. A complete questionnaire can be found in Appendix A.

Table 1 Hypotheses Proposed by Braun and Lind (2003) and Survey Questions

### Decision-making and tactics of the Division Supervisor (DIVS)

#### Hypothesis:

1. Firefighters will attempt actions with low probabilities of success (i.e., they are contraindicated by environmental conditions) when the consequences of failure are low and there are not procedural prohibitions.

#### Questionnaire Item:

- 1.1 Given the need to burn out a large section of the line and extreme environmental conditions, which of the following are you more likely to do?
  - a. start the burning operation and see if it can be held
  - b. avoid starting the burning operation

## Hypothesis:

2. Line level decision-makers have limited ability to interpret, integrate, and apply fire weather and fire behavior information.

## Questionnaire Items:

- 2.1 Given information like the Haines index, ERC, RH, and winds, how confident are you in predicting what the fire will do?
- 2.2 The IAP contains information about fire weather and behavior. How accurate do you believe these predictions to be?

## Hypothesis:

3. Line level decision-makers who abdicate decision-making responsibilities to Hotshot crews are also likely to relinquish supervisory responsibilities.

## Questionnaire Item:

- 3.1 During an operation on your division, you appoint a Hotshot crew to lead three other crews in a burning activity. The Hotshot Superintendent is lining out crew along the line. During this operation, what proportion of the supervisory responsibility of the crews lies with the Hotshot Superintendent? What proportion remains with the DIVS?

- a. Hotshot Supv: \_\_\_\_%
- b. DIVS: \_\_\_\_%

## Hypothesis:

4. The decision-making of the DIVS might have been adversely influenced by the presence of the Hotshots.

## Questionnaire Item:

- 4.1 As a division supervisor, you are faced with an advancing fire. A dozer line ahead of the fire might control its spread if it can be burned out. The burn out will be risky. On a scale of 1-10 (1 = definitely would not attempt the operation, 10 = definitely would attempt the operation), how likely would you be to start the burn out operation if your crews are:

- a. Seasoned Type II crews?
- b. Hotshot crews?

Crew and DIVS leadership interactions

## Hypothesis:

5. DIVSs with fewer supervisory skills and expectations are likely to focus predominantly on suppression activities especially under stressful circumstances.

## Questionnaire Item:

- 5.1 Given your experience, describe how a DIVS with considerable fire experience but fewer supervisory or people skills might manage resources on a division.

## Hypothesis:

6. DIVSs' supervisory skills are not consistently evaluated in a manner that promotes improvement of existing skills or acquisition of new skills.

## Questionnaire Item:

- 6.1 As a DIVS, describe how your performance as a supervisor of suppression resources has been evaluated in the past. If you have received systematic feedback, has the feedback allowed you to improve your performance as a DIVS? Has the training you have received allowed you to improve your performance as a DIVS?

Hypothesis:

7. The supervisory tasks a DIVS must perform are not sufficiently detailed to promote performance.

Questionnaire Item:

- 7.1 In your experience, what proportion of the DIVS job requires supervision of resources and what portion requires the application of tactics for fire suppression. What does the fire community expect with respect to the division of your time to these two tasks?

Hypothesis:

8. DIVSs are not skilled in the management of resources in deteriorating conditions.

Questionnaire Item:

- 8.1 Describe training you have received that specifically addresses how to manage eminently dangerous situations faced by your subordinates (e.g., entrapment, hazard trees, extreme fire behavior, etc).

Hypothesis:

9. DIVSs are not required to attend supervisory refreshers or obtain what might be considered "continuing education" that would promote supervisory skills.

Questionnaire Item:

- 9.1 How might a DIVS obtain training to improve his/her supervisory skills?
- 

### **Additional Questionnaire Items**

Capitalizing on the opportunity to gather information from experienced personnel and insight into the responsibilities of DIVS, additional items were included in the survey. These items and their responses are summarized in Appendix B. Not all questionnaire items were summarized.

### **Participants**

Eleven (7 DIVS, 2 DIVS Trainees, 2 Branch Directors) individuals participated in the survey. The DIVS reported an average of 7.6 years of experience in their positions (range: 6 to 15 years). The two branch directors reported their experience but it was not divided according to qualifications. The two BD respondents reported 23 and 15 years of experience as DIVS and BD combined. Five of the respondents were assigned to an incident management team (National Type I IMTs). The remaining six were single resources and were not assigned to an incident management team (IMT). At the time the interviews were conducted, three respondents indicated that they were on their first assignment of the fire season. The other respondents indicated that they had worked between one to five earlier assignments. With the exception of the two trainees, respondents were all DIVS qualified.

### **Modified Survey**

The original survey contained 27 questions plus an additional four items specifically for BDs. After the initial interviews (n = 3) the survey was deemed too long and 16 items were eliminated from the survey.

## Results

### Decision-making and Tactics of the Division Supervisor

Data concerning hypotheses in the category of Decision-making and Tactics of the Division Supervisor were collected using five separate questions. See Table 1 for a list of hypotheses. The five questions and summaries of the responses are presented below. A conclusion section endeavors to assess the veracity of each proposed hypothesis.

#### Questionnaire Items and Response Summaries

1.1 Given the need to burn out a large section of the line and extreme environmental conditions, which of the following are you more likely to do?

- a. start the burning operation and see if it can be held
- b. avoid starting the burning operation

(n=3) Responses were mixed. One participant indicated that the burning option should be avoided (option b). The other participants, however, indicated that their decision would be influenced by the resources at risk and the experience of the crews.

2.1 Given information like the Haines index, ERC, RH, and winds, how confident are you in predicting what the fire will do?

(n=9) Responses were very similar with respect to the ability to use fire information to predict fire behavior. DIVS generally indicated that they could use the information to predict the weather. One DIVS indicated that he explains the information to resources on the division. This activity appears to reflect an inability of resources to use the information. As a follow-up question, respondents were asked to assess how well fire crews could use the information. Six of the respondents indicated that crews could not use the information to predict fire behavior. One DIVS indicated that Type I crews could use the information but Type II could not. The statements could best be summarized by the comment of one respondent who said, "Most people don't or can't use the information."

3.1 During an operation on your division, you appoint a Hotshot crew to lead three other crews in a burning activity. The Hotshot Superintendent is lining out crew along the line. During this operation, what proportion of the supervisory responsibility of the crews lies with the Hotshot Superintendent? What proportion remains with the DIVS?

- a. Hotshot Superintendent: \_\_\_\_%
- b. DIVS: \_\_\_\_%

(n=4) Three respondents indicated that 100 percent of the responsibility remained with the DIVS. One respondent, however, indicated that the distribution of responsibility was 50/50. This latter respondent described a burning organization in which he supervises the division and delegates responsibilities downward. He noted, "I supervise the division and so it depends on what else is going on too and how sharp the Hotshot Crew Supervisor is."

3.2 Looking at other DIVS how might the proportions in number 18 [the question above] change?

(n=4) While considering DIVS other than themselves, one respondent indicated that the extent to which authority is delegated to subordinate levels is determined by the underlying management structure. With positions such as strike team leaders in

place, the DIVS could pass a small portion of their responsibilities to these positions. One respondent also indicated that Hotshot Superintendents (HsS) could and have usurped the DIVS authority.

3.3 As a division supervisor, you are faced with an advancing fire. A dozer line ahead of the fire might control its spread if it can be burned out. The burn out will be risky. On a scale of 1-10 (1 = definitely would not attempt the operation, 10 = definitely would attempt the operation), how likely would you be to start the burn out operation if your crews are:

- a. Seasoned Type II crews?
- b. Hotshot crews?

(n=4) Respondents were mixed with respect to using seasoned Type II and Type I crews to conduct the firing operation. Three of the respondents reported that they would use both types of resources to burn in the described situation. The fourth respondent was a bit more guarded and discussed issues that he might consider before attempting the operation.

## Conclusion

The stated hypotheses address factors that might affect DIVS decision-making and actions. Admittedly, the hypotheses, the questions used to evaluate them, and the sample size suffered from several shortcomings. The hypotheses were not ideally stated. The questions appeared to suffer from a social desirability bias and the small sample size limited the interpretation. Despite these shortcomings, participant responses suggest that DIVS face a variety of critical decision-making tasks that occur in situations that are influenced by several factors including their subordinates, their assessment and problem-solving abilities, their experience, and the motivation to complete a task.

Tempered by the small number of respondents, the findings suggest that information concerning weather and fire is limited because a large portion of the suppression resources cannot interpret and apply it. If it is true that few suppression resources can use the information, DIVS are placed in a tenuous position of having to monitor changes in fire and weather across a large area in an effort to identify hazardous shifts in fire and weather. While it is true that DIVS's responsibility can be offset when other subordinate-level managers (e.g., strike team leaders) are available, the presences of these positions is not uniform, particularly on smaller fires.

In addition to providing training to suppression resources, the value of fire and weather information might be enhanced by recasting the information in ways that are more readily usable by resources in their current situation. One respondent, for example, indicated that the fire rating system was used in his home area. This rating system is used to convey fire and weather information. A similar system was recommended in the 1957 review of fire fatalities. A fire and weather information system that focuses on what firefighters should do rather than what the weather and fire will do might be more meaningful and require less training.

DIVSs appear to be influenced by the abilities and inabilities of subordinates. In the latter case, Hotshot Superintendents (HsS) can influence DIVSs. Hypotheses concerning the influence of HsS on DIVS were based on the perceived interaction of these two positions prior to the entrapment during the 2002 fire season. The activities of the DIVS suggest that he might have been influenced by the presence of the Hotshots. The preliminary findings of this current survey suggest that HsS can and do influence DIVS. The manner of this influence, however, cannot be determined. In addition to the recorded response of

one interviewee, one interviewer recalled at least one other respondent who indicated that HsS can and have usurped the DIVS. It is clear that HsS possess unique capabilities and have much to offer, but DIVS must be skilled in incorporating their input into the management of resources and activities without forsaking responsibilities. This type of skill development would be appropriate for additional training DIVS could receive, a topic discussed later.

## **Crew and DIVS Leadership Interactions**

Data concerning hypotheses in the category of Crew and DIVS Leadership Interactions were collected using five separate questions. As before, the questions, summaries, and conclusions are presented below.

### **Questionnaire Items and Response Summaries**

5.1 Given your experience, describe how a DIVS with considerable fire experience but fewer supervisory or people skills might manage resources on a division.

(n=4) Responses varied. For DIVS with less supervisory skills, one respondent indicated that a subordinate structure made up of strike team and task force leaders might compensate for the lack of supervision. This suggestion was supported by one other DIVS. This DIVS, however, indicated that the DIVS could not rely on subordinate leadership on small Type II and Type III incidents. He stated, "DIVS needs people skills." The last respondent reiterated the need to develop supervisory skills and suggested the AAR as one method for identifying needs in this area.

6.1 In your experience, what proportion of the DIVS job requires supervision of resources and what portion requires the application of tactics for fire suppression? What does the fire community expect with respect to the division of your time to these two tasks?

(n=4) Contrasting responsibilities to manage resources and apply tactics, three respondents indicated that the former consumed more of their time than the latter. One of the respondents noted, "Sometimes you need to focus 100% on supervision, management of supervisors actually and disengage totally from tactical advice." Other respondents indicated that the fire community expected that they should place the greater (if not sole) emphasis on "people." Varying from the emphasis on management was noted under some conditions.

7.1 As a DIVS, describe how your performance as a supervisor of suppression resources has been evaluated in the past. If you have received systematic feedback, has the feedback allowed you to improve your performance as a DIVS? Has the training you have received allowed you to improve your performance as a DIVS?

(n=10) Respondents alluded to the presence of unstructured feedback. One respondent reported receiving feedback in the form of the statement, "Thanks for pulling it off." Another respondent indicated that, "You'll know what mistakes you make." An overarching casualness was noted in all descriptions of the feedback process. None of the respondents reported receiving formal feedback. Surprisingly the trainee reported the absence of formal feedback. Several respondents indicated that feedback was available if they wanted it, but none of them indicated that it was received as regular part of their jobs. Respondents gained data about their performance from a variety of cues. The lack of injuries, a pat on the back, self-evaluations, and accomplishing the job were all perceived as feedback mechanisms.

8.1 Describe training you have received that specifically address how to manage eminently dangerous situations face by your subordinate (e.g., entrapment, hazard trees, extreme fire behavior, etc).

(n=10) No formal training was reported by any respondent. "Experience" was the most frequently reported means obtaining the skills needed to cope with dangerous situations. Courses such as Fireline Leadership and reviews of incident reports were mentioned as ways DIVS could obtain or enhance requisite skills. The sentiment of the respondents might best be summarized by the response of one BD who, when asked where he learned to handle these situations responded, "[The] school of hard knocks. To be good you have to accept failure and still move forward."

9.1 How might a DIVS obtain training to improve his/her supervisory skills?

(n=6) With one exception, all respondents indicated that they would seek additional training outside the traditional fire curriculum. One respondent, for example, indicated that he has received additional supervisory training through a local community college. Other individuals indicated they could obtain more generic supervisory training through their employer. S-381 Supervisory Leader was mentioned by one respondent.

## Conclusion

From the outside, the DIVS's job appears to consist of a network of supervisory tasks that are learned largely through experience, are rarely evaluated, and are rarely associated with catastrophic outcomes. This lack of a "tragedy" or "sense of tragedy" should not automatically be attributed to the DIVS's skills and ability. A common theme throughout the hypotheses portrays the DIVS position as one with limited definition, structure, and expectation. The challenges expressed by the trainees give the impression that the skills needed to be successful are not adequately defined or trained and must be learned through a trial and error process. This possible lack of definition structure might be reflected in the absence of a performance appraisal system and expectations about continued skill development.

There appears to be a vague informal performance appraisal system within the fire community. Following some of the interviews, respondents would report receiving feedback in the form of simple statements such as "He's a great guy. Hope to see him on the next incident." Although it is possible that the informal feedback might promote "improvement of existing skills or acquisition of new skills," the evidence as a whole suggests that this is not likely. Absent a self-directed effort to improve one's skills, (e.g., reading a book), it is not clear how or where these skills would be obtained. The absence of formal feedback, the often abstract task of supervising people, and the lack of training opportunities lend some support to the earlier observations concerning the undefined and unstructured nature of this position.

Although a question was asked concerning hypothesis 9 (DIVSs are not required to attend supervisory refreshers or obtain what might be considered "continuing education" that would promote supervisory skills.), it did not directly address the "required" component of the hypothesis. Although responses tended to support that DIVS were "not required to attend supervisory refreshers or obtain what might be considered 'continuing education' that would promote supervisory skills." this conclusion cannot be drawn directly. Given the few continuing education resources mentioned by respondents, however, it is likely that DIVS have no continuing education requirement beyond that expected of any firefighter.

As in the prior section, the stated hypotheses and questions could benefit from further refinement. (In deference to the original effort that created them, many of the shortcomings only became apparent after the data were collected.) The responses to question 5.1 did not access the information of interest. The hypothesis postulated that "DIVSs with fewer supervisory skills and expectations are likely to focus predominantly on suppression activities especially under stressful circumstances." The hypothesis endeavors to determine which skill set, suppression or supervision, DIVS use in deteriorating conditions. The proposed question failed to assess this hypothesis. Concerning the management of resources in deteriorating conditions, responses do not indicate that DIVS cannot manage in these conditions. Responses, however, do suggest that critical skills are not trained and must be learned through experience.

Taken together, responses to questions in this section suggest an Achilles' heel for DIVS. The combination of factors: the lack of feedback, a reliance on "experience" as a trainer, and the absence of training concerning management in dangerous situation creates a vulnerability for DIVS. This vulnerability is likely to manifest itself during critical moments where injuries and fatalities are possible.

## Summary

The objective of the talking points was to explore how mid-level managers might be involved in wildfire entrapments and fatalities. Taking a proactive approach, two sets of hypotheses developed after a review of a 2002 entrapment, were evaluated by conducting a series of structured interviews with DIVS on three separate wildland fires. In retrospect, this was an ambitious project with some limitations. Despite some methodological shortcomings, the process has provided valuable insight into the possible role DIVS might play when entrapments occur.

The findings identify ways the fire organization can facilitate performance while increasing safety:

- Provide suppression resources with training in fire and weather prediction, to offset the burden on the DIVS.
- Rather than providing raw data from which to predict fire behavior or weather, recast the information in ways that are more readily usable to resources in their current condition, e.g., a "fire fighter action" report instead of a weather report.
- Offer DIVS training concerning:
  - Personnel supervision
  - Integration of Type I crews into division management
  - Management of critical situations
  - Methods for assessing resource capabilities
- Implement systematic performance appraisals for DIVS
- Provide structured series of continuing education courses for DIVS

Are deficiencies in these areas related to the likelihood of entrapments? A reasonable answer would be that some shortcomings have greater implications than others.

The impact of certain shortcomings appears to be moderated by a tacit assignment system that matches DIVSs with division assignments commensurate with their abilities. Additionally, the DIVSs interviewed in this effort often displayed a realistic assessment of their limitations. Combined, these characteristics reduce the likelihood that a DIVS receives assignments that exceed his or her abilities. These qualities, however, are not

error- or ego-proof. When these informal systems fail, undesirable outcomes are more likely. A fire organization's reliability or resistance to failure can be improved by increasing the reliability or performance of DIVS.

Finally, the effort provides an example of a proactive method that can be used to assess systems, such as mid-level managers, before a tragedy occurs. The Wildland Fire Lessons Learned Center used historical data to generate hypotheses about possible contributors to firefighter entrapments. These hypotheses were then operationalized into survey questions that Information Collection Teams (ICTs) could use to gather data. Data from the ICTs were quickly consolidated and analyzed. The benefits of a guided proactive approach are numerous and obvious when contrasted with the reactive method that respond to injuries or fatalities. In retrospect, the process went surprisingly well. Further refinements in each of the steps, however, should increase the efficiency and productivity of the process.

**Appendix A: Mid-level Manager Survey**

I. Talking Points for mid-level managers

1. Name
2. Position
3. How many fire seasons have you held this position?
4. List higher level qualifications
5. Incident Management Team
6. Incident
7. How many assignments have you been on this year?
8. Describe your management style with regard to resources in your charge.
9. In your experience, how have resources on your division received your direction and management?
10. The IAP contains information about fire weather and behavior. How accurate do you believe these predictions to be?
11. Given information like the Haines index, ERC, RH, and winds, how confident are you in predicting what the fire will do? How well do you believe individual firefighters can predict future fire behavior?
12. Looking back on your experience, what have been some of your best management moments as a manager on a fire?
13. Looking back on your experience, in what situations did you feel that your supervisory skills were inadequate for the circumstances?
14. Describe training you have receive that specifically addresses how to manage eminently dangerous situations faced by your subordinates (e.g., entrapment, hazard trees, extreme fire behavior, etc).
15. The IAP outlines tactics by division. Describe situations when the tactics in the IAP are either insufficient or inappropriate with the conditions on the division.
16. Describe an occasion when the IAP facilitated your success.
17. Changing environmental conditions often warrant changes in planned tactics. In some situations, the changes in tactics are incompatible with the resources tasked to accomplish them. Describe situations when changes in tactics have produced incompatibilities between the assigned resources and the task at hand.

## II. Division Only

18. During an operation on your division, you appoint a Hotshot crew to lead three other crews in a burning activity. The Hotshot Superintendent is lining out crew along the line. During this operation, what proportion of the supervisory responsibility of the crews lies with the Hotshot Superintendent? What proportion remains with the DIVS?
- a. Hotshot Supv: \_\_\_\_%
  - b. DIVS: \_\_\_\_%
19. Looking at other DIVS how might the proportions in number 18 change?
20. DIVS on divisions with active fire must often make critical decisions about burning operations. In many instances the likelihood of success can be small. Looking back on your experience, what factors do you typically consider during these tight situations?
21. Given the need to burn out a large section of the line and extreme environmental conditions, which of the following are you more likely to do?
- a. start the burning operation and see if it can be held
  - b. avoid starting the burning operation
22. As a division supervisor, you are faced with an advancing fire. A dozer line ahead of the fire might control its spread if it can be burned out. The burn out will be risky. On a scale of 1-10 (1 = definitely would not attempt the operation, 10 = definitely would attempt the operation), how likely would you be to start the burn out operation if your crews are:
- a. seasoned Type II crews?
  - b. Hotshot crews?
23. Given your experience, describe how a DIVS with considerable fire experience but fewer supervisory or people skills might manage resources on a division.
24. In your experience, what proportion of the DIVS job requires supervision of resources and what portion requires the application of tactics for fire suppression. What does the fire community expect with respect to the division of your time to these two tasks?
25. As a DIVS, describe how your performance as a supervisor of suppression resources has been evaluated in the past. If you have received systematic feedback, has the feedback allowed you to improve your performance as a DIVS? Has the training you have received allowed you to improve your performance as a DIVS? If yes, give examples.
26. What specific expectations or training have you received to manage suppression resources in deteriorating and stressful circumstances that pose imminent danger to firefighters?
27. How might a DIVS obtain training to improve his/her supervisory skills?

### III. Branch Only

28. Looking back on prior incidents, what do you perceive the role of the BD to be?
29. Describe the types of managerial training you have received as a BD. Do you feel the training allowed you to improve your performance in managing resources on a branch?
30. Describe training you have received in managing a branch where predicted fire activity can jeopardize firefighter safety beyond what would be expected.
31. What specific expectations or training have you received to manage branch resources in deteriorating and stressful circumstances that pose imminent danger to firefighters?"

**Appendix B : Summary of Other Questionnaire Items**

DIVS on divisions with active fire must often make critical decisions about burning operations. In many instances the likelihood of success can be small. Looking back on your experience, what factors do you typically consider during these tight situations?

(n = 3) Respondents considered the factors such as the approval of the operation by the Operations Section Chief, the weather, resources at risk, experience of the resources, the wildland urban interface, and safety.

The IAP contains information about fire weather and behavior. How accurate do you believe these predictions to be?

Response Summary:

Concerning the accuracy of the fire weather and behavior in the IAP, respondents (n = 5). Responses to this item were generally supportive of the efforts to predict. One respondent noted that fire behavior analyst (FBAN) tends to overestimate fire behavior while using words like "potential" to cover all possible outcomes. Similarly, one respondent reported that the weather predictions tended to be more conservative (i.e., more extreme than reality). The accuracy of predictions appears to be most vulnerable during the initial operational periods of an assignment. Finally, it appears the DIVS have access to considerable weather information. One noted that weather information takes up too much communication space.

Looking back on your experience, what have been some of your best management moments as a manager on a fire?

Response Summary:

(n = 8) Respondents conveyed a variety of situations. Responses included notable safety records, clear decision-making under stressful conditions, and personnel actions.

Looking back on your experience, in what situations did you feel that your supervisory skills were inadequate for the circumstances?

Response Summary:

(n = 11) The most common aspects of the job that left the DIVS feeling inadequate occurred during the first operational period. The first shift appears to create the greatest demand. Other situations that left respondents feeling inadequate were: Interactions with HsS (n = 1); personnel conflict resolution (n = 1); and working with Type I crews.

Comments:

Difficulties managing the demands of the first operational period were accompanied by some distress. Developing and teaching methods to handle these stressful times might be an excellent way of facilitating DIVS performance.

The IAP outlines tactics by division. Describe situations when the tactics in the IAP are either insufficient or inappropriate with the conditions on the division.

Response Summary:

(n = 5) Inconsistencies were most common during the initial operational periods of the incident. Two respondents reported that inconsistencies diminish as resources

arrived. One respondent indicated that inconsistencies are more common during severe fire year.