

Rules for Rehab: When Must Rehab Be Established?

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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Abstract

The problem is that the Corvallis Fire Department (CFD) did not consistently adhere to department adopted rehabilitation (rehab) guidelines, putting firefighters at risk for illness and injury. The purpose of this research was to determine the causes that inhibit or prevent the use of the adopted rehab guidelines and identify the necessary changes to increase compliance.

Descriptive research was conducted to answer the following questions: a) what factors at CFD influence the decision to establish a rehab group, b) according to industry standards, when must a rehab group be established, c) how have other similar-sized agencies addressed the activation of a rehab group during an incident or training exercise, and d) what changes or alternatives should be considered to improve compliance with the rehab policy? Questionnaires and interviews were used to determine the factors influencing the decision to establish a rehab group. A questionnaire was sent to all members of the Corvallis Fire Department to determine the internal culture, while another questionnaire was sent to fire departments of similar size or deployment model to determine how they have implemented rehab for their department. An interview was also conducted with each of our three Battalion Chief's. A literature review was completed to find any laws or standards that would give specific benchmarks or trigger points to use in deciding when to establish a rehab group. Results of the research indicate that benchmarks for establishing rehab must be determined by each jurisdiction based on their unique circumstances. There are four recommendations as a result of this research: 1) establish a policy for when rehab should be established by the IC, 2) establish an adequate alternative for those times when formal rehab cannot be established right away, 3) determine who will staff rehab, and 4) create partnerships with automatic and mutual aid companies.

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The Corvallis Fire Department (CFD) is called upon to respond to various types of emergency incidents in all types of environmental conditions. Regardless of the overall atmospheric conditions, extreme environmental conditions often exist that are caused by weather, by the incident, or by the personal protective equipment used. According to a report from the United States Fire Administration (USFA) (2008) on the subject of emergency incident rehabilitation, when the physical and mental aspects of firefighting are combined with temperature extremes and humidity, conditions are present that “can have an adverse impact on the safety and health of the individual emergency responder” (p. 3). It goes on to say that those who are not given proper rest and rehydration opportunities are at increased risk for illness or injury and, more importantly, increase the risk to everyone else on scene. The CFD is not exempt from these environmental conditions and is concerned about the adverse effects that it may have on its’ members.

The problem is that CFD does not consistently adhere to department adopted rehabilitation (rehab) guidelines, putting firefighters at risk for illness and injury. The purpose of this research is to determine the causes that inhibit or prevent the use of the adopted rehab guidelines and identify the necessary changes to increase compliance. Descriptive research was conducted to answer the following questions: a) what factors at CFD influence the decision to establish a rehab group, b) according to industry standards, when must a rehab group be established, c) how have other similar-sized agencies addressed the activation of a rehab group during an incident or training exercise, and d) what changes or alternatives should be considered to improve compliance with the rehab policy? Interviews were conducted with the command officers at CFD to determine which factors influence their decisions concerning rehab during

incidents and training exercises. Questionnaires were sent out to all non-supervisory operations personnel at CFD to determine their perceptions of how the decisions are made for implementing the rehab group and how it could be done differently. Questionnaires were also sent out to similar sized fire departments in Oregon to ascertain how they have determined when to implement a rehab group. Literature reviews were conducted to find any specific laws, standards, or guidelines to help determine when a rehab group must be established.

Background and Significance

CFD is a mid-sized fire department in Oregon which consists of 57 paid and 45 volunteer firefighters for a total of 102 line staff. The department provides fire suppression, fire prevention and education, specialized rescue, emergency medical services, ambulance transportation, and hazardous materials response services to the 55,129 (City of Corvallis, 2010) citizens of the City of Corvallis. The area covered is approximately 45 square miles. In addition, the fire department ambulance service responds to medical calls throughout most of Benton County, Oregon, totaling 679 square miles with a total population of 78,153 (U. S. Census Bureau, 2000) which includes the City of Corvallis. The annual call volume for fiscal year 2009/2010 was 5879 calls with 80% being emergency medical services related calls for assistance (W. Bauscher, personal communication, March 10, 2011).

The deployment configuration of CFD plays a significant part in our ability to respond to fire related calls. Three of our six stations provide both fire and transport ambulance services with the same crew of three people. This means that if an ambulance call comes in first the crew will leave the engine uncovered and respond to the call for medical assistance. Likewise, if a fire call comes in first the crew will leave the ambulance uncovered and respond to the fire incident. Since 80% of our calls are medical related this translates into an average of 8.6 hours per 24 hour

shift that one or more of our ambulances are out on a call, leaving the city and rural fire district with less than six companies for any fire or rescue response (L. Shaha, personal communication, December 28, 2010). Mutual aid and automatic aid agreements have been created with neighboring departments; however, response times vary from 15 to 30 minutes for the most reliable resources due to staffing methods or distance traveled. Many times we are only able to muster enough automatic aid to staff two of our stations while CFD runs the call.

Within the last few months, like many other municipalities, our city has been facing budgetary shortfalls. The City Council and Budget Commission have been working with each department to determine the best way to deal with the decreasing tax revenues. To date, the Fire Department has made significant cuts to the relatively low priority items leaving operational funding as the last option. Two options being discussed include station brown-outs and/or permanent station closure. The discussions were moving forward until it came down to deciding the specific station and the neighborhoods that would be affected. Nevertheless, these potential budget cuts are a reality that will directly impact our responses and the subsequent ability to provide firefighter safety items such as rehab.

In April, 1997, the CFD identified the need for establishing a formal department operating guideline (DOG) to address incident rehab procedures. When it was first implemented a sincere attempt was made at most large incidents to establish a rehab group. Although the DOG was limited in scope, it was an important step toward providing for firefighter safety. In July, 2006, the CFD adopted a revised edition of that DOG to bring the fire department rehab practices up to date with current National Fire Protection Agency (NFPA) standards. In addition to providing a place for firefighters to rest and rehydrate, vital signs from each member were used to determine if they could safely return to assist with the fire or rescue operation. Over

time, establishing a formal rehab group became less frequent. When a rehab group was established it would not include the newer aspects of the DOG such as monitoring personnel vital signs, but would only include allowing the crew to rest for 10 to 15 minutes while they drank a few ounces of water and cooled down. In addition, the decision often hinges on the opinion of the crews that are on scene. When the Incident Commander (IC) asks each crew if they need rehab it is a rarity that anyone wants to be the first to go. Firefighters have a tendency to not want to go to rehab in the first place, or stay in rehab once they are there, as noted in the appendix to NFPA 1584 (2007, p. 13). This is a difficult position for the IC. On the one hand, there is a need to mitigate the situation in an expedient manner with the resources available. On the other hand, the health and wellness of our crews must be our primary concern. Without adequate and consistent benchmarks or trigger points to assist the IC in making good decisions, firefighter health and safety hinges on the subjective opinion of the person in charge.

Since the establishment of the first rehab D.O.G. in 1997 CFD has recognized that rehab is an important aspect in maintaining firefighter health and safety, but its' members are having difficulty coming to agreement on when it should be established. Unfortunately, it has only been approached as a technical problem to this point. As outlined in the text for the Executive Development course, this is an adaptive challenge that cannot be solved through technical solutions (Heifetz & Linsky, 2002). This research is an attempt to obtain a balcony perspective of this problem and identify solutions that were not clearly visible from the floor. (Heifetz & Linsky, 2002, p. 51) Any solutions determined by this research and applied to correct this problem will help meet the United States Fire Administration Strategic Plan goal number 3 by "improving the fire and emergency services' capability for response and recovery from all hazards" (U. S. Fire Administration, 2010, p. 14).

Literature Review

Through this search the author found that much has been written to describe what a rehab group should look like and what services they should be able to perform. Very little, however, has been written to indicate when a rehab group should be established. Even the most current firefighter training materials used to provide introductory training to new recruits only have a few paragraphs stating that rehab is important for firefighter safety, yet there is nothing to explain why it is important, or when and how to set up rehab.

OR-OSHA

There are two sets of documents that pertain to laws in Oregon. The Oregon Revised Statutes (ORS) are the letter of the law and the punishments that pertain to each law that is violated. This is usually in the form of a general statement indicating what should not be done. The Oregon Administrative Rules (OAR) are an explanation of how the law is to be carried out. The OAR goes into specific detail about the subject.

General workplace safety responsibilities for employers and employees are outlined in ORS chapter 654.010 which states that employers are responsible for making the workplace safe for employees, as well as ensuring that employees perform safely at work (State of Oregon, 2010). Division 1 of OAR chapter 437, the OR-OSHA chapter, expands on the statement above with a comprehensive list of employer and employee responsibilities for maintaining a safe workplace (State of Oregon, 2008). A search of specific workplace safety applications for firefighting in the OR-OSHA laws revealed nothing regarding rehab or a work-to-rest ratio. The only reference to an NFPA document within the OAR's and ORS's that requires the establishment of a rehab area at an emergency scene was OAR chapter 437, Division 2 L, which states that "An incident management system that meets the requirements of NFPA standard 1561

. . . must be established” (State of Oregon, 2008). NFPA documents will be covered in depth next; however, it is important to note now that NFPA documents are considered consensus standards and not enforceable as law unless they are referenced in a law such as the ORS’s and OAR’s.

NFPA Documents

NFPA 1584, *Standard on the Rehabilitation Process for Members during Emergency Operations and Training Exercises* (National Fire Protection Association, 2007) states in section 6.1.1 that rehabilitation operations need to be in place whenever the situation may pose a safety or health risk to members (p. 6). The annex gives an explanation of some of the factors that could pose a safety or health risk. These factors include time, complexity, intensity, and environmental conditions. Specifically, if crews will be in their turnouts or extreme environmental conditions for extended periods of time, are involved in complex scenes such as stand-offs or extended search and rescue, or will be subjected to scenes that are likely to cause mental or physical stress, then rehab should be established. In addition, there are two benchmarks suggested indicating a crew should be sent to rehab. The first benchmark given is the number of SCBA cylinders that a firefighter has consumed, and the other is the amount of intense work the firefighter has done. NFPA 1584 makes one other statement regarding the decision of when to implement the rehab group stating that members shall be assigned to rehab according to departmental SOP’s (National Fire Protection Association, 2007, p. 6). There was no direction found in the document regarding what specifics should be included in the departmental SOP’s.

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program* (National Fire Protection Association, 2006), states in section 8.9 that “The fire department shall

develop standard operating procedures that outline a systematic approach for the rehabilitation of members operating at incidents” (p. 26). As with NFPA 1584, there is no mention within this standard of what should be included in the SOP. The only mention in this standard regarding when rehab should be established is in section 8.9.2. It indicates that the IC must consider the unique problems of each incident and initiate rehab in with the department operating procedures and NFPA 1561 in mind (National Fire Protection Association, 2006, p. 26). According to Annex information for section 8.9.2 the circumstances of each incident are time, complexity, intensity, and environmental conditions as mentioned above in NFPA 1584. Section 8.9.4 states that each member at an incident has the responsibility of communicating their rehabilitation needs to their supervisor (National Fire Protection Association, 2006, p. 26).

NFPA 1561, *Standard on Emergency Services Incident Management System* (National Fire Protection Association, 2006) was specifically referenced in the NFPA 1500 document above saying that rehab should be initiated according to NFPA 1561. It was also referenced in the OR-OSHA document above with a statement that an incident management system that meets the requirements of NFPA 1561 must be established. NFPA 1561 only has two sentences regarding rehab, stating in section 4.6.1 that “The incident commander shall consider the circumstances of each incident and make provisions for the rest and rehabilitation of responders” and in section 4.6.2 that “responders shall receive a new incident assignment, return to the staging area to await an incident assignment, or be released from the incident” after rehab is complete” (National Fire Protection Association, 2006, pp. 7-8).

NFPA 1521, *Standard for Fire Department Safety Officer* (National Fire Protection Association, 2007), has only one reference to rehab. Section 4.5.7 states the incident safety officer is responsible for maintaining knowledge regarding rehabilitation strategies on

emergency scenes (National Fire Protection Association, 2007, p. 7). The annex for this section states that it is not the responsibility for the Safety Officer to establish rehab, but they should ensure that it is established when necessary, and that it is adequately staffed and supplied (National Fire Protection Association, 2007, p. 13).

Publications

In 2008 the U.S. Fire Administration (USFA) partnered with the International Association of Firefighters (IAFF) to create a document to assist fire departments in understanding the laws, standards and regulations related to rehab. The document, *Emergency Incident Rehabilitation* (U. S. Fire Administration, 2008), explains in detail why rehab is necessary, what should be included when firefighters do go through rehab, and considerations for when firefighters should go through rehab. The USFA makes the point that “determining when to establish rehab operations at an incident remains more of an art than it is a science” (U. S. Fire Administration, 2008, p. 73). They claim it is difficult to find benchmarks that apply to every situation or scenario. Although they do list the same items as in NFPA 1584, their recommendation is that the Incident Commander (IC) should be able to make the decision to implement the full rehab group based on the situation. In this publication the USFA has taken the Heat Index from the National Weather Service (NWS) and adapted it to fire and emergency services to indicate when special measures ought to be considered during both emergency and training exercises. The USFA utilizes the same information as the NWS regarding temperature and relative humidity along with two other factors to come up with what they call a heat stress index number (U. S. Fire Administration, 2008, pp. 80-82). For example, a temperature of 86 degrees F, in and of itself, is not a danger to firefighters. If we compare what 86 degrees feels like at two different humidity levels we will see that the impact can be significant. When the

relative humidity is 20 percent, the heat stress index would tell us that 86 degrees F will feel like it is 84 degrees F. If the relative humidity increases to 90 percent, the heat stress index would tell us that the same 86 degree temperature will feel like it is 109 degrees F. In addition to the NWS heat index, the USFA has added two additional components that are specific to firefighting. Those components include adding 10 degrees F to the heat index number when protective clothing is worn, and 10 degrees F when working in direct sunlight. In our example above using 86 degrees F with 90% humidity we had a resulting heat stress index of 109 degrees F. Adding 10 degrees F for protective clothing and 10 degrees F for working in direct sunlight would put the firefighter in the equivalent environment of a 129 degree F atmosphere. In a previous document from the USFA there is a recommendation of initiating rehab operations if the heat stress index rises above 90 degrees F (U. S. Fire Administration, 1990). In their current document, however, they do not include a specific benchmark for the heat stress index. This is also true for cold environments. The previous document suggested that any conditions with a wind chill below 10 degrees F should trigger the initiation of a rehab group. Because of the vast climate extremes found in various regions of the United States, they believe it must be determined by the agency, and more specifically, the incident commander based on the specific circumstances and how well firefighters are acclimated (U. S. Fire Administration, 2008, pp. 80-82). One recommendation made in this publication is that there should be some preset parameters when dealing with weather extremes such as a high heat stress index, or an extreme wind chill factor. The suggestion is to have special rehab equipment automatically dispatched, have an extra engine or truck on first alarm assignments, include an additional ambulance to all working incidents, and have firefighters report to rehab after consuming their first SCBA cylinder (U. S. Fire Administration, 2008, p. 82).

The next publication, *Rehabilitation and Medical Monitoring*, is considered to be an implementation guide for NFPA 1584 and was adopted by the International Association of Fire Chiefs (IAFC) (Augustine, et al., 2009). Very similar in presentation and intent to the last review, the primary focus of this publication is for the IAFC to share what they feel are “best practices” for a rehab program. References to NFPA 1584 are included concerning the considerations for establishing a rehab group, however, Augustine attempts to simplify those references by saying that when tasks are “physically demanding or dangerous” or when “weather and environmental conditions are extreme” the IC should “have a low threshold for initiating rehab” (Augustine, et al., 2009, p. 14). Augustine also covers two areas of note that differ from that of the other authors. When considering the implementation of rehab, Augustine states that operational needs must be taken into consideration since the greatest need for resources is often early in the incident when they are the most limited (Augustine, et al., 2009, p. 14). The other statement makes mention of the utilization of a regional approach to a rehab plan when resources are limited (Augustine, et al., 2009, p. 4). There is another possible solution given later in the text to deal with limited resources early in an incident. Each crew can also take advantage of something called informal rehab (Augustine, et al., 2009, p. 38). Many times this is done at or near the apparatus that the crew responded on and is done during a time of transition to a new assignment or during an SCBA cylinder change. The crew takes about 10 minutes to remove their turnouts, rest, and grab something to drink. Later, when formal rehab is established, the crew will receive more specific attention.

Books

In the second edition of the *Emergency Incident Rehabilitation* book there is an entire chapter dedicated to the question of when to initiate a rehab group (Dickinson & Wieder, 2004).

As with the preceding literature, the authors indicate that the types of incidents vary too much to be able to settle on a single list of benchmarks. On the other hand, they make the statement that establishing rehab should be done proactively as a normal course of action rather than waiting until firefighters start dropping from exhaustion (Dickinson & Wieder, 2004, p. 16). The chapter speaks of the types of incidents, events, and conditions for which rehab should be established. Two important themes can be taken from many different points in this chapter. First, it is important for the incident commander to maintain a level of situational awareness. This includes an awareness of the incident and whether it is getting better or worse, the ambient conditions that may affect the incident and responders, and the status of each of the responders. Second, the incident commander must be proactive with regard to determining the need for a rehab group. The whole purpose of rehab is to prevent injuries and deaths related to exhaustion and overexertion.

Presentation

In January of 2011 the Oregon Fire Instructors Association held its' annual Firefighter Safety and Survival Symposium. This author took the opportunity to attend a lecture on Emergency Incident Rehabilitation being taught by one of the co-authors of one of the publications above, Rehabilitation and Medical Monitoring (Augustine, et al., 2009). Dr. Mike McEvoy discussed the various aspects of emergency incident rehabilitation, including factors used in determining when to implement a rehab group.

The main focus of the lecture was helping departments decipher the various parts of NFPA 1584 that are requirements and those which are suggestions. Dr. McEvoy emphasized the necessity for establishing a rehab group as it is stated in the NFPA documents, but that the benchmarks were less than concrete (M. McEvoy, personal communication, January 15, 2011).

His suggestion to the group was to have the department decide what the benchmarks ought to be for the conditions we most commonly encounter, but that we should also make allowances for uncommon occurrences by leaving the decision to the discretion of the IC on scene. The other point he made was to pay attention to what the crews are saying.

Procedures

A search was conducted through the National Fire Academy (NFA) Learning Resource Center (LRC) to find any books, journals, or documents written on the subject of emergency incident rehabilitation. To narrow the search only those including specific information on when to implement rehab were included. A similar search was also conducted through the Albany Public Library, Albany, Oregon, which provides access to a database of all Oregon Public Libraries and College Libraries. The search provided many of the same results as the NFA LRC, but nothing unique.

An online search of documents and presentations related to emergency incident rehabilitation was conducted by accessing the OR-OSHA website, the NFPA website through a CFD subscription, as well as the IAFF and IAFC websites. The IAFC document, *Rehabilitation and Medical Monitoring*, was obtained by attending a lecture where one of the authors was providing background information and answering questions regarding how to implement NFPA 1584.

Interviews were conducted separately with each of the three CFD Battalion Chief's (appendix A). Each provided their opinions regarding why the establishment of rehab is seemingly unpredictable. Insight was gained into the decision making process that they use.

An internal questionnaire was created based on the information gathered by both of the methods listed above and was distributed to all non-supervisory operational staff (appendix B).

The survey was distributed by an email with a link to a Google Forms questionnaire. Out of the 102 emails that were sent out, 20 people completed the questionnaire in the time allowed.

An external questionnaire was also created to find out how other fire departments are addressing this issue (appendix C). This questionnaire was distributed to Oregon Fire Departments of similar size, population served, and/or deployment model as CFD. The departments chosen by this author included Albany Fire Department, Bend Fire Department, Columbia River Fire and Rescue, Grants Pass Fire Department, Hood River Fire Department, Jackson County Fire District #3, LaGrande Fire Department, Lebanon Fire District, Medford Fire Department, Newberg Fire Department, Polk County Fire District #1, Sisters-Camp Sherman Fire District, Sweet Home Fire District, and Willamette Valley Fire Authority. These were sent out via email with a link to a Google Forms questionnaire. Out of the 14 emails that were sent out, 8 departments completed the questionnaire in the time allowed.

Limitations to this research include a lack of published material related to benchmarks or trigger points for establishing rehab, and scant information for how small fire departments should determine those benchmarks based on their operational abilities.

Results

What factors at CFD influence the decision to establish a rehab group?

From the BC's perspective, the main problem is the lack of available qualified personnel to staff rehab early in the incident (appendix A). The need for crews to be actively involved in the mitigation of the incident early on usually outweighs the risk. Once a second alarm has been called, off-duty personnel respond to the station to cover the rest of the city while the on-duty crews handle the incident. The BC must wait for those off-duty members to arrive at the station to bring the rehab equipment to the scene. The BC's point of view is that it is nice to have the

flexibility to establish rehab only when it is needed. On the other hand, if it is always left up to the BC to decide “it may get overlooked because the BC is focused on the next action required to put the fire out” (appendix A). The BC’s collectively felt that trigger points are extremely important for helping the IC remember rehab, but that they should still be able to maintain flexibility in making that decision. All three agreed that time is not a good trigger point because of the varying degrees of work that are being done on scene, as well as the varying degrees of fitness among the crews. In addition, consumption of two SCBA cylinders is a better indicator, but should not be absolute because of the varying degrees of work from each person to consume that cylinder. Two of the three BC’s felt that the best course of action would probably be to make the establishment of a formal rehab automatic when a second alarm has been called. That is the most common time that rehab is needed and that doesn’t preclude the IC from demobilizing rehab if it is no longer needed. One of the most difficult aspects in deciding when rehab should be established revolves around what the crews are telling the IC. Should the IC trust the crew when they say that they are fine and don’t need rehab? On one hand, the IC is glad to hear that the crew can still work resulting in a quicker mitigation of the incident. But the BC’s know that none of the crews want to be the first to go to rehab, thereby showing weakness to their coworkers. As one of the BC’s stated in this interview, if this is going to change, “we need to change our culture” (appendix A).

The questionnaire sent out to non-supervisory operations staff indicates that there are mixed perceptions of how often and how well rehab is being established. The results can be found in appendix B. This research did not attempt to determine what each person believes about what is provided during rehab practices, which may explain the wide variety of responses. Questions 5 asks the respondent if rehab has been consistently established at incidents they have

responded to. The responses are almost equal between the responses of yes, most of the time, and no. When asked if the rehab provided during incidents and training is adequate, most indicated that it was not. The reasons given for why they feel that rehab is not established consistently come down to three things: a lack of people, money, and commitment. Their suggestions regarding what could be done to correct those problems include having a set group of people to staff it, and a set procedure of when to establish it. Suggestions included utilization of the volunteers and specific benchmarks such as every second alarm. One respondent stated that we should consider rehab to be a resource like any other resource that we call for. If we call for it and we don't need it, we can always send them back home. Another theme in the results of this questionnaire is the recommendation of providing training regarding the expectations. If we make rehab part of our lesson plans and train on rehab every time we conduct our regular training, it will become part of the culture. Last, there were many comments that imply that the department does not consider rehab and the safety of its members a priority. Some of the statements are that we need to make it a priority, we need to have consistent commitment, and that we have a lack of commitment.

According to industry standards, when must a rehab group be established?

Within the legally mandated OR-OSHA material there is very little direction given regarding when rehab must be established. There is a blanket statement concerning safety in the workplace as well as specific responsibilities for both the employer and their employees (State of Oregon, 2008). There is one reference to NFPA 1561, *Emergency Services Incident Management System*, that states an incident management system must be in place, and it does say that rehab shall be considered by the incident commander. There is nothing mentioned in NFPA 1561 regarding specific benchmarks for determining when rehab must be established.

The results from the four NFPA documents reviewed indicate that rehab is strongly recommended under certain circumstances or conditions. Each NFPA document gives an explanation of terms. In section 4.6.1 the document states that the ICV must evaluate the circumstances of each situation and make rehab available to firefighters that become exhausted (National Fire Protection Association, 2006, p. 7). This would indicate that it is entirely up to the IC to know or determine when the crews are fatigued enough to need rehab. NFPA 1500, *Fire Department Occupational Safety and Health Program*, closely mimics NFPA 1561 stating that the Incident Commander “shall consider the circumstances of each incident” (National Fire Protection Association, 2006, p. 26). In addition, NFPA 1500 requires fire departments to create department SOP’s giving direction regarding when to establish rehab. NFPA 1521, *Fire Department Safety Officer*, only mentions rehab in the context of the Safety Officer needing to make sure that rehab is not forgotten (National Fire Protection Association, 2007, p. 7). The only document that provides two seemingly specific benchmarks for the implementation of rehab is NFPA 1584, *Rehabilitation Process for Members During Emergency Operations and Training Exercises* (National Fire Protection Association, 2007). They include the number of SCBA cylinders that a firefighter has consumed, and the amount of time the firefighter has been involved in intense work. However, it is noted that these two benchmarks are not always reliable in determining the need for rehab, nor is it always feasible to enforce these benchmarks early in an incident (Augustine, et al., 2009, pp. 14-16). Some crews may be operating within the hazard zone, but they are on the exterior of the structure and not exerting themselves. While they have met the criteria for needing rehab, they do not yet have a true need for rehab (M. McEvoy, personal communication, January 15, 2011). Dr. McEvoy, a co-author with Augustine, also suggested that the level of exertion benchmark is difficult to gauge since every person has a

different base level of fitness and their abilities can change from day to day (M. McEvoy, personal communication, January 15, 2011).

How have other similar-sized agencies addressed the activation of a rehab group during an incident or training exercise?

This questionnaire was sent out to 14 departments with 8 people responding back, as noted in appendix C. The responses indicate that each of the departments have slight variations in their size or staffing, but generally respond to emergencies in a similar fashion. All but one department indicates that they have a rehab policy in place, while only three departments follow NFPA 1584 standard. Of those departments that answered question 9, all four indicate that they have difficulty with how consistently they are able to establish rehab at their emergency incidents. They state that it is overlooked, forgotten, or a lack of resources that keep them from being consistent. When they do remember to establish rehab it is a result of recognizing certain trigger points such as consumption of two SCBA cylinders, working for long periods of time, and environmental conditions. Most departments do not have a designated rehab unit. Within the answers provided it is clear that the majority of these departments are struggling with the same issues regarding consistently establishing rehab. There are a couple of agencies indicating that part of the solution for them was the utilization of support or rehab volunteers. However, when those volunteers don't respond, the result is the same as the other departments with a lack of resources to establish it.

What changes or alternatives should be considered to improve compliance with the rehab policy?

The feedback received from the Battalion Chiefs indicates a couple of changes that may help clarify when rehab should be established (appendix A). First, they indicated that one of

their biggest concerns is trying to determine where the resources will come from. Since they generally use all of the readily available resources to mitigate the emergency, it leaves very few options on scene from which they can choose. What they don't like is deciding which of the committed crews is needed least so they can cover rehab. They would prefer to have a pre-designated group or company assigned to rehab. Second, with our system we don't always know how many people will come in to the station during a major incident. We may need to depend more on our automatic and mutual aid companies to provide those services for us.

The non-supervisory staff made the observation that a set procedure should be in place for determining when to establish a rehab group (appendix B). One person indicated that they don't believe that there is a bad way of doing it, but that we need to choose a way and be consistent. A couple respondents used the example of establishing a rehab group any time that there is a second alarm. The other recommendation found in these questionnaires is the need for training in the procedures and reinforcement by using rehab during training exercises.

The questionnaire to other departments indicates that they are experiencing the same difficulties that we are (appendix C). From those that responded, two indicated that they have a dedicated rehab unit that responds to their larger incidents. In one case it is staffed with support and rehab volunteers, and the other department uses paid staff that comes in on call back. Of the other six departments that don't have a dedicated rehab unit, one stated that "if the fire is to be put out, we need to do it. If we need to take a break, then we do it". Another department has a guideline that states that the "establishment of rehab, (is an) individual responsibility". The department will make every effort to provide rehab as soon as it can, but it still comes down to the individual.

Another alternative that should be considered is the recommendation from the publication *Emergency Incident Rehabilitation* (U. S. Fire Administration, 2008) is that there should be additional considerations during extreme weather conditions such as a high heat stress index or an extreme wind chill factor. When these conditions exist there should be additional rehab equipment and an additional engine and ambulance automatically dispatched, as well as rotating firefighters through rehab sooner.

Along the same lines, the publication *Rehabilitation and Medical Monitoring* suggests that there may be some workable options to rehab in the early stages of an incident. Rather than establishing a formal rehab early on in an incident when all hands are needed to help mitigate the problem, the crews can perform what they call informal rehab (Augustine, et al., 2009, p. 38). This is done at the crew level during transitions between activities or at SCBA cylinder changes. It typically only takes about 10 minutes in the early stages and is meant to give the crew a quick break before going back to work.

Discussion

The results of this research indicate that determining when to establish a rehab group can be very complex. With potential trigger points for almost every type of call, every type of environmental condition, and every variation of the condition of personnel, there really isn't a single set of criteria that will work for every situation. But, based on the information gathered in this research there are ways to simplify how that decision is made.

The information gathered from OR-OSHA stating that employers are responsible for making the workplace safe for employees in the context of establishing rehab is important (State of Oregon, 2010); however, because of the nature of our job we are not always able to make allowances for this. When lives are on the line, CFD follows the risk management axiom from

Chief Alan Brunacini; “we will risk a lot to protect a savable life, we will risk a little to protect savable property, we will not take any risk to protect lives or property that are already lost” (Brunacini, 2002). Early in an incident we seldom have the luxury of extra people on scene to complete all of the immediate tasks, let alone establishing rehab. In addition, the laws from OR-OSHA indicate that there are combined responsibilities between both the employer and the employee to insure the workplace remains safe. A comprehensive list of employer and employee responsibilities for maintaining a safe workplace can be found in a document called the Rules for all Workplaces (State of Oregon, 2008). Division 2 L in the OR-OSHA guidelines outline safety measure that all fire departments should take, however, there is no specific mention of a need for rehab or a work-to-rest ratio.

The NFPA documents provide clear direction regarding what rehab should look like once it is established, but when to implement the rehab group is left up to each jurisdiction. Considerations include the time, complexity, and intensity of the incident, as well as the environmental concerns (National Fire Protection Association, 2007, pp. 12-13). In another location it suggests that the number of SCBA cylinders that have been consumed or how much intense physical work a person has done may indicate the need for rehab. In a class given by Dr. McEvoy he indicated these may be valid benchmarks most of the time, however, judgment must be exercised (M. McEvoy, personal communication, January 15, 2011). A firefighter that has been assigned to an exterior position to protect an exposure may not need rehab after two cylinders. When discussing intense physical work it is important to note that the same amount of work will affect each firefighter differently. One firefighter may be completely exhausted while the other is relatively unaffected by the same amount of work and ready for the next assignment.

Although some suggestions are given in the annex, it is clear that each jurisdiction must determine for themselves what benchmarks should be used.

The three most useful documents found in this research were *Emergency Incident Rehabilitation* (U. S. Fire Administration, 2008), *Rehabilitation and Medical Monitoring* (Augustine, et al., 2009), and *Emergency Incident Rehabilitation* (Dickinson & Wieder, 2004).

While they don't give concrete answers regarding when rehab should be established, they do give some useful information from which a department can make informed decisions.

The *Emergency Incident Rehabilitation* publication (U. S. Fire Administration, 2008) does give the standard disclaimer that the IC should ultimately decide based on the situation. But they go on to give specific information regarding the effect of the environment on firefighters as they work or train (pp. 80-82). In a previous version of the same document they actually gave very specific heat stress index and wind chill numbers saying that firefighters should not work in extremes greater than these figures. They explain now that because of the wide variety of climates throughout the United States, it is impractical to establish a single parameter (U. S. Fire Administration, 1990, pp. 80-82).

In the publication *Rehabilitation and Medical Monitoring* (Augustine, et al., 2009) there were a couple recommendations that were different than the other findings. First was the idea that many fire departments are short-handed and there may not be an opportunity to establish formal rehab because of the need for everyone to work on solving the problem (Augustine, et al., 2009, p. 14). The second point, which is really a solution to the first point, is that as crews transition to a new assignment or are changing SCBA cylinders, they can take part in informal rehab back at their apparatus (Augustine, et al., 2009, p. 38). During that time they can rest, cool down, and rehydrate.

Information from the interviews and questionnaires revealed that some of the problems that exist are a lack of staffing, training, and a set policy for when to implement. A couple of the people responding to the questionnaires even stated that there is a lack of commitment on the part of the department (appendix B). The BC's recognize the problem with staffing levels with regard to implementing rehab, but they add that it is just as important to insure that the people that do staff rehab are qualified. Training also has a lot to do with the deciding who will staff rehab. Our mutual and automatic aid agencies respond on all second alarm incidents, but the BC's hesitate to utilize them for rehab purposes for a number of reasons. The main reason given by the BC's is that they don't know what level of training they have had with rehab and medical monitoring. The other comment made by respondents is that there is a lack of a set policy. The policy is actually in place. It is the consistent implementation of the policy that is problematic. Because of the two previous issues, staffing and training, the BC's do not feel they are able to establish rehab every time it is needed.

The BC's agree that there should be benchmarks or trigger points to remind them when rehab should be established, but they also need the flexibility to be able to make those decisions when the situation doesn't quite fit the what the guideline states (appendix A). They indicate that there is a fine line between providing enough resources to mitigate the situation and taking resources away from the incident to provide rehab. Throughout the literature there are many references stating that those decisions need to be left to the incident commander based on the situation. This may create the appearance of inconsistency if the policy is not written properly.

The other issue that the BC's would like to correct is determining who will staff the rehab group. All three agree that the people assigned to rehab need to be well trained in both rehab and medical monitoring procedures (appendix A). Other respondents indicate a wide variety of

Corvallis Fire Department personnel that would be appropriate to fill the position including incoming Chief Officers, on-duty ambulance crews, off-duty paid staff, or volunteers that normally respond to the stations (appendix B). When asked what could be done to make rehab better the respondents agree that it doesn't matter too much what the policy says, but it should be made a priority and should be followed consistently (appendix B).

Recommendations

After reviewing all of the information reviewed during this applied research project, there are four recommendations. Those recommendations include 1) create a policy for when rehab should be established by the IC, 2) establish an adequate alternative for those times when formal rehab cannot be established right away, 3) determine who will staff rehab, 4) create partnerships with automatic and mutual aid companies.

When establishing a policy it is important to create benchmarks that fit the types of incidents and environments that are most likely to impact this decision. It is also important to allow the BC the flexibility to implement rehab as necessary. In some instances the benchmarks may not have been achieved yet, but they feel it is necessary to implement rehab. On the other hand, maybe the benchmarks have all been reached but there is still a specific need for all hands to be involved in achieving the operational goal. The BC must be allowed to stray from the policy when necessary.

Corvallis Fire Department will likely need to utilize a tiered approach to rehab implementation. This would include informal and formal rehab responses. A policy for informal rehab might state that each person on the emergency scene is responsible to self-monitor the need for rehab, communicate that need to their company officer or IC, and to provide for engine company rehab in the early stages of an incident. In addition, the department needs to provide

the means for each crew to be self-sufficient regarding rehab for the initial stages. Respondents indicate that if they are to maintain the ability to engage in the operation they are going to need more than just water (appendix B). The policy would also include trigger points and procedures for formal rehab. Respondents were almost unanimous that trigger points for Corvallis Fire Department should include the duration of the incident and the environmental conditions (appendix B). The BC's responded similarly, but take into account the physiological signs and symptoms and how each person looks. While the two-cylinder recommendation by NFPA may be a reminder to the BC's, it cannot be used as an absolute trigger point.

It will also be important for the department to establish adequate alternatives in providing rehab to crews when a formal rehab cannot be established or cannot be utilized because of the urgency of the incident. This should not be a common practice, nor should it be allowed to take the place of a formal rehab when the situation requires one to be established. The intent of the alternatives, such as informal rehab, is to ensure that the crews are receiving some form of rest and rehydration until the formal group can be set up and utilized.

For our department, determining who should staff rehab seems to be almost as important as creating the policy itself. As the BC's stated the person in charge of rehab must have the authority to keep a firefighter from returning to the incident when necessary (appendix B). This would most likely need to be a medically qualified person, such as a paramedic, or a person of higher rank. Options that may be workable are for a less qualified person to contact the IC or Safety Officer if a situation arises, or just create the policy that gives the rehab officer authority by title and deal with any issues as they arise. Corvallis Fire Department may need to investigate an option that has not yet been considered. Creating a new division of volunteers that are responsible for all support and formal rehab needs at larger incidents as suggested in the external

questionnaire (appendix C). This would leave the response matrix untouched and allow for rehab activities to be implemented without negatively impacting mitigation operations.

Creating partnerships with automatic and mutual aid companies provides opportunities for building relationships. We currently rely on those agencies to cover the city while we operate at the incident. Utilizing these companies to a greater extent, training together, and reciprocating would enhance the ability of all departments in serving our communities and improving our safety. This would be a significant culture change and may take years to work out the details.

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Appendix A

Battalion Chief Interview Questions Battalion Chief's C. Carver, R. Harrison, A. Loudon

1. At emergency incidents, what trigger point's do you use to determine that you will need to establish a rehab group?

- a. I usually wait until a second alarm is called.
- b. Considerations of the environment, length of the incident, and how hard the crews are working.
- c. Size, complexity, environment, and psychological

2. What are some of the factors that impact your decision of when to establish rehab?

- a. Lack of resources – on a typical 2nd alarm I usually don't have enough people to establish a formal rehab. This means that rehab is almost always established using off-duty personnel or volunteers. The truth is, if it is left up to me to decide, it may get overlooked because the BC is focused on the next action required to put the fire out.
- b. Lack of staffing. I have to weigh the risk of removing people from the operation to the risk of injury to my crews. Even when we do establish rehab it tends to be informal due to a lack of personnel.
- c. Available resources and external influences. While we are running this call, I am still responsible for providing services to the rest of the district. The other things I think about when deciding whether to establish rehab is what the crews are saying, my knowledge of individual fitness levels, and psychological aspects. The problem is that our scenes don't always fit into the box of our DOG.

3. In your opinion, is there a set of criteria or trigger points that could be used to make the establishment of rehab more consistent?

- a. Yes – All three indicated yes
- b. No

4. If yes, what criteria would you include?

- a. When crew stress is above normal
- b. Time is not a good value since we have strong and weak members
- c. How the person feels
- d. Outside temperatures
- e. Biological indicators
- f. CO and SaO₂ levels
- g. Psychologically draining
- h. Environmental aspects
- i. 2nd Alarms

5. What are the circumstances that keep you from establishing rehab?

- a. Staffing levels or unqualified personnel. Assigning people who have no authority to enforce limitations.
- b. Low on my priority list during initial operations
- c. Crews don't want to go to rehab
- d. Lack of priority
- e. We rarely have lengthy incidents, so I tend to forget
- f. I don't think it is needed
- g. Crews aren't working for very long
- h. I feel that the best rehab they can get is back at the station

6. What changes could be made so that rehab is more consistently established and used?

- a. We need to change our culture
- b. Just do it
- c. Make it automatic on a 2nd alarm
- d. 2nd alarm
- e. Time count from dispatch
- f. Heat stress index
- g. The number of companies on scene
- h. Dispatch time checks
- i. Are things getting better or worse

7. Is there anything else that you can think of that would be useful in making improvements to the rehab plan?

- a. We need to decide if we are going to do this or not. It needs to be all or nothing.
- b. Revise the entire plan
- c. Identify specific people that will be responsible for automatically setting up rehab.

Appendix B

**Rehab Questionnaire for Corvallis Fire Department
Non-Supervisory Personnel
(Unedited Responses)**

1. What fire position do you currently hold?

a. Lieutenant	9	45%
b. Firefighter	7	35%
c. Volunteer Firefighter	4	20%

2. What medical certification do you currently hold?

a. Paramedic	11	55%
b. Intermediate	2	10%
c. Basic	7	35%

3. When is the last time you and your crew looked at the DOG on firefighter rehab?

a. Within the last 6 months	3	15%
b. Within the last year	9	45%
c. More than a year	4	20%
d. Maybe more than 5 years	0	0%
e. I honestly don't remember	4	20%

4. When is the last time you received formal training on the procedures for setting up firefighter rehab?

a. Within the last 6 months	1	5%
b. Within the last year	1	5%
c. More than a year	8	40%
d. Maybe more than 5 years	3	15%
e. I honestly don't remember	7	35%

5. Has rehab been consistently established at the incidents to which you have responded?

a. Yes	5	25%
b. Most of the time	7	35%
c. No	6	30%
d. Not sure	2	10%

6. If you responded to a fire today, what trigger points do you believe will be used by the Incident Commander to determine the need for rehab?

- a. Extended time on scene, extreme weather conditions
- b. Duration of incident, weather/temperature, type of incident, available resources
- c. Extended time taken for initial actions, personnel injury
- d. 2nd alarm or greater. Long incident where crews are working hard.
- e. When it is a multi-alarm or a crew states they need a break
- f. Duration of the incident, weather, type of incident
- g. Prolonged time of fire operations, inclement weather (heat)
- h. Length of incident, seeing firefighters that are spent or worn out
- i. If a crew goes through 2 bottles then they should go to rehab
- j. Heat, working conditions, length of time

7. In the past, who is usually assigned to set up and staff rehab?

- a. Whatever volunteers are available and respond from station one on a greater alarm
- b. Volunteers responding to station 1 for a second alarm
- c. Call back personnel
- d. An ambulance company or volunteers
- e. An ambulance crew or someone called back
- f. Volunteer EMT's
- g. Volunteers and paid personnel
- h. Off duty or volunteers
- i. Volunteers, occasionally a chief officer will make it onto the scene to help out
- j. We don't really set a formal rehab up. What we do have, volunteers usually staff
- k. Our dept has resident and community volunteers. These volunteers usually set up and staff rehab.
- l. We don't
- m. RIT
- n. An ambulance crew, sometimes on the . . . (unk)

8. How could this be done differently to make it better?

- a. That is not necessarily a bad way of doing it. What is available for rehab could be better stocked.
- b. More frequent training on rehab procedures
- c. Just make it more consistent no matter how we decide to do it so that it becomes normal operating procedure
- d. make a formal request immediately on true working fires and possibly utilize Albany fire for rehab or another company on scene
- e. Have it as a protocol so that it is a priority that happens early into the incident
- f. Consistency
- g. Corvallis needs a formal rehab set up that replaces what the body needs. We need more than just water. There should be funds set

9. Based on the DOG, has rehab ever been fully set up at your fires?

a. Yes, fairly consistently	2	10%
b. Yes, a couple times	9	45%
c. No, not that I can remember	7	35%
d. Not sure	2	10%

10. Has rehab ever been fully set up at training events?

a. Yes, fairly consistently	1	5%
b. Yes, a couple times	6	30%
c. No, not that I can remember	11	55%
d. Not sure	2	10%

11. In your opinion, does CFD provide adequate rehab at emergency scenes?

a. Yes	3	15%
b. Most of the time	6	30%
c. No	10	50%
d. Not sure	1	5%

12. If not, what do you believe are the reasons that the rehab plan is not used at emergency scenes?

- a. It's not the plan but what is offered at a rehab location. Often rehab consists of water. What about food sources such as granola bars, etc. that are packaged and can last for extended periods of time, Gatorade powder mix to add to the "kit", chairs?
- b. Lack of personnel, lack of rehab training and practice, infrequency of events requiring rehab
- c. Staffing

- d. Lack of personnel
- e. Lack of personnel and commitment
- f. There is not a single set person to be responsible for it. There are money considerations. At most what is offered at rehab is water. That is not enough when it is really hot, or really cold.

13. What changes could be made to ensure rehab is implemented consistently and adequately at emergency scenes?

- a. A better awareness of what is in the “kit” and a brief training on ideal ways and locations to set up rehab
- b. Rehab training and use during training events
- c. we could have a DOG on the subject that is much more comprehensive
- d. Make it a priority
- e. Why can’t we work this like we do with any other resource. If we call for it and we don’t need it, we can always send them back home.
- f. Have a rehab unit attached to second alarm responses and staffed by volunteers and paid staff.
- g. Consistent commitment
- h. The times I have scene rehab work the best was during the day, when a chief officer would come to the scene and be in charge of rehab. This does not happen for calls at night
- i. There needs to be more of a set procedure for it and it needs to be . . .(unk)

14. In your opinion, does CFD provide adequate rehab during drills and training?

a. Yes	3	15%
b. Most of the time	4	20%
c. No	11	55%
d. Not sure	2	10%

15. What changes could be made to ensure rehab is implemented during drills and training?

- a. Most of the time drills provide a opportunity to rest and rehydrate
- b. Conscious to initiate rehab, culture change so that rehab is seen as an important part of every incident
- c. Never been an issue
- d. We could build the rehab requirement into our lesson plans
- e. Make it a priority
- f. Have rehab be written in the drill and training plan and who is in charge of it
- g. Having the resources and reminder to do so
- h. Effort and forthought
- i. Again it is not that rehab is set up, but what is offered at rehab. If it is really hot, there needs to be just water, gatoraid, etc. If it is really cold there needs to be hot stuff.

16. During emergency scenes and training, what benchmarks or trigger points do you believe should be used for determining when rehab should be established?

- a. 2nd alarm or higher response level, temperature/weather extremes, foreseeable duration of incident, type of incident
- b. A crew should have to take a turn through rehab before going to a second bottle. At long incidents there should be a set time that your crew rotates through rehab
- c. Whatever is written in to DOG and utilized consistently during these events
- d. Incident type and duration, weather extremes
- e. When there are lengths of time when personnel are performing strenuous activities
- f. Length of event, amount of exertion
- g. Any 1st or greater alarms. Most of the time rehab gets set up well after people . . .(unk)

17. Is there anything else that you would like to add?

- a. I don't think that rehab needs to be fancy, but adding more than water, making a plan for cooling or warming individuals at an incident, and making folks aware of the plan and techniques would be ideal
- b. I need rehab after answering all these questions
- c. No
- d. I hope my comments help out
- e. No thanks
- f. Nope
- g. NA
- h. If we have more incidents that are lengthy it might be more of a priority, but we should definitely make it more of a priority
- i. Good issue to raise

Appendix C

**External Rehab Questionnaire
Similar Sized Oregon Fire Departments
(Unedited Responses)
8 respondents**

Questionnaire sent to the following fire departments:

Albany Fire Department, Bend Fire Department, Columbia River Fire and Rescue, Grants Pass Fire Department, Hood River Fire Department, Jackson County Fire District #3, LaGrande Fire Department, Lebanon Fire District, Medford Fire Department, Newberg Fire Department, Polk County Fire District #1, Sisters-Camp Sherman Fire District, Sweet Home Fire District, and Willamette Valley Fire Authority.

1. How many stations does your department have?

- | | |
|--------------|---|
| a. 1 to 3 | 2 |
| b. 3 to 6 | 5 |
| c. 7 or more | 1 |

2. How many people are on duty each shift?

- | | |
|-----------------|---|
| a. Less than 5 | 2 |
| b. 5 to 10 | 2 |
| c. 10 to 15 | 1 |
| d. 15 to 20 | 3 |
| e. more than 20 | 0 |

3. How many operations volunteers does your department have?

- | | |
|-----------------|---|
| a. none | 3 |
| b. Less than 10 | 1 |
| c. 10 to 30 | 0 |
| d. 20 to 30 | 1 |
| e. More than 40 | 3 |

4. What is your typical response to a house fire? Please include # and type of apparatus and people

- | | |
|----|---|
| a. | 3 engines
1 amb
1 Batt Chief |
| b. | 3 Type 1 Engines
Rescue
Duty Officer
2 Type 6 Engines
Averages about 12 personnel |
| c. | 2 engines with 3-5 personnel
1 heavy rescue with 6 personnel
1 ladder with 6 personnel
1 medic with 2 personnel
1 command with 1 person
Staffing levels depend on volunteer response |
| d. | 3 engines with a total of 9 people
1 rescue with 3 people |

- e. 1 chief with 1 person
3 engines with 3 people each
1 truck with 3 personnel
1 BC with 1 person
2 medic units with 2 people each
Total of 17 personnel
- f. 2 engines
1 quint
1 medic
2 command
Total of 16 people
Additional 3 engines and 12 people on automatic aid
- g. Two engines
1 medic unit
1 command vehicle
Engine and water tender rural
Amount of people and apparatus vary by time of day, etc
- h. blank

5. What is your typical response to a commercial fire? Please include # and type of apparatus and people

- a. 3 engines
1 ambulance
1 Battalion Chief
Target hazards get an addition of 1 truck (aerial)
- b. Same as above
- c. 3 engines with 3 to 5 personnel
1 heavy rescue with 6 personnel
1 medic with 2 personnel
1 command with 1 person
Staffing levels depend on volunteer response
- d. 3 engines with a total of 9 people
1 aerial with 6 people
1 rescue with 3 people
1 chief with 1 person
- e. Same as above
- f. Same as above
- g. 1 truck
1 engine
1 medic unit
1 command vehicle
Hoping for at least one more engine and then relying on mutual aid if it becomes a multiple alarm.
3 to 4 people per apparatus
- h. 3 engines with a total of 9 people
1 rescue pumper with 4 people
1 Battalion Chief

6. Does your department have a rehab policy?

- a. Yes 7
- b. No 1

7. If so, does it generally follow NFPA 1584?

- a. Yes 3
- b. No 2

c. Not sure 2

8. Whether your department has a policy or not, does your department consistently establish rehab at emergency incidents?

Yes 5
No 3

9. If your department does not consistently establish rehab, please explain what prevents this from happening.

- a. Our district does not have resources internal or mutual aid to provide the workforce for sustained operations, and a rehab
- b. blank
- c. blank
- d. blank
- e. I checked us because we frequently do but this doesn't always happen. A room and content fire typically doesn't trigger formal rehab but we are always trying to rotate our crews and keep them hydrated.
- f. Either forget about the option or don't have the people to do it. I remember too late in the operation.
- g. We try to establish rehab consistently. In the frantic pace of events it can become overlooked and lack of people to set it up and operate it can be a big problem.
- h. blank

10. If your department does consistently establish rehab, what trigger points are used?

- a. Blank
- b. Working fires where personnel are expected to use two or more SCBA bottles, technical rescue lasting more than two hours, haz-mat in encapsulating suits longer than one hour, live fire exercises, and extended training exercises.
- c. Any event lasting longer than one hour with temps above 85 and below 25, when the IC orders it, wildland based incidents. See the complete SOG I emailed you.
- d. Our support personnel generally respond with water and light snacks. If the incident goes to a greater alarm the IC will determine what level (1-4) for the number of personnel.
- e. Two bottles
- f. Incident Commander typically assigns
- g. Blank
- h. Blank

11. Does your department use different levels of rehab for different types of incidents or environmental conditions?

a. Yes 4
b. No 3
c. Not sure 1

11.If your department does use different levels of rehab, please explain the differences and why.

- a. Blank
- b. See SOG from Columbia County. We use company based rehab and full rehab. Full rehab is based on trigger points.
- c. Level 1, support vehicle with water and snacks. Level 2, support vehicle with food and beverages. Level 3, rehab trailer with water and snacks. Level 4, rehab trailer with food and beverages.
- d. Blank
- e. Depending on the length, conditions, ambient temperature, and work being done will dictate the overall breadth of our rehab process.
- f. Blank
- g. Blank

- h. Establishment of Rehab, Individual responsibility. While ever effort will be made to provide rehab as outlined in the guideline, it is the responsibility of the . . .

12. Does your department practice establishing rehab during training exercises?

- a. Yes 4
- b. No 4
- c. Not sure 0

13. Does your department have a designated rehab unit?

- a. Yes 2
- b. No 6

14. If so, who staffs it, how many people, and when does it respond?

- a. Support/Rehab volunteers staff the unit depending on availability
- b. We have a customer service vehicle that is staffed by individuals on call back. The initial medic unit might start the rehab process but our equipment (chairs, heaters, shelter, etc.) is kept on this vehicle

15. Is there any other information you can share that would help me understand what prevents your department from implementing rehab when you think it should?

- a. Our fire district does not have resources in neighboring volunteer department to get the job done and cycle through a rehab. If the fire is to be put out, we need to do it. If we need to take a break, then we do it. We can't seem to get enough people to do both.
- b. Blank
- c. Staffing levels
- d. It is up to the IC to call for it.
- e. Too often it becomes an after thought or we are short the people to appropriately set it up and perform the needed tasks. From your email, I would say we are in a similar situation.
- f. Blank
- g. Blank
- h. Blank

Appendix D

Notification Letter for External Questionnaire

Dear <name>,

My name is Chris Hunt and I am with the Corvallis Fire Department. I know that everyone is extremely busy so I will keep this as brief as possible. I am conducting research for my first course at the National Fire Academy, Executive Fire Officer Program, and need your assistance.

I am conducting research regarding when and how to establish emergency incident rehab. We currently have a policy on what rehab should look like once it is established, but are inconsistent as a department when deciding when it should be established. Some of the factors that are being considered are identifying benchmarks, what is required by law or standards, who will staff it, and what authority level they ought to be or have. Any information you can share regarding this topic would be appreciated.

Within this email you will find a link to an online survey. The survey should take about 10 minutes of your time. If you have information that does not easily fit into the survey, please feel free to send it to me via email. Please complete the survey by no later than April 4, 2011.

If you are not the person who is able to provide the information for this survey, please forward this email to the person in your organization who is able to complete it.

Thank you so much for your time and assistance.

Sincerely,

Chris Hunt
Division Chief of Training, Safety, and Volunteers
Corvallis Fire Department
400 NW Harrison Blvd
Corvallis, OR 97330
541-766-6943
Chris.hunt@ci.corvallis.or.us