# DEVELOPING A RAPID INTERVENTION TEAM STANDARD OPERATING GUIDELINE FOR OCALA FIRE RESCUE

Leading Community Risk Reduction

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## Abstract

Ocala Fire Rescue (OFR) currently has a Personnel Accountability System (PAS) incorporated in its Standard Operating Guidelines (SOG). The problem is that the OFR accountability system focuses on personnel accountability at an incident, and does not address how to manage rescuing trapped or injured firefighters. It also fails to address locating lost, missing, or endangered firefighters engaged in offensive structural firefighting operations. The purpose of this applied research project was to develop and recommend a SOG on Rapid Intervention Team (RIT) operations for OFR and to assist with the implementation of RIT procedures for effective RIT operations. This study was also intended to provide additional resources on the scene of an emergency incident for the sole purpose of assistance and/or rescue for the members of OFR. Research questions answered by this project were:

1. What industry standards exist regarding RIT operations?
2. What tools and equipment are needed for effective RIT operations?
3. When should the RIT be activated?
4. What training should be provided to the members of OFR for effective RIT operations?

The research methodologies used for this project were the descriptive and action types. Procedures included in-depth interviews with Ocala Fire Rescue members as well as research and literature review to obtain additional relevant information. Results of this project identified several national standards that do exist to assist with the development of RIT programs for fire departments. Recommendations from the result of this project were submitted to the OFR Health and Safety Committee consisting of both labor and management. The recommendations to the committee were to review the developed RIT program for OFR and propose the adoption

of the said national standards, include and mandate rapid intervention team operations at emergency incidents, develop a RIT training program for OFR members, and evaluate the program on a regular basis.

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## Introduction

Ocala Fire Rescue Department (OFR) has a Personnel Accountability System (PAS) as part of its Standard Operating Guidelines (SOG's). The problem is that the OFR accountability system focuses on personnel accountability at an incident, and does not address managing or locating and removing a trapped, injured, or missing firefighter(s). The purpose of this applied research project is to develop and recommend a SOG on Rapid Intervention Team (RIT) operations for OFR.

The descriptive and action research methods were used for this project. Research for regulations and standards that apply to rapid intervention team operations consisted of the National Fire Protection Association (NFPA), Occupational Safety and Health Administration (OSHA), National Institute for Occupational Safety and Health (NIOSH), United States Fire Administration (USFA), International Association of Fire Fighters (IAFF), International Association of Fire Chiefs (IAFC), Florida State Statutes (FSS) and additional standards to obtain guidelines recommended for implementing effective RIT programs for fireground operations.

In-depth interviews were also conducted with OFR members, the OFR Health and Safety committee board members, and other fire department personnel in the state of Florida regarding their current RIT programs. Additional literature review was conducted to gather information for developing a RIT program pertaining to suggested staffing levels and associated responsibilities, recommended training and equipment, and the deployment of a RIT on the fire ground.

This research approach was used to address the following questions:

1. What industry standards exist regarding RIT operations?

2. What tools and equipment are needed for effective RIT operations?
3. When should the RIT be activated?
4. What training should be provided to the members of OFR for effective RIT operations?

## Background and Significance

The Ocala Fire Rescue Department (OFR) is a fully paid, professional fire rescue department. It was organized in 1885 and in my opinion is a first class operation. The purpose of the department is to provide high quality, essential life safety services to the citizens of Ocala. Services provided include: fire suppression and rescue, fire prevention and safety management, emergency medical services, hazardous materials mitigation, training and communications, special operations (trench rescue, high angle rescue, urban search and rescue, confined space rescue), public safety education, and emergency management coordination. These services are provided twenty-four hours a day, seven days a week by a staff of 105 line firefighters/EMTs/paramedics in three separate shifts. Each shift consists of 1-Battalion Chief (Shift Leader), 6-Fire Captains, 7-assigned Paramedic/Firefighters, 15-EMT/Firefighters, and 6-Fire Equipment Operators for a total staff per shift of 35. A staff of ten, assisted by four administrative support personnel, provides administration of departmental operations. This brings the total of personnel in the Fire Department to 119.

Fire Department facilities consist of five fire stations and two administration buildings for administrative conferences and training. The fire stations are placed in strategic locations throughout the city.

According to the 2003 planning projections, there are approximately 47,000 residents in the city. That number increases to approximately 130,000-150,000 or more during the average business day as workers commute into the city.

The basic tenet of the fire service is that it performs a wide variety of emergency service responses that are based solely on the crises that is occurring in real time. It is a reality of OFR that it responds to emergencies that are in progress with sketchy information available about the crises. These emergencies must be responded too as quickly as possible. Medical emergencies, traffic accidents, and fires cannot be predicted with any degree of accuracy, and often occur simultaneously. Despite this, the public expects a response and resolution of their emergency (City of Ocala, FL, 2002).

As with other fire departments, OFR members work in teams and usually accomplish their mission safely to meet peak demand in a reasonable time frame and ensure public safety effectively. However, according to the special report of the Major Fires Investigation Project conducted by Tridata Corporation for the USFA (2003), firefighters across the country combat fires and place themselves in harm's way on a daily basis. With these dangers and the risks involved, sometimes a sudden unexpected event occurs: a firefighter is trapped in debris, a firefighter suffers a heart attack, or a firefighter is reported missing.

Firefighter's continual prevention efforts of procedures development, daily training, physical fitness programs and risk awareness all can help reduce the risks of injury and death on the job. However, the dangers of firefighting require that fire departments need to recognize and prepare for one of the most difficult assignments of all: rescuing one of its own members from a life-threatening situation. Because it is not always possible to predict when an emergency occurs

and a firefighter needs to be rescued, there needs to be a plan already in place and personnel must be prepared to use it.

Currently OFR has a personnel accountability system (PAS) program listed as part of its SOGs. This program was implemented to keep track of the personnel operating on an incident, however it does not address the problems it may face of needing to rescue a firefighter in trouble. A copy of the PAS is provided in appendix A of this report.

The author recognized the importance of addressing this situation and identified it as a serious problem. As we are aware, seconds count when a self-contained breathing apparatus (SCBA) fails or a firefighter becomes trapped in a burning building. Having an operational policy or procedure to reduce the time addressing the situation will increase the chances of survival for that firefighter in danger.

The author is currently is a Shift Commander responsible for incident command functions at emergency incidents. While on-duty several weeks ago in the middle of the night, we were dispatched to a "routine" residential structure fire. The city utility crew was called to assist with shutting off the power, but was unable to disconnect the electrical power to the single story home involved with fire. While the author was communicating with the interior firefighting sector, a loud explosion with several seconds of flashing blue and white light evolved from inside the home. The author immediately had all personnel evacuate the structure and held a personnel accountability report to ensure all personnel had exited the building to safety. Thankfully all personnel evacuated to safety that night and the author was truly relieved his personnel were unharmed. However, the author was extremely concerned with the realistic possibilities of having one or more of his personnel not making it to safety if this type of situation would ever occur again in the future. It was at that moment, before attending the National Fire Academy

(NFA) Leading Community Risk Reduction class, the author decided what his research project needed to address. Developing a guideline to provide for the safety and well being of OFR members during emergency operations. Also, to provide additional resources and dedicated personnel for the rescue of OFR members if needed, operating at emergency incidents-a RIT SOG.

The seriousness of this problem, if allowed to continue, can eventually lead to firefighter injuries or death. Firefighter safety has always been a priority for the author, which generates the need to ensure that there is a safety mechanism available for all OFR incident commanders to use at every emergency incident. According to the National Fire Protection Association (NFPA) 1500 standard on fire department occupational safety and health programs (2002), it is required that fire departments provide personnel for the rescue and safety of its own members operating at emergency incidents if the need arises. In the NFPA 1500 handbook, Teele (1993, p. 346) wrote, "One of the primary objectives of NFPA 1500 is to reduce the risks to which fire fighters are exposed when they operate at incidents. It would not be realistic, however, to assume that all risks can be avoided, controlled, or eliminated from the fire fighter's work environment." With requirements and recommendations existing, there needs to be a program implemented and active for the members of OFR to obtain its full benefit, which is going home at the end of the shift.

Several standards and regulations address the implementation of fire department personnel accountability, incident management, and RIT programs which, contribute significantly to reducing the number of firefighter fatalities and injuries.

The significance of this research project for Ocala Fire Rescue would be to develop a RIT program and recommend positive improvements that would benefit both the employees and

department. By researching different regulations, standards, and recommendations on personnel accountability and rapid intervention programs, the author would be able to incorporate a variety of suggestions for OFR's program. By determining what tools and equipment are suggested from other departments SOG's and other successful programs, the author can incorporate those recommendations for effective OFR RIT operations. By conducting interviews of OFR incident commanders, training division personnel from OFR and other agencies, and the Florida State Fire College (FSFC) RIT Instructors, this author would be able to obtain the thoughts, comments, and suggestions of what type of training is needed for OFR members. According to Trickey (2000, p. 5) "Training is one of the key issues to an effective RIT."

As part of the Executive Fire Officer Program (EFOP), it is required for the author to complete an Applied Research Project. In order to satisfy the requirements of this project, upon completion this author will recommend changes from a variety of perspectives on a problem within OFR that can enhance the current emergency response capability, a solution towards its problem. This directly results to Unit 4: Intervention Strategies of the EFOP course Leading Community Risk Reduction (NFA, 2004).

Overall, once this author develops a SOG on rapid intervention team operations, several recommendations will be made based on the results of this research project. This will improve the emergency response capability of OFR by establishing policies and procedures for RIT operations. In addition, it will generate an effort to ensure the safety of its members by providing manpower and additional resources on scene of an emergency incident for the exclusive purpose of possible rescue or assistance to its members who are lost, trapped, or missing. This would then establish linkage and cause relevance to the third Operational

Objective of the United States Fire Administration (USFA) Operational Objectives: Reduce the loss of life from fire of firefighters (NFA, 2003, p. II-2).

## Literature Review

Firefighters help protect the public from a variety of dangerous situations. They are frequently the first personnel to arrive at the scene of a motor vehicle accident, medical emergency, or fire-related incident. The work of a firefighter is physically demanding and often involves short periods of intense physical labor, which is also sometimes dangerous. In addition, the work is emotionally demanding at times because emotional stress frequently seems to accompany most emergency situations.

Firefighters work in a variety of settings, and assume a wide range of responsibilities. When on-duty, they must always be prepared to respond immediately to a fire or any other emergency that arises. Because firefighting is a dangerous profession, it requires organization and teamwork. At most emergency incidents, a superior officer (company officer) assigns specific duties or tasks to a team of firefighters (company), which may change several times over the course of the incident. Working in teams, sometimes help firefighters accomplish their goals more promptly, safely, and effectively. But sometimes a sudden, unexpected event occurs: a firefighter is missing, injured, or trapped in debris and needs to be rescued. If such an event occurs, a specific crew or team should be standing by, fully ready to provide assistance or rescue one of their own. These teams have been used for several years in different fire services around the world and have several operational names such as: Firefighter Assist Teams (FAST), Rapid Assist Teams (RAT), or Rapid Intervention Teams (RIT). Although the equipment and training seems to vary, they all have the same primary function: the welfare and safety of firefighters operating in a dangerous or hostile environment. (Trickey, 2000, p.1).

To assist fire departments with the development and implementation of RIT programs, several standards and recommendations to obtain guidelines for RIT operations are available for review. Numerous sections in NFPA 1500, standard on fire department occupational safety and health programs (2002), reference rapid intervention and related areas such as incident command, personnel accountability, and training. Chapter one is Administration stating it contains minimum requirements for a fire-service-related occupational safety and health program (1.1 Scope). These minimum requirements specify the safety requirements for those members involved in rescue, fire suppression, emergency medical services (EMS), hazardous materials operations, special operations, and related activities (1.2.1-2 Purpose). These recommendations lead to chapter eight, Emergency Operations and begins with 8.1 Incident Management. In this chapter it recommends that an organization needs to take effect at all emergency operations and other situations that pose similar hazards. It also states that at an emergency incident, the incident commander is responsible for the overall management of the incident and the safety of all members involved at the scene (8.1.5). This section effects the author with all tactical decisions on an emergency incident. Chapter 8.1.7 specifies that at an emergency incident, the incident commander shall establish an organization with sufficient supervisory personnel to control the position and function of all members operating at the scene and to ensure that safety requirements are satisfied. Also, at an emergency incident, the incident commander shall have the responsibility for the following:

1. Arrive on-scene before assuming command.
2. Assume and confirm command of an incident and take an effective command position.
3. Perform situation evaluation that includes risk assessment.

4. Initiate, maintain, and control incident communications.
5. Develop an overall strategy and an incident action plan and assign companies and members consistent with the standard operating procedures.
6. Initiate an accountability and inventory worksheet.
7. Develop an effective incident organization by managing resources, maintaining an effective span of control, and maintaining direct supervision over the entire incident, and designate supervisors in charge of specific areas or functions.
8. Review, evaluate, and revise the incident action plan as required.
9. Continue, transfer, and terminate command.
10. On incidents under the command authority of the fire department, provide for liaison and coordination with all other cooperating agencies.
11. On incidents where other agencies have jurisdiction, implement a plan that designates one incident commander or that provides for unified command.
12. Interagency coordination shall meet the requirements of NFPA 1561, Standard on Emergency Services Incident Management System.

Recognizing that emergency activities present the greatest threat to the firefighter, these recommendations of NFPA 1500 all provide policies for managing such events. These policies also indicate that an incident management system must be used and the incident commander is responsible for the overall management of that system (Smoke, 1999). Chapter 8.1 of NFPA 1500 provides details regarding the incident management system to provide better management of firefighters during emergency operations. Better management will enhance firefighter safety, thus leading to organizational efforts such as personnel accountability and RIT operations.

The next section in chapter eight of NFPA 1500 is 8.2 Risk Management During Emergency Operations. This section explains how the incident commander shall integrate risk management into the regular functions of incident command (8.2.1). It introduces the safety of members and risk management aspect into the incident and discusses how the concept of risk management shall be used based on the following concepts:

1. Activities that present a significant risk to the safety of members shall be limited to situations where there is a potential to save endangered lives.
2. Activities that are routinely employed to protect property shall be recognized as inherent risks to the safety of members, and actions shall be taken to reduce or avoid these risks.
3. No risks to the safety of members shall be acceptable when there is no possibility to save lives or property (8.2.2).

The next component of NFPA 1500 is 8.3 Personnel Accountability During Emergency Operations. This section introduces the requirements of the incident commander to maintain an awareness of the location and function of all companies or crew members at the scene of the incident (8.3.4). This is an extremely important chapter that provides the incident commander the responsibility to provide for the safety of every member of the fire department who is operating at the scene of an incident. Teele (1993) stated that (the essential reason for accountability is to ensure that every individual's safety and health are linked to the management plans for the incident. If hazards are encountered, the system must ensure that every individual is warned to take appropriate action. If an area must be evacuated, the system must ensure that every individual is safely out of the area. If a structural collapse occurs or if anything sudden

and unexpected occurs, the system must provide a rapid and positive means to determine if anyone is missing and, if so, who is missing and where they were last known to be" (p. 50).

The next section in chapter 8 defines the operating principles that apply to incident operations, which directly relate to safety for fire department members. 8.4 Members Operating at Emergency Incidents addresses how the fire department shall provide an adequate number of personnel to safely conduct emergency scene operations (8.4.1). It also states that members operating in hazardous areas at emergency incidents shall operate in crews of two or more (8.4.4). Crew members shall be in proximity to each other to provide assistance in case of emergency (8.4.6). The minimum number of personnel required in order to begin interior fire suppression operations or to initiate activities in hazardous areas where self-contained breathing apparatus is required is covered in section 8.4.7. It states a minimum of four individuals shall be require, consisting of two individuals working as a crew in the hazard area and two individuals present outside this hazard area shall be available for assistance or rescue at emergency operations where entry into the danger area is required. This section also clearly states that "operations must be limited to those functions that can be performed safely by the personnel on scene. The responsibility is, therefore, established in the direction of limiting actions based on the number of firefighters present on the incident" (Teele, 1993, p. 345).

As you can see the sections of NFPA 1500 are clearly leading up to providing safety for the members of the fire department on an emergency incident, providing organization on the scene, and accountability of its members. It also provides additional personnel on scene to allow safe-working conditions for the duties required. This is directly leading towards providing additional manpower and resources for fire department members specifically for the benefit of our own personnel.

The next section of chapter eight is 8.5 Rapid Intervention for Rescue of Members and it describes how the fire department shall provide personnel for the rescue of members operating at emergency incidents (8.5.1). It specifically states that a rapid intervention crew/company shall consist of at least two members who shall be available for the rescue of a member or crew (8.5.2). In addition, the rapid intervention crew/company shall be fully equipped with the appropriate protective clothing, protective equipment, SCBA, and any specialized rescue equipment that could be needed given the specifics of the operation under way (8.5.2.1). Once an incident is established and expands in size or complexity, and additional resources have been requested from the incident commander, the dedicated rapid intervention crew/company shall on arrival of these additional resources be either one of the following:

1. On-scene members designated and dedicated a rapid intervention crew/company.
2. On-scene crew/company or crews/companies located for rapid deployment and dedicated as rapid intervention crews (8.5.6).

This chapter of NFPA 1500 seems to expand on when rapid intervention should be established, by whose discretion, and how the RIT should be equipped. Simultaneously, several chapters reiterate the responsibilities the incident commander has, which plays a tremendous part of how rapid intervention fits within the incident command system. "Designated rapid intervention crews for the incident may be managed in a number of ways. However, it is up to the incident commander to determine when it is necessary to designate specific rapid intervention crews for the incident. Either way, the intent is to have rapid intervention crews always in ready status. They should be fully dressed and equipped for action, including having SCBA on their backs, ready for use. The principle is to have a resource available for immediate response when a critical situation occurs" (Teele, 1993, p. 350).

In addition to NFPA 1500 standard on Fire Department Occupational Safety and Health Program relating to RIT issues, the NFPA 1521 standard for Fire Department Safety Officer (2002) also exists among other NFPA standards. This standard discusses the responsibility the fire department has for the need of assigning two specific positions relating to health and safety issues of the department and its members, a Health and Safety Officer and an Incident Safety Officer. Chapter 5 describes the functions of the Health and Safety Officer, who is assigned to: manage the fire department's occupational safety and health program; assist in the development, implementation, and management of the risk management plans; develop, review, and revise rules, regulations, and SOG's pertaining to the fire department's safety and health program; ensure that training in safety procedures relating to all fire department operations and functions is provided to fire department members; manage an accident prevention program; ensure record management; and above all be integrated with the incident management system as a command staff member. These functions are extremely important on a daily basis as well as to the incident commander and all personnel operating on an incident.

Chapter 6 of NFPA 1521 describes the Safety Officer's numerous roles and responsibilities at an incident. To name a few, the different responsibilities include: to monitor conditions, activities, and operations to determine whether they fall within the department's risk management plan; ensure the IC establishes an incident scene rehab sector; ensure that the personnel accountability system is being used; ensure that established safety zones, collapse zones, hot zones, and other designated areas are communicated to all members present on scene; monitor radio transmissions for missed, unclear, or incomplete communication; evaluate visible smoke and fire conditions and advise the incident commander of any possible hazards on-scene;

and shall ensure that a rapid intervention crew meeting the criteria in Chapter 8 of NFPA 1500 is available and ready for deployment (2002).

According to NFPA 1521, the Health and Safety Officer should be involved in the RIT policies, procedures, and guidelines from the beginning of development to the implementation of the RIT program. This includes training the members on deployment and equipment usage for RIT operations. In addition, the Incident Safety Officer should be involved with areas relating to the use of protective clothing and equipment, personnel accountability system, rapid intervention crews, rehab operations, and other issues affecting the safety and welfare of members at the incident. Both positions are an important part of rapid intervention and how personnel are effective in its operations.

NFPA 1561 standard on Emergency Services Incident Management System (2002) focuses on a variety of areas related to RIT, personnel accountability, the areas of risk management, communications, roles and responsibilities of the Incident Safety Officer, and it also defines command structures. In addition, this standard provides the template on how IMS can be accomplished and how to operate on a daily basis. It provides additional information relating to Rapid intervention by Fire Resources of California Organized for Potential Emergencies (FIRESCOPE) to assist fire departments in establishing fire fighter safety and accountability guidelines. It also reinforces the NFPA 1500 standard section on rapid intervention stating that once a second crew is assigned or operating in the hazardous area, the incident shall no longer be considered to be in the "initial stage" and at least one rapid intervention crew/company shall comply with the requirements set for designating a RIT (2002, C.2.1, p 21). When more than one RIT is deployed, it is recommended to implement a rescue

group or RIT supervision to manage the multiple rapid intervention companies and to coordinate any rescue attempts when in the "deployment mode" (2002, C.2.1, p 21).

In addition to RIT, other information suggested to enhance fire departments in developing their standard operating procedures regarding safety in the areas that are also very important in reducing risks to members include the following:

1. Effective training
2. Rest and rehabilitation
3. Continuous evaluation of changing conditions
4. Past experience (2002, C.2.1, p 21).

NFPA 1584 Recommended Practice on the Rehabilitation of Members Operating at Incident Scene Operations and Training Exercises (2003) discusses safety concerns of personnel operating at an incident. It addresses pre-incident response areas such as SOPs for rehab to incident scene and fireground training techniques for rehab. It is recommended that the SOPs should outline a systemic approach for the rehabilitation of members operating at incidents that include medical evaluation and treatment, food and fluid replenishment, crew rotation, and relief from extreme conditions (2003, 4.1.1-2). Many of these situations can and do certainly lead to "downed firefighters" which would cause the need for the RIT to rescue the firefighter in distress.

These recommendations can assist with the prevention of the commonly identified causes of firefighter injuries and deaths that occur. Evans (2004) states "continued firefighter training is the 1st line of defense towards our goal of going home to our families. Through training and fire prevention, we can work to mitigate incidents and protect ourselves and others" (p.3). Many recognize the importance of prevention and realize it is possible to prevent injuries and deaths

from occurring. "To prevent dangerous situations from occurring in the first place, fire service organizations must study the causes of both injuries and fatalities and identify the problems that can be corrected *before* accidents occur" (Jakubowski, & Morton, 2001, p.10). Through many studies, it has been found that appropriate rehabilitation of personnel on scene provides physical rest and allows the body to recuperate from the demands and hazards of the emergency operations (NFPA 1584, 2003, 5.2.1)

NFPA 1670 standard on Operations and Training for Technical Search and Rescue Incidents incorporated the scope of NFPA 1470, standard for collapse rescue training, expanding it to include identifying and establishing levels of functional capability for safety and effectively conducting operations at technical rescue incidents while minimizing threats to rescuers (NFPA, 2004). Coinciding with the RIT operations, this standard assists the authority having jurisdiction (AHJ) in assessing a technical search and rescue hazard within the response area, to identify the level of operational capability, and to establish operational criteria. Jakubowski, & Morton state "If a collapse occurs, the RIT must determine if it can enter the hot zone. While this is a difficult decision, especially when a fellow firefighter is trapped, teams must consider their level of training before acting. Ideally RIT personnel will be qualified at least to the first level of collapse rescue readiness, *Basic Operations,* as established in the standards for collapse rescue training outlined in NFPA 1470" (p. 109).

There are currently three operational levels:

1. Awareness level-this level represents the minimum capability of organizations that provide response to technical search and rescue incidents.
2. Operations level- this level represents the capability of organizations to respond to technical search and rescue incidents and to identify hazards, use equipment, and

apply limited techniques specified in this standard to support and participate in technical search and rescue incidents.

3. Technician level-this level represents the capability of organizations to respond to technical search and rescue incidents, to identify hazards, use equipment, and apply advanced techniques specified in this standard necessary to coordinate, perform, and supervise technical search and rescue incidents (NFPA 1670, 2004, 4.1.2).

In addition to establishing operational levels, this standard also includes recommendation to the areas of training, documentation, SOPs, hazard identification and risk assessment, incident response planning, operational equipment, PPE, safety and the incident management system.

NFPA 1710 standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2004) contains minimum requirements that address functions and objectives of fire service delivery, response capabilities, and resources. This standard also contains minimum requirements for managing resources and systems, such as health and safety incident management, training, communications, and pre-incident planning. This standard addresses the strategic and system issues involving the organization, operation, and deployment of a fire department and does not address tactical operations at a specific emergency incident (NFPA 1710, 2004, 1.1.1-4).

These requirements do address however, the establishment of an initial rapid intervention crew (IRIC) on an initial full alarm assignment and discusses how it shall consist of a minimum of two properly equipped and trained individuals. NFPA 1710 also states “When an incident escalates beyond an initial full alarm assignment or when significant risk is present to fire fighters due to the magnitude of the incident, the incident commander shall upgrade the IRIC to a

full rapid intervention crew(s) that consists of four fully equipped and trained firefighters"(5.2.4.3.2).

Many of the recommendations in NFPA 1710 assist fire departments with the initial development, implementation, and training of rapid intervention team operations. It has to start from the beginning on paperwork and work its way up to all personnel utilizing those objectives at an incident. Then once it is implemented, training will continue the efforts leading to improving the RIT functions for effective operations. The RIT concept can also be defined as attitude according to Lasky (1997) who states "Rapid intervention and the RIT idea is mostly attitude. We can and should be trained to recognize the warning signs and traps that can get us into trouble. We should also be training in how to assist and-when necessary-rescue one of our own. The attitude needs to be positive. Think of what the incident commander just placed in your hands by assigning you as the RIT. He is saying, "if something happens to any of my people, I'm counting on you to be the primary team to go get them". We have a responsibility to instill this positive attitude about RIT in our people" (p.2).

In addition to NFPA, other standards are available to assist with developing policies and procedures for RIT operations. The U.S. Department of Labor Occupational Safety and Health Administration regulations (OSHA Standards-29 CFR) discusses requirements for interior structural fires, respiratory protection and additional resources for personnel entering an area that is immediately dangerous to life and health (IDLH).

Regulations regarding interior structural firefighting states " it is required that at least two employees enter together the IDLH atmosphere and remain in visual or voice contact with one another at all times" (1910.134(g)(4)(i). Section (g)(4)(ii) includes procedures that at least two employees need to be located outside the IDLH atmosphere; and all employees engaged in

interior structural firefighting use SCBAs". OSHA defines an IDLH atmosphere as one that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's 'ability to escape from a dangerous atmosphere. In addition, the standard also requires at least two properly equipped and trained fire fighters:

1. Must be positioned outside the IDLH atmosphere
2. Must account for the interior teams(s)
3. Must remain capable of rapid rescue of the interior team(s) (Jakubowski, & Morton, 2001, p.37).

Jakubowski, & Morton also states that "OSHA develops and enforces regulations based upon National Institute for Occupational Safety and Health (NIOSH) research and clearly requires a minimum of two personnel to remain at the ready outside whenever firefighters enter an IDLH atmosphere (p. 38). These regulations mandated the two-in/two-out policy, which in essence was developed to account for the first-arriving company and provide for its safety during the initial attack on the structure fire (Kreis, 2003)

According to Sohyda (2004), this standard reinforces the requirements that "a minimum of two (2) firefighters, fully equipped and trained shall be on stand-by outside the structure to provide assistance or perform rapid rescue, if needed. Voice, visual, or radio contact is required between the interior and exterior teams at all times. One of the exterior team members must be free of all other tasks in order to account for, and if necessary, initiate a rescue of those firefighters inside. While the second exterior team member may perform other tasks, this individual must be able to abandon them without jeopardizing the safety and health of the others at the scene" (p. 5).

OSHA standards alone cannot prevent sudden hazardous events from happening or firefighter injuries and fatalities from occurring. However, to assist with awareness of certain hazards and to provide warnings on specific tragedies, NIOSH investigates firefighter fatalities and issues several urgent safety alerts designed to warn the fire service about these dangers. For example in 1999, NIOSH released a safety alert following a NFPA report on dangers encountered when burning structures collapse without warning. Cambell (1999) states, "NIOSH urged fire departments to take the following steps to minimize the risk of injury and death to firefighters during structural firefighting:

1. Implement and review occupational safety programs and standard operating procedures.
2. Ensure that the incident commander conducts an initial size-up and risk assessment of the incident scene before beginning interior firefighting.
3. Ensure that the incident commander always maintains accountability for all personnel at a fire scene, by both location and function.
4. Establish rapid intervention crews, often called rapid intervention teams, and make sure they are positioned to respond immediately to emergencies.
5. Ensure that at least four firefighters are on the scene before beginning interior firefighting at a structural fire (two inside the structure and two outside).
6. Equip firefighters who enter hazardous areas, such as burning or suspected unsafe structures, to maintain two-way communications with the incident commander.
7. Ensure that SOPs and equipment are adequate to support radio traffic at multiple-responder fire scenes.

8. Provide all firefighters with pass devices and make sure that they wear and activate them when they are involved in firefighting, rescue or other hazardous duties.
9. Conduct pre-fire planning and inspection that cover all building materials and components of a structure.
10. Transmit an audible tone or alert immediately when conditions become unsafe for firefighters.
11. Establish a collapse zone around buildings with parapet walls (p.3)

In 2000, a volunteer firefighter died fighting a residential structure fire in Texas. This led to NIOSH conducting a firefighter fatality investigation. This investigation with 40 other incidents where firefighters were killed in residential dwellings between 1995 and 2000 revealed the following. Mezzanottee & Washenitz states: "NIOSH investigators concluded that to minimize the risk of dangerous and preventable occurrences, fire departments should:

1. Ensure the department's SOGs are followed and refresher training is provided. Written procedures are only effective if they are used.
2. Ensure that a Rapid Intervention Team is established and in position immediately upon arrival. The RIT should respond to every major fire and have all tools necessary to complete the job required if a firefighter becomes injured.
3. Ensure that fire fighters from the ventilation crew and the attack crew coordinate their efforts. Fire can quickly spread upward into the structure, causing potential problems such as flashover, a backdraft, or a weakened structure. Ventilation timing is extremely important and must be carefully coordinated between both fire attack and ventilation crews. (p. 17).

OSHA 29 CFR 1910.120 standard on Hazardous Waste Operations Emergency Response (1998), requires that "Back-up personnel shall be standing by with equipment ready to provide assistance or rescue. Qualified basic life support personnel, as a minimum, shall also be standing by with medical equipment and transportation capability" (section (q)(3)).

Over the years we have trained firefighters responding to Haz-Mat incidents never to make entrance into the "hot-zone" without having a "back-up team" ready in-place. Doing so will possibly prevent injuries or fatalities on scene not only for Haz-Mat, but also for daily response. Having these OSHA standards and continuous training assist us to remember how important a back-up team is.

Throughout the United States, the USFA compiles a series of technical reports on certain major fires that usually involve loss of life or property. For a variety of reasons these reports are published, but the main one is to bring lessons to others from mistakes made. These lessons learned may prevent further injuries, deaths, or tragedies. In addition, these reports may be used to develop new technologies or tactics for the fire service.

A special technical report on Rapid Intervention Teams (Williams & Stambaugh, 2003) was developed to assist the fire departments with developing and implementing a RIT program. It provided detailed information that can be used a resource to help prevent future fire service tragedies consisting of missing, trapped, or injured firefighters. Included in the report was:

- significant factors and statistics on firefighters injuries and deaths,
- current recommendations and requirements governing rapid intervention teams,
- objectives and functions of the RIT,
- recommendations on developing the RIT program,
- suggested areas and techniques of training for effective RIT operations,

- examples provided of how different types of departments currently use RITs,
- SOGs provided from other fire departments for RITs,
- samples of tactical procedures that have proven effective when a RIT is activated,
- suggested tools and equipment necessary for effective RIT operations,
- beneficial recommendation on practicing personal safety, search techniques, and escape, and
- RIT responsibilities prior to, during, and after deployment.

According to the report, the use of rapid intervention teams is only one way to prevent firefighter deaths. Training, physical fitness, equipment, the incident command system, personnel accountability, and strategy and tactics all play critical roles in firefighter health and safety. Firefighter rescue teams and self-rescue techniques are last-resort measures that fall at the end of the spectrum when other steps to ensure safety and health have been overtaken by the unpredictability of conditions on the fire ground or by previously undisclosed medical conditions (p.3).

The report also revealed that "the two-in/two-out requirements developed by OSHA was originally written to protect all types of workers from illness and injuries associated with hazardous environments that require respirators" (p.9). For firefighters, it pertains to initial arrival and deployment of first due operations. As the incident grows and firefighter safety becomes an issue, then a RIT needs to be established.

The report also recognized that "one of the most important considerations in forming a RIT is training" (p. 14). Training should not only refresh the fundamentals of firefighting and search and rescue, but also should stress an attitude of safety and caution in responding to all incidents combined with specifics on the art of firefighter rescue. Training reinforces the main

objective and function of a RIT, which is to locate and rescue a lost, trapped or injured firefighter.

The report also "presents information on tactical procedures that have been proven effective when a RIT is activated" (p. 30). It explains what tools and equipment are necessary for firefighter rescue and advises who can provide adequate training programs on tactics and tools for effective RIT operations. When the topic of training arises, it is recognized that numerous RIT training programs have been established and have a variety of procedures. To assist with those training issues, the report also advises that "adequate training in basic firefighting, self-rescue techniques, and specialized firefighter rescue for all firefighters will instill confidence in on-scene firefighters, including those in need of rescue, those attempting the rescue, and those standing by during the rescue effort" (p.40).

In addition, the report stresses how important personnel accountability is and it is mentioned that a several departments policies warrant them to deploy a RIT upon the transmission of a "mayday" or the determination that personnel are found to be missing.

The discussion of mayday communication deems to be of utmost importance and is recognized as something that needs to be established in addition to a rapid intervention team. In doing so, it will set parameters to ensure that firefighters will call for help as soon as they recognize that they may be in trouble. Clark, Angulo, & Auch (2003) identifies that Firefighters do not like to admit that they might need to be rescued. The delay in calling a Mayday may be caused by many factors, but three needs to be addressed immediately:

1. The stigma associated with admitting to yourself and letting others know you need help,
2. Not having been given clear rules for calling a Mayday, and

3. The manner in which the fire service makes decision (p. 5)

These factors can be addressed according to Woods (2003), providing fire departments develop clear Mayday decision-making parameters (rules that specify when a Mayday must be called) and institute Mayday training programs practiced on a regular basis. To assist with determining the decision-making parameters, it was suggested to compare firefighters with other stressful occupations that share similar parameters. One occupation that came to mind was military fighter pilots. According to New York CNN/Money (2003), Christie claims that fighter pilots were listed as one of the top ten most dangerous jobs in America for 2002 (p. 3). In comparing parameters of firefighters to fighter pilots, it was determined that the pilots are given clear, specific ejection rules governing when to eject in trouble and are trained over and over on making the ejection decision. Then the pilots are drilled on actually pulling the ejection cord several times a year. "These parameters/recommendations are based on logic similar to that used to establish training programs for firefighters. The comparison of firefighters' calling a Mayday to pilots' ejecting from their planes makes good sense" (p.2) Woods adds.

Training seems to be a key part for a successful RIT program. Jakubowski & Morton (2001) state "Training firefighters to minimize the potential for bodily harm is essential. They must recognize when they are in trouble, know how to call for help, and understand how incident commanders and others must react to a responder in trouble" (p. 12). Going a step further than knowing when help is needed is communicating that help is needed to all personnel on scene. This is commonly known as a "Mayday" call. This call indicates a firefighter is in need of assistance and must be recognized by all personnel. Once a mayday is communicated, a personnel accountability report (PAR) must then be conducted. "This will confirm and/or deny the verification of a firefighter in need. As soon as the IC can determine the location or general

area of the problem, the RIT is deployed and further information can then be relayed to the team as it is obtained" (p. 75).

While the PAR is being conducted and the RIT is activated, it is important to remember that the fire ground tactics must continue with the operations. All this activity tends to cause confusion on the fireground and if not careful, may lead to preventable accidents, injuries, and deaths. That is why it is important for continuous training on RIT operations, personnel accountability, and practicing the "Mayday call". According to Nasta (2003), disorientation is the second leading cause of fireground deaths, behind cardiac arrest. Each year the fire service continues to mourn the loss of so many of our brother and sister firefighters who might have been saved if a few basic rules were followed (p.33).

These rules can be spelled out to personnel in the way of policies, procedures, and/or guidelines. Having them in place is not enough, regular training on them needs to be practiced. Nasta recommends the following rules to be practiced if in the form of a training drill for Mayday training:

1. Remain calm. This may be the hardest step. If you have ever been trapped, you know what I mean.
2. Transmit the Mayday. If your department does not have a procedure for doing this, it should certainly develop and implement one.
3. Activate your Personal Alert Safety System (PASS) device. This device should be armed before you enter the building and manually turned on once you realize that you're lost.
4. Orient yourself. Take matters into your own hands. Don't wait to die. Find your own way out if you're physically able (p.33).

In addition to training, Coleman (2000) advises to "take time to review past incidents, and look at what got you in trouble. Training in incident management, rapid intervention, personnel accountability, and rescue techniques is just a start of what we need to do to handle these incidents. Determining your resources and developing your own lost/trapped firefighter policy are absolute necessities. How well Command manages the Mayday and how well all on-scene crews interact with one another will determine the success or failure of the toughest type of incident we will ever fight" (p. 8).

McCormack (2000) adds, "Every firefighter and department should participate in self-rescue and rapid intervention training. Sending firefighters into structures without training in how to respond to their own emergencies should not be allowed. Using rapid intervention teams that have not been trained in rapid intervention skills is the same as not having a rapid intervention team at all (p. 33).

The Florida Statutes (2004) Workplace safety (chapter 633.821) also extends its authority making the firefighter employee place of employment a safer place to work and decreases the frequency and severity of on-the-job injures. It states "the division shall have the authority to adopt rules for the purpose of ensuring safe working conditions for all firefighters employees by authorizing the enforcement of effective standards, by assisting and encouraging firefighter employers to maintain safe working conditions, and by providing for education and training in the field of safety. Specifically, the division may by rule adopt all or any part of subparts C through T and subpart Z of 29 C.F.R.s. 1910, as revised April 1998; the National Fire Protection Association, Inc., Standard 1500, 1992 edition; and ANSI A 10.4-1990" (633.821(2)).

With Respect to 29 C.F.R.s. 1910.134(g)(4), the two individuals located outside the immediately dangerous to life and health atmosphere may be assigned to an additional role, such

as incident commander, pumper operator, engineer, or driver, so long as such individual is able to immediately perform assistance or rescue activities without jeopardizing the safety or health of any firefighter working at an incident (633.821(3)).

However, the RIT needs to be dedicated specifically to rescue the department's own members if needed who are actively involved in tactical functions. According to Cohen (1999) "the primary purpose of the RIT is to ensure the safety of operating members only. We cannot allow these rescue members to get involved in extended operations for small assignments or tasks that will inherently cause them to get tunnel vision and forget their primary responsibilities- not to mention the debilitating and exhausting effects of these little jobs can cause" (p.13).

Texas Senate Bill 382, the legislation that mandates RITs, was passed after recommendations by OSHA and NFPA were adopted. Hall (2005) states that "two firefighting personnel, called the RIT are required to remain outside the area involved in the fire in case a rescue of firefighters inside the involved area is needed" (p. 12). "The passage of the bill came after several high profile fires in which firefighters became trapped, disorganized and then died," he said.

The review of 18 separate RIT operational guidelines, policies, and procedures revealed a variety of suggestions and recommendations for developing and implementing a RIT program and significantly contributed to this applied research paper. The information varied from department to department across the nation, however they all had similar missions, goals, and objectives. There were several procedures available that identified the responsibilities of a RIT, and provided guidelines and procedures for RIT activation/deployment and RIT operations.

Queensland Fire & Rescue Authority (Trickey, 2000) has a fully trained and properly equipped RIT standing by at each working fire. It is activated by a rapid change in events or

conditions. This may be a sudden collapse, explosion, flashover or some other event, which would indicate that firefighters were in danger (pp.1- 4).

Washington Township Fire Department's (Kolomay & Hoff, 2001) goals focus on helping its members with better decision making so that rapid intervention won't have to be used in addition to facilitating a RIT team at every working fire. Training programs are focused on three key areas:

1. Current trends, and basic fireground realities.
2. Self-awareness and survival skills.
3. Rapid Intervention Team operations.

Santa Clara County Fire Service (1998) has a RIC deployed in a ready state, to immediately react and respond to rescue injured or trapped firefighters or civilians. It is implemented and activated at all multiple alarm fires and other incidents where fire department members are subject to hazards what would be immediately dangerous to life and/or health in the event of an equipment failure, sudden change of conditions, or mishap (pp. 1-4).

Review of the other fire department's RIT guidelines, policies, and procedures also offered recommendations on what RIT tools and specialized equipment are currently being used for effective RIT operations. It is suggested that the equipment should conform to the department and its areas of service as well as its needs. San Mateo County Fire Service policies ensure that all RIC personnel are wearing personal protective equipment, including SCBA with a personal alarm device, and that they are properly equipped with forcible entry tools or any other specialized rescue equipment used to gain access to potentially trapped firefighters. Once the need for firefighter rescue is indicated, additional information is obtained by the RIC for specialized equipment to be used.

Central Ikibbeha Fire Service (2003) has a dedicated team of individuals consisting of no less three members (one of whom assumes the role of RIT leader) which stands by with appropriate equipment to provide for the rescue of personnel who are performing special operations or who are in positions that present an immediate danger of injury in the event of equipment failure or structural collapse. A checklist of specialized equipment is provided and maintained at each RIC deployment for the needs to rescue/remove the downed person.

Orlando Fire Rescue (2005) has a RIT Unit that is fully equipped with the appropriate protective clothing, protective equipment, SCBA, and any specialized rescue equipment that might be needed given the specifics of the operation(s) in which Companies are engaged. The RIT Unit determines the availability and location of it's Tower and portable ladders, portable lights, extrication tools and/or other tools and equipment which might be needed to person rescue duties. At a minimum, RIT members are equipped with the following, which can be staged outside the building:

1. Officer-6' hook, thermal imager, search rope.
2. Engineer-6' hook, halligan tool, K-12 saw with carbide tip or chain saw, depending on construction of the structure involved.
3. Left Jump-6' hook, sledge hammer, K-12 saw with composite blade and portable ground ladder for structures more than one floor.
4. Tight Jump-6' hook, flat head axe, halligan tool, and the RIT pack.
5. Central Jump (Heavy Rescue only)-halligan tool, axe, and chainsaw.

The RIT Unit also considers additional tools for specialized operations such as the slice pack, oxyacetylene torch, the hydraulic unit, sawzalls, and the dispatch of Technical Rescue Trailer in the event of a collapse situation.

Yakima County Fire Chief's Association Committee on Compliance with Rapid Intervention Standards (2003) provided guidelines that were recommended for RIT operations. It recommends that the RIT should be equipped with the appropriate protective clothing, protective equipment, SCBA, search rope, Thermal Imaging Cameras (TIC), TIT air pack, Light, radio and any additional specialized rescue equipment needed, based on the specifics of the operation underway.

The International Association of Fire Chiefs (IAFC, 2005) offers a RIT safety guideline by Arlington County Fire Department (1997) for review. It recommends the RIT Crew shall don full protective equipment or have it readily accessible including SCBA and have the following equipment readily accessible:

1. Portable radio,
2. Tagline,
3. Halligan Bar and/or other appropriate forcible entry tools,
4. Handlights, and
5. Have special tools as indicated by size-up readily available.

All RIT guidelines, policies, and procedures reviewed for this research project stressed the importance of training. Upon adoption and implementation of these procedures, each department with regards to unit training utilized a common lesson plan. In addition, each department is required to insure that their members will continue training in accordance with the industry standards and procedures. All training is recommended to be held as often as possible and the development and/or training of advanced rescue procedures should also be encouraged.

Several Applied Research Papers on personnel accountability and RIT operations from the Executive Fire Officer Program of the National Fire Academy are also available for review.

These publications offer numerous suggestions and recommendations to assist with the development of a Rapid Intervention Team program. After reviewing six different research papers, it was determined that the sole purpose of a RIT is to be dedicated strictly for firefighters and be immediately available to assist those firefighters who become:

- Trapped in a structural collapse,
- Trapped in conditions that have compromised their means of egress,
- Disorientated or lost in a structure, or
- Disabled while operating at a scene and are unable to remove themselves to safety.

Sanchez (2000) agreed with Cobb (1998) in stating, "the basic concept of a rapid intervention team is simple-they are the first responders sent to rescue or locate trapped or missing firefighters" (p 7). This must be encouraged in addition to extensive training to ensure the safety of our firefighters for unexpected events. Fish (2004) wrote, "the firefighters themselves would be safer with the knowledge and skills that they would develop. It would help them create a greater awareness of the situations that they encounter as well as provide them with the tools to perform their duties in a firefighter emergency" (pp. 20-21).

In summary, the literature reviewed for this project consisted of other department's and agencies rapid intervention team programs, numerous mandatory requirements, regulations, and standards mandated for RIT programs, and studies that assist with the development of fire department RIT programs. Multiple personal interviews were also conducted to obtain additional information needed for successful development and implementation of RIT programs.

The findings indicated that a large number of firefighter fatalities have occurred at the type of fire to which we respond most often-the single-family residential fire. Obviously, we have very little control over when the events that kill a firefighter (flashover and collapse, for

example) will occur. In some cases, even having a capable standby RIT on-scene would not have changed the outcome. However, according to Crawford (2005), "the RIT concept is a viable way of having or getting manpower to the scene quickly to increase the chances of survival for our people in trouble" (p. 3).

In regards to the actual development and implementation of RIT programs in fire departments, several comparable programs were recommended for RIT operations. There needs to be a written policy, procedure, or guideline in place for effective operations. This will eliminate confusion and convey the importance of what is expected of the department's members. Parrish (2004) states, "Having a written SOP in place, especially following a national standard, will show that your department is aware of the importance of that task or activity" (p. 14). Members need to know what is expected of them if operations are to be performed efficiently and in a safe manner" (p. 39).

Individual training as well as departmental training are other areas that will determine the effectiveness of RIT operations. When the fire service thinks of the rapid intervention team, we visualize a group of experienced, well-trained firefighters whose sole purpose is quick deployment to a firefighter in distress. However, this is a shared responsibility between the fire department and its members. McCormack (2004) wrote, " The department is responsible for making sure that teams are available and capable of performing when needed. Individual firefighters are responsible for accepting the responsibilities associated with rapid intervention and remaining proficient at the skills needed to get the job done" (p. 3).

Tools and equipment used by different rapid intervention teams basically seemed to be the same. However, recommendations did vary to a degree according to the needs of the

department and its members. The author will list in greater detail the tools and equipment recommended for use by current operating RIT's in the Results section of this research project.

All literature reviewed has influenced this applied research project by providing valuable information that answered the research questions proposed. The data not only verified the need for RITs in the fire service, but also to reinforces the need to develop and further recommend a SOG on Rapid Intervention Team operations for OFR.

## Procedures

The inspiration of this project was from an incident that transpired fairly recently at a residential structure fire. A sudden unexpected life-threatening event occurred under the command of the author, which caused great concern with the realistic possibilities of having one or more of his personnel not making it to safety. Having a RIT established might not have prevented the dangerous event from occurring, but it would have acted as a life-safety net. A plan would have been in place to compensate for the momentarily loss of control of the emergency incident. It would have provided additional resources and dedicated personnel ready to rescue those OFR members if needed. Jakubowski and Morton (2001) wrote, " Ideally, plans must be in place to manage all types of sudden, unexpected events in order to keep the emergency scene under control. Fire departments operating under a solid ICS with firmly established rapid intervention plans are much more likely to manage crises successfully (p. 25).

This author chose the descriptive and action research methods for this research paper based on a problem that was identified and needed to be addressed. A problem that OFR does not currently have a guideline in place for the safety of its own members at emergency incidents. The purpose of the research paper was to develop a RIT SOG that clearly provides additional

safety for firefighters at emergency incidents by designating one or more companies as Rapid Intervention Team members to provide immediate rescue or other assistance if needed.

In addition to reviewing literature on personnel accountability and Mayday communications, this author researched and reviewed other department's RIT programs, current applicable standards and law, and recommendations on how to develop and implement effective RIT programs. Further literature research was conducted on past research projects available at the Learning Research Center at the National Fire Academy; web sites containing rapid intervention and personnel accountability programs; magazine and journal articles based on their relevance to RIT; the Rapid Intervention Teams Technical Report by the USFA; and several text books. Included at the end of this project is a list of reference citations that were used from different documents to identify and assist with retrieving each source.

To receive additional information, this author conducted interviews at OFR with the Training Chief, Local IAFF 2135 President, Health and Safety Committee board members, and two Battalion Chiefs. Interviews of other agencies consisted of contacting Marion County Fire Rescue (MCFR) Training Chief, three Florida State Fire College (FSFC) RIT Instructors, as well as Tampa Fire Rescue (TFR) Chief of Personnel. Also, additional interview questionnaires were given to selected individuals due to their experience as incident commanders, RIT instructors, safety officers, and company officers to obtain their suggestions and input for the SOG. The purpose of these interview questionnaires were to assist in obtaining relevant information on rapid intervention team training, deployment, and what tools and equipment are currently being utilized for effective RIT operations.

The commitment of extensive research began with the development of two types of questionnaires for all interviewees at OFR and a separate group of questions for those

interviewees from other agencies. Both questionnaires were configured with a standardized list of key questions that would assist with the development and implementation of a new RIT program for OFR. All interviewees were considered "acknowledged experts" in the rapid intervention team concept and all relevant information was gathered and documented. In addition, all questions and answers were recorded accurately and completely.

The first questionnaire was dedicated to OFR personnel and the following questions were targeted to assist with determining what is needed for effective RIT operations:

1. Is it acceptable for me to interview you for my applied research project?
2. Do you consider our current Personnel Accountability System adequate or should changes be integrated?
3. Do you think a SOG on RIT will improve OFR firefighter safety at emergency incidents?
4. What is needed for effective RIT operations for OFR members?
5. When do you recommend the RIT should be activated?
6. When do you recommend the RIT be should be deployed?
7. Where do you recommend the RIT should stage and should there be a separate staging area for RIT tools and equipment?
8. What type of training needs to be done within OFR for effective RIT operations?
9. What type of marking system do you recommend should be for the RIT?
10. Do you recommend a RIT checklist to be provided with the RIT SOG?
11. Do you recommend a separate SOG for Mayday communications or should it be incorporated into the RIT SOG?

12. Are there any additional comments you feel are needed to be incorporated in the OFR RIT?

The questions for these interviews are provided in appendix B of this report.

The second questionnaire was dedicated to other agencies and the questions were targeted to assist with determining the following:

1. Is it acceptable for me to interview you for my applied research project?
2. Does your department currently have a RIT/RIC?
3. What is the current status of your RIT policy?
4. What unit or company does your department utilize as a RIT?
5. What tools and equipment does your department provide for its RIT?
6. Does your department use any type of marking system for the RIT and its equipment?
7. Does your department use a RIT checklist?
8. When does the RIT become established and operable in your department?
9. Does your department have a separate guideline for Mayday communications?

The questions for these interviews are provided in appendix C of this report.

OFR's personal interviews were conducted with Battalion Chief of Training-Jim Ganter and Local 2135 President-Captain, Robert Altman on March 3, 2005 in the Training Division office. Both individuals were asked questions relating to OFR's current Personnel Accountability System SOG, what their suggestions and recommendations are that would enhance the safety of department's personnel on emergency incidents, and how they felt a RIT should be incorporated into OFR daily emergency operations.

Battalion Chief Ganter has experience in training firefighter candidates as well as members of OFR on a regular basis. He researched, developed, and implemented OFR's new

PAD test and its procedure to ensure the candidates highest level of skills are revealed during testing. Chief Ganter has been with OFR since 1982 and has been Training Chief for MCFR for six years and has been working in the OFR training division since 2001. He is also currently chief officer of the Health and Safety Committee. He has been a company officer since 1990 and his experience can greatly assist with OFR's program by recommending what effectiveness measures he feels should be put in place to benefit the department and it's personnel.

Captain Altman was hired by OFR in 1990 and has been the president of the Local 2135 for the last 2 years. Because of Captain Altman's position he is considered the voice of the firefighters and speaks on their behalf on a regular basis. He has dealt with several health and safety issues, 2 different contractual negotiations, and was on the original committee for OFR's Health and Safety Committee in 1996. This author considers Captain Altman's opinions to be credible due to his experiences as a company officer and knowledge with the administrative and firefighter interactions of OFR.

OFR Health and Safety Committee Board members consist of Battalion Chief Jim Ganter, Training Captain Chuck Barberie, FF/FEO Marvin Davis, and FF/FEO Raleigh Hart. The goal of the committee is to work together as a joint force to accomplish outstanding safety issues, which is best for all OFR personnel. The committee prioritizes the list of issues and addresses the most important ones first. At this time, RIT is at the top of the list for discussion. The author approached the committee members and explained to them what an Applied Research Project was and that the RIT SOG has been elected for the appropriate research topic. The members recognized the significance of the topic to the author and agreed that RIT was the perfect issue to choose for the benefit of OFR and its members.

OFR Battalion Chief Nick DeVita in addition to being a lead instructor at the Florida State Fire College was hired at OFR in 1983. BC DeVita has worked his way through the ranks and has extensive training in the fire service. He is currently also the Division Director for OFR Special Operations Team consisting of hazardous materials, confined space rescue, trench rescue urban search and rescue, and high angle rescue. BC DeVita instructs a wide variety of tactical classes including specialized rescue team services and can greatly assist with OFR's program with his fireground tactical experience and instructional techniques in rapid intervention.

OFR Battalion Chief Marty Ortiz was hired at OFR in 1981. BC Ortiz has also worked his way through the ranks and has been promoted this year to the Battalion Chief of Administrative Services position. He assists the operations division as a shift commander, incident commander, and safety officer. His experience in the fire service can greatly assist with OFR's program by evaluating the recommendations and monitoring the program on a regular basis to determine its effectiveness. This will allow modifications to the program that are deemed to be effective or ineffective to its operations.

Florida State Fire College Lead Instructor Shane Alexander is also an OFR Captain hired in 1994. He has six years experience instructing at the state Fire College and has an invaluable amount of firefighting training, fireground techniques, and firefighting skills. In addition to instructing fire standards, fire control, fire equipment, and firefighter safety, rapid intervention is a topic Captain Alexander takes to heart. He believes that if firefighters are trained properly, they will know the correct actions to take during emergency activities.

Florida State Fire College instructor Shane Ferguson is also an OFR Captain hired in 1990. He has six years experience in instructing as well. Captain Ferguson assists with instructing fire standards and field training at the State College and recognizes the importance of

rapid intervention teams. He is considered to be a professional company officer and is dedicated and committed to the job. He believes in the strategy if learning all that you can and giving as much as you can will make yourself, company and department the very best possible.

Personal interviews were conducted with State Instructors' Joe Talley and Jim Williams in the Battalion Chief office and lasted approximately one and one half-hours. Both State Instructors are knowledgeable in rapid intervention and were delighted to be given the opportunity to present their input to the author on such an important subject of RIT. 1) OFR firefighter Joe Talley, who in addition to being the Fire Chief of Micinopy Fire Department, Florida has been with OFR since 1998. He brings administrative experience as well as firefighting skills to the table with the development of the RIT program. He has been an instructor at the state Fire College for three years and is extremely knowledgeable in rapid intervention techniques as well as firefighter health and safety issues. 2) OFR firefighter Jim Williams who is also a State Instructor at the Citrus County Fire Training Center. He has profuse training in rapid intervention and has also conducted research in the subject matter for instructional purposes.

Both Instructors' Joe Talley and Jim Williams agreed that a SOG concerning RIT would have two positive influences. First, it would insert the existence of a RIT into our current tactics. They feel that with a RIT SOG, the Department will dispatch the manpower to the incident with the first alarm and supply companies with equipment needed in a RIT setting, both of which are vital for a successful RIT program. Second, they feel that by establishing an SOG on RIT, it would require our Department to train our members on subjects not limited to just RIT, but also personal survival and rescue techniques and Mayday radio procedures as well.

OFR Training Captain Lisa Gray has been with OFR for 16 years. Captain Gray has assumed the responsibilities of safety officer, company officer, instructor, EMS Chief, and is extremely safety conscious for our department and its members. Her knowledge, training skills and education can assist greatly with the development of a RIT SOG for our department. Captain Gray feels by implementing a RIT SOG and with continual training, it would help our personnel know what to look for and how to prepare if there is an emergency during an incident.

Those OFR personnel, and Florida State Fire College instructors referenced above can greatly assist with OFR's program by recommending what effectiveness they feel should be put in place to benefit the department and it's personnel.

The interview questionnaires were sent to Marion County Fire Rescue, Florida and Tampa Fire Rescue, Florida and were conducted in person by the author with the fire department representatives. They were asked basically how the RIT is used in their department, what tools and equipment they recommend for effective operations, and how they meet the training needs to allow effective RIT operations. Several lists of tools and equipment were provided. Also, various training programs on all recommended equipment were furnished with a variety of scenarios presented. These examples assisted the author to recommend multiple tools and equipment to be incorporated into the SOG in addition to a checklist of equipment and tools.

Four research questions were carefully chosen to gather information and allow success of this project, which then in turn would provide appropriate guidance toward the development and recommendation of implementation of OFR's RIT program. The first research question allowed the author to research the current state and federal requirements for rapid intervention programs for firefighters. This lead to NFPA, OSHA, NIOSH, and the FSS. These documents contained

recommendations as well the requirements relating to fire department rapid intervention team programs. All documents were reviewed and the results were consistent with each other.

The second and third research questions were committed to assist with determining what equipment and tools would be needed for effective RIT operations and when it would be advised to deploy the team. The responses of the questionnaires distributed to the fire departments along with OFR personnel assisted with answering these questions in great extent and the comment section on the questionnaire provided valuable suggestions. The inquiry of how other department's RIT teams are currently functioning assisted in understanding what equipment is needed and what tools are actually being utilized for effective operations. The in-depth interviews revealed that several departments actually utilized only half of the recommended tools that were suggested from the literature reviewed.

The members of OFR were more than willing to provide abundant information on their recommendations, due to their experience, education, and training. In addition, the literature reviewed from textbooks, periodicals, and other current agencies offered a variety of different suggestions, as well as providing current successful program recommendations.

The answer for the fourth and final research question was basically provided upon the findings from the responses for questions two and three. The training recommendations and suggestions from OFR members were combined with the training issues that needed to be addressed and accomplished for effective RIT operations. The interviews also assisted with determining what type of training needed to be conducted as well as how often

The author feels confident through the interviews, questionnaires, research, and literature reviewed that the information gathered will enable the development of one or two SOGs for RIT and/or Mayday to be recommended for implementation.

Definition of Terms:

1. Accountability – To be responsible for one's personal activities. In the organizational context, accountability includes being responsible for the actions of one's subordinates.
2. Attack mode – A situation in which the first arriving officer elects to take immediate action (rescue, fire attack, etc.) and pass command to another officer.
3. Company – A group of members having the following characteristics: under the direct supervision of an officer or leader; trained and equipped to perform assigned tasks; usually organized and identified as engine companies, ladder companies, rescue companies, or squad companies.
4. Department – A principal administrative division of a government.
5. Emergency Medical Services (EMS) – The provision of treatment-such as first aid, cardiopulmonary resuscitation, basic life support, advanced life support, and other pre-hospital procedures.
6. Evacuation – The removal of persons or things from an endangered area.
7. Fire control – Activities associated with confining and extinguishing a fire.
8. Immediately Dangerous to Life or Health (IDLH) – Any atmosphere that poses an immediate hazard to life or produces immediate irreversible debilitating effects on health.
9. Incident command (IC) – The overall director of an incident or emergency event who is responsible for providing responder and citizen safety and survival, stabilization of the incident, and the conservation of the environment and property.
10. Incident command system (ICS) – An organized system of roles, responsibilities, and standard operating procedures used to manage an emergency situation.

11. Incident Safety Officer – As part of the ICS, that person responsible for monitoring and assessing safety hazards and developing measures to ensure personnel safety.
12. Fire Service Joint Labor Management Wellness/Fitness Initiative - A group effort between the IAFF, IAFC, and ten national departments of various sizes to develop a national wellness/fitness program.
13. International Association of Fire Chiefs (IAFC) - International association of chief officers who meet and discuss issues which effect all fire departments.
14. International Association of Fire Fighters (IAFF) - International organization for firefighters working to improve benefits, health, and safety issues.
15. Learning Resource Center (LRC) - A library provided on campus of the National Fire Academy in Emmitsburg, MD.
16. Mayday – The emergency condition where a firefighter may be lost, trapped, missing, or disoriented to a level assistance will be needed. The broadcast of this message may be via radio from the member or crew needing assistance or declared by the incident commander.
17. National Fire Academy - Federal institute working to improve firefighter safety, education, and development through training and practical applications of materials and concepts.
18. National Fire Protection Association (NFPA) - A nonprofit organization that researches and formulates consensus standards for public and private fire protection agencies. The NFPA is not a Federal Agency and its standards and codes are not enforceable unless adopted by an authority in a particular jurisdiction.
19. Personal protective equipment (PPE) – The garments and associated equipment worn by firefighters while performing the job of firefighting.

20. Personal alert safety system (PASS) – A component of PPE, the PASS device is intended to alert others to a firefighter who is in some way incapacitated.
21. Personnel accountability – The tracking of personnel as to location and activity during an emergency event.
22. Rapid intervention team – A team or company of emergency personnel kept immediately available for the potential rescue of other emergency responders.
23. Rehabilitation – As applies to firefighting personnel, an opportunity to take a short break from firefighting duties to rest, cool off, and replenish liquids.
24. Self-contained breathing apparatus (SCBA) – Part of a firefighter's personal protective equipment. Given that the respiratory system is at risk during firefighting and overhaul activities and other emergency operations, SCBA should be worn whenever one is engaged in such activities.
25. Standard operating guideline (SOG) – A written indication or outline of department policy that allows flexibility in application.
26. Standard operating procedure – An organized directive that establishes a standard course of action.

## Results

Answers to the four Applied Research Project questions are as followed:

Question 1. What industry standards exist regarding RIT programs?

Answer: The literature review identified national standards that do exist regarding physical fitness programs for firefighters. NFPA 1500, NFPA 1521, NFPA 1561, NFPA 1584, NFPA 1670 and NFPA 1710 are listed as standards for firefighter programs relating to rapid intervention team operations and relative data. The Federal Occupational Safety and Health Act

refers to these NFPA standards as recommendations. NFPA 1500 Standard on Fire Department Occupational Safety and Health Program (2002) also provides data on fire fighter fatalities and injuries in the United States. It addresses the safety requirements for emergency and health program for fire departments and specifies requirements for its members. In addition, it provides assistance towards dedicating equipped back-up personnel for standby with equipment ready to provide assistance or rescue if needed when there are personnel working in a hazardous area deemed immediately dangerous to life or health (IDLH). It also discusses the specialized equipment that is needed for effective RIT operations.

OSHA Standards-29 CFR 1910.120 and 1910.134 discusses requirements for interior structural fires, respiratory protection and additional resources for personnel entering an area that is immediately dangerous to life and health (IDLH). It also requires that back-up personnel shall be standing by with equipment ready to provide assistance or rescue.

The Florida Statutes chapter 633.807-633.821 also extends its authority towards firefighters duties such as RIT operations by requiring departments to furnish and use safety devices, policies, and methods reasonably adequate towards making the firefighter's place of employment a safer place to work. By doing so would decrease the frequency and severity of on-the-job injuries, as well as protect the lives, health, of firefighters and promote their safety.

Question 2. What tools and equipment are needed for effective RIT operations?

Answer: The personal interviews of personnel knowledgeable in RIT operations, literature research, and data collected for this project revealed that there is a wide variety of equipment needed and used for effective RIT operations.

The personal interviews with other department's representatives revealed the answers to the following questions:

1. What tools and equipment does your department provide for its RIT?

RIT tools and equipment should be allocated in addition to the regularly assigned tools for operations. It is suggested that a RIT tool kit should be carried in the Battalion Chief's vehicle and on the Heavy Rescue Squad. The tool kit should be previously prepared and considered mobile. It should contain various cutting tools, rescue rope, multiple portable radios, forcible entry tools, multi-purpose hand tools, hand lights, a thermal imaging camera, and an additional SCBA. Additional items are recommended from the literature researched:

- Flat and pick head axe
- Sledge hammer
- Halligan bar
- Pike pole
- Chainsaw, reciprocating saw, and circular saw with a metal blade
- Trauma bags
- Airbags
- Hydraulic and pneumatic rescue tools
- Escape/RIT belts
- Additional gloves
- RIT blanket/stretcher
- RIT survival books
- Watercan
- Bolt cutters
- Torch
- Sprinkler wedges

- Wire cutters
- Set of screwdrivers, and
- Tubular webbing

2. Does your department use any type of marking system for the RIT and its equipment?

The RIT reports to the area of the incident commander in front of the fire building and remains in visual or verbal contact with the incident commander. The team should always stay in front of the building trying to maintain a view of at least two sides of the fire building with thew exception of high rise structures. In multiple structures, it is suggested that the RIT stage one story below the fire floor. The team should stage on a marked salvage tarp indicating "RIT" to better control and maintain all the specialized equipment and tools in a RIT bag. These markings will also notify suppression firefighters that this equipment and team is for use by the RIT only in the event of a mayday. Door straps could also be utilized for additional marking recognition.

3. Does your department use a RIT checklist?

Upon the RIT arrival at the fireground, the RIT tool kit and staging tarp should be gathered together and placed at the designated RIT staging area. The RIT should then report to the IC in full PPE and SCBA. Next, perform a walk around sizeup of the fire building noting all exits and hazards. Then report back to the staging area and perform RIT standby. While continuously monitoring the fireground conditions and radio frequency, a periodic walk around of the fire building is recommended, reporting back to the staging area promptly. To verify all RIT duties have been completed, a checklist is recommended to be reviewed throughout the incident. A sample checklist is provided below (Jakubowski, & Morton, 2001, p.169-170):

- Report to IC

- Turn in accountability tags
- Verify all tools and equipment needed
    - Full turn-out gear with SCBA
    - Portable radios
    - RIT tool kit
- Size-up scene
    - Entry/exit points
    - Fire/hot zone location
    - Firefighting/rescue operations
    - Hazards in and around the fireground
    - Additional equipment resources needed
- Establish secondary egress route
- Assist OC (continuously monitoring the fireground conditions and radio frequency)
- Stay together and be ready for deployment at all times
- Released for assignment only by IC.

In addition to the interviews, it was founded that NFPA and OSHA requires personnel to be equipped with appropriate protective clothing and specialized rescue equipment to aid those members in distress if needed.

Based on personal interviews with RIT instructors, it was determined that there are numerous types of tools and equipment recommended for RIT teams to increase the effectiveness of their operations. However, if there is too much equipment designated for the team, it will halter the quickness of set-up and the speed of deployment. Also, all the equipment would be too bulky to work with and may actually slow down the removal of the downed

firefighter. Because of these reasons, OFR Health and Safety Committee member FEO Davis recommended that each department interested in implementing a RIT should evaluate and train with different types of tools and equipment suggested and choose the ones best suited for its members. He feels our committee can review a variety of recommended equipment and after a few shifts of training with them, they would be able to effectively evaluate them and recommend which ones would best fit our department. He also believes that a staging area of additional tools and equipment should be supplied at each incident in addition to a designated RIT tool to accompany the RIT on every deployment.

The result of research for this question reveals that there are numerous tools and equipment recommended, however the RIT should be fully equipped with the appropriate protective clothing, protective equipment, SCBA, and any specialized rescue equipment needed to perform the rescue duties required. The primary responsibility of the RIT is to locate and remove the firefighter from distress as quickly as possible. The lightest tools and easiest equipment to carry that enable the team to complete that task should be the ones chosen for the job. Additional tools can always be brought in later as needed.

Question 3. When should the RIT operations be activated?

Answer: Based on personal interviews with other department's representatives, the results were consistent with the recommendations of current RIT instructors. Staffing levels for effective RIT operations should be two personnel dispatched initially to each emergency incident involving members working in a hazardous and increased to four as personnel as the scene warrants. Activation of the RIT should begin the moment any members enter a hazardous environment and be prepared for deployment at all times. The personnel assigned as the RIT needs to be dedicated strictly for the fire department members and be in a ready state at all times.

This includes having their SCBA with PPE and the RIT tool kit prepared for deployment on the marked/assigned RIT staging area.

It was also suggested that more than one RIT could be assigned to different hazardous areas at an incident, depending on the size and situation of the emergency incident and number of personnel involved in the tactical functions.

Results of the literature review discovered that the incident commander is responsible for establishing a staging area for the RIT as close as possible to the command post, depending on the conditions of the incident. The IC is also responsible for ordering the deployment of the RIT upon transmission of a Mayday or upon information that a firefighter is lost, trapped, missing, and/or in distress, or at the discretion of the IC. As the size of the incident grows, the IC can designate a RIT Chief or RIT Officer to cover the RIT assignment. This will ensure that the RIT Officer/Chief will be directly responsible for the accountability of RIT members at all times and that they will understand the situation, plan of action and assignment before deployment if needed.

Selected OFR personnel and current RIT instructors indicated that a RIT should be dispatched prior to any units arriving on scene to eliminate a lapse in time of coverage for our personnel. Instructor/FF Talley believes that the RIT can be assisting the IC while maintaining a ready-state of deployment in many ways. It was suggested that the RIT could monitor the radio channel for transmissions and communications, monitor fireground activities, monitor hazards and hot zone locations, and continue sizing up the scene for changing conditions. Instructor Bowlin suggested that our SOG should call for establishing a RIT as early as units are being dispatched to the incident. He feels that a reported working fire, hazardous materials incident, and structural collapse are just a few incidents we should dispatch a RIT along with our

responding units. Bowlin adds “Once on scene the RIT should remain in a designated staging area set by the IC fully equipped with the appropriate protective equipment, and any specialized equipment designated as RIT equipment. They need to be mentally and physically prepared to react and respond to rescue injured or trapped firefighters or civilians”.

State Instructor Captain Ferguson agreed that a RIT needs to be dispatched in addition to normal responding units to all structure fires and other calls putting our personnel in a hazardous environment. Once on scene, the RIT should gather their tools and report to the command post unless advised otherwise to receive their assignment from the IC. Then stage in a dedicated area until further notice of deployment or being released. While staging, Capt Ferguson feels the RIT should not be performing any physical functions that would prevent them from fulfilling its mission of rapid rescue. He also believes the RIT should have a charged hoseline to ensure back-up protection is ready and in proper position for deployment if needed.

Instructor Williams believes the RIT should be established whenever any companies are operating in a hazardous environment. Not be limited to structure fires, but to include other situations such as: haz-mat incidents, trench rescue, structural collapse, “running” brush fires, or any other incidents that can be determined IDLH for any reason. He believes the RIT should be deployed whenever a Mayday is transmitted and when it is recognized that a firefighter is in distress, injured, lost or missing. He also feels that as soon as the original RIT is deployed, immediately the IC should assemble and stage two additional RIT Teams. These other teams would either be available for other emergencies or to assist the initial RIT when they make contact with the firefighter in distress. He claims that many times the first RIT is only able to locate the firefighter in distress and if there is any entrapment, would advise what tools are

necessary to enact a rescue. He also stated that "oftentimes it takes as many as 12 firefighters to perform a rescue as they rotate through to assist an entrapped firefighter".

Captain Gray also believes that the RIT should be activated whenever there has been a dispatch for structure fires, large gas leaks, entrapment (vehicle, elevator, etc..), and hazardous conditions that may be brought on by everyday emergencies. In reference to addressing the question of when the RIT should be deployed, she states" the RIT should be deployed whenever there has been loss of communication with the interior crews, known injuries to firefighters (interior sector), and when a firefighter becomes trapped or in distress. Then a PAR should be called to determine the location of all personnel on scene and rule out freelancers".

The result of research for this question reveals that the main priority of the RIT is to be fully equipped in a ready state to react and respond to any firefighter reported in distress. Once the call for distress has been determined by report of a lost, trapped, or missing firefighter, the RIT should be deployed to the last reported location of the firefighter.

Question 4. What training should be provided to the members of OFR for effective RIT operations?

Literature review dedicated for question four revealed that training was a major component for successful implementation on RIT, Mayday, and PAS policies or standards. It was also clearly substantiated that training is necessary for effective RIT operations. However, there are not currently any standards that provide us with a minimum level of training for a RIT team member. Numerous departments are meeting the rapid intervention requirements by dispatching an additional engine, truck, or mutual aid department with members that have little or no formal RIT training.

Many RIT training programs teach pretty much the same procedures and techniques with some minor differences. Regardless of the training program, rapid intervention team members should have formal training in rapid intervention (Soyda, 2004). The training needs to address to the team members what duties they can or cannot perform on the emergency scene, what is expected of them, and how to initiate rescues as quickly and safely as possible.

State Instructors Captain Ferguson and Captain Alexander suggested that the RIT should practice its proficiency at all live-fire-training burns the Training Division conducts on a regular basis. By continuos training on realistic RIT operations in addition to fireground operations, the members who will be dedicated as the RIT can develop their skills and build up their confidence for the difficult and stressful circumstances that may be required. Capt. Ferguson believes "the training needs to be as realistic as possible and by practicing in these types of conditions will allow our personnel to experience under stress how to do things correctly when things go wrong". Live fire training provides unique opportunities for developing skills and self-confidence at all levels and permits firefighters to operate under realistic conditions (Smoke, 1999, p. 309).

Captain Gray believes that hands on training in a controlled fire situation should be provided to OFR members to permit effective RIT operations. She thinks first viewing videos of how effective RIT team functions should then lead to actual skills training in a realistic setting. In addition, once the team builds up their confidence, a checklist should be provided and encouraged to be used on a regular basis to give the RIT members something to follow. She stated "when members are under pressure, things can be forgotten or missed and having a checklist would prevent those things needing to be done from falling through the cracks".

Instructor Williams feels that both equipment and training issues needs to be addressed in order to implement effective RIT operations. He states "generally speaking, most RIT operations are conducted using basic common firefighting tools. I think for extended and complex operations we need to look at tools that we can operate in oxygen deficient atmospheres with low visibility for long periods of time. Once they are determined, what good would they do to us if we aren't proficient in using them under stressful situations?" He strongly feels that the most important thing we as a department needs is training. He states "we need training for the team and for the firefighter in distress. No matter how wonderful, expensive, or advanced our equipment is, we still have to put it in the hands of a well-trained firefighter. I would rather work with a highly trained firefighter equipped with an axe than a poorly trained firefighter equipped with a chainsaw. If we couple survival training with RIT training, then we can point both the rescuer and the person needing rescue in the same direction". Instructor Williams also believes that we should conduct realistic scenario based training using whatever tactics and SOGs we implement. He thinks it should coincide with personal survival rescue training. "Put a firefighter in a controlled situation of distress and then deploy the RIT to rescue them" he adds.

Instructor Talley believes that physical strength and mental strength are two components that need to be addressed for a successful RIT training program. He raised the question "what good would a training program be if it is not endorsed or enforced. Firefighters need to train and want to train to keep up their firefighting skills. Then to take it a step further, we have to strengthen our firefighting skills before we can increase our rapid intervention skills". Instructor Talley recommended different types of training. "I think we need to train in realistic situations. We can blackout the RIT teams face masks and have a PASS activated in an undisclosed location of a training burn structure. Then with additional realistic sounds and movements, have the RIT

find and remove the pack as quickly as possible. This will give the team a mental picture of what the sounds would be as well as the physical activities of searching for the downed firefighter under a stressful environment.

Instructor Bowlin feels that in addition to firefighter's becoming distressed in structure fire situations, other types of incidents need to be addressed that are just as realistic. He believes that training should address extrication, haz-mat scenarios, confined space, and training in austere environments. "Breaching and training is extremely important to the RIT, but specialized training also needs to be recognized. We need to be trained in not only how to rescue a firefighter in need, but how to improve the safety of the incident as well". Instructor Bowlin also adds that an ALS unit needs to be standing by at all times while the RIT is activated and during all training activities.

The result of research for this question reveals that not every training policy, procedure, or SOG will work for every fire department. Even though training varies, it is something that is needed for effective RIT operations. Effective training needs to address the following three areas:

1. Individuals need to train to stay proficient in their skills and familiar with the use of their equipment and tools,
2. Companies need to practice together to maintain the realistic conditions they will be dealing with, and
3. Departments need to offer effective training programs to its members to educate all personnel about how to prevent and/or be prepared for dangerous occurrences as well as enforce the training on a regular basis for effective RIT operations.

## Discussion/Implications

It can be concluded that the study results of this research paper compared to the findings of others discussed in the literature review are very similar with rapid intervention team program recommendations. NFPA Standard 1500 provides for the requirement of Rapid Intervention Teams and mandates that "the fire department shall establish and provide personnel for the rescue of members if the need arises, based on the needs of the incident. (NFPA, 2002). OSHA (1998) provides the two in-two out rule indicating the minimum of two firefighters remain outside the hazard zone when two or more firefighters are in the hazard zone (29 CFR 1910.134). The Florida Statutes (2004) also provides requirements towards making the firefighter's place of employment a safer place to work, but does not exactly address rapid intervention (chapter 633.807-633.821). In addition to these standards, other recommendations also relate to the development, response, make-up, and deployment of the rapid intervention team programs.

Findings from the research for this project also revealed that the RIT is a unit made up of emergency responders trained in emergency scene rescue techniques who have specific equipment to aid with the rescue. Results from every personal interview revealed that the team's objective is to rescue emergency responders who need assistance during response activities and that RIT members should not have any other assignments during the incident that could divert their focus from the potential rescue of responders in distress. Personal interviews from RIT instructors revealed that rapid intervention operations require firefighters who possess additional skills, knowledge, and training above what average firefighters normally entail. Experienced firefighters with additional training in firefighter distress procedures, technical rescue, firefighter survival, advanced SCBA procedures, and familiarity with specialized equipment and extrication tools are also recommended for the RIT members.

The results of this project provided valuable information that enabled the research questions to be answered. By answering these questions, it was clearly indicated that OFR needed a rapid intervention program in addition to its current PAS SOG. A RIT program that consists of a SOG with a specialized training curriculum.

Based on the author's interpretation of the results, it has been determined that regular training and practicing for dealing with emergency situations in realistic environments is the key to the effectiveness of rapid intervention team operations. Research has repeatedly shown that no factor has more effect on fire departments RIT operations than its training program. For RIT operations to be effective, regular training needs to be incorporated in the RIT SOG. This training needs to include the team requirements and duties, rapid intervention procedures, and proficiency in the use of the tools and equipment.

The implications of the results from this study may have a positive impact on OFR and its RIT program. With the new knowledge resulting from this project, recommendations will be made to implement a RIT SOG, which would increase the safety of OFR members at emergency incidents. The benefits of having an active RIT SOG will also assist with improving the safety, health, and wellness of OFR members on a daily basis.

The author feels a strong demand to continue being active with the rapid intervention program and SOG after implementation. This may include monitoring the progress of the members, evaluating the program's effectiveness, and ensuring that OFR's objectives are being met. As research indicates, the program should be regularly reviewed and assessed with updating changes or modifications as needed.

## Recommendations

OFR is the designated public safety entity for the city of Ocala. It is responsible for providing rapid response to residents of the community and visitors experiencing a medical emergency, a fire, or an environmental/hazardous materials situation. The members of OFR are committed to assuring both a secure and superior quality of life in the community. This is accomplished by maintaining a state of readiness, dedication, and compassion to minimize emotional, physical, and economic loss.

OFR members are highly trained with a dual certification as either emergency medical technicians or as paramedics. The department is equipped with the latest equipment that allows for a quick response, immediate size-up, or assessment, and an instant resolve to any situation. In addition to providing the latest and upgraded equipment, fire stations, and fire apparatus, OFR provides extensive training to its personnel. Also, the department is always working towards meeting the needs and expectations of the community in a quick, efficient and caring way. One way to increase the service to the citizens of Ocala is to enrich the safety of OFR's members on emergency incidents.

It has been concluded through this research project that the greatest asset to the fire department and citizens is not the equipment, stations, or apparatus, but the safety of the department's members. To achieve this, a rapid intervention program must be developed, reviewed, and implemented by OFR. This RIT program must contain a RIT SOG in addition to the current personnel accountability system SOG, because the current system does not address rescuing firefighters in distress. Once it has been implemented, it essential that it is deemed mandatory, and utilized on all emergency incidents. In doing so, better service to the community will be provided in addition to minimizing firefighter fatalities.

Based on extensive research consisting of literature review, personal interviews and interview questionnaires with OFR personnel and other fire departments, the author developed a RIT SOG for OFR. The purpose of this SOG is to provide dedicated personnel for the rescue of firefighters in distress if needed. The long-term recommendations for OFR are to review and evaluate the SOG and its program on a regular basis. Also, to implement the additional SOG submitted for Mayday calls or situations in the near future. The short-term recommendations for OFR are to implement the RIT and Mayday SOGs and through the Training Division incorporate a relevant training program. Combining the SOGs and training curricula together will compliment performance to promote effective RIT operations. In addition, to promote effective RIT operations it is recommended that a RIT checklist be incorporated in the RIT SOG. This will enable personnel to review the duties and actions required. Copies of the RIT SOG and checklist are provided in appendix D and of the Mayday SOG for OFR are provided in appendix E of this report.

The author will present the proposed SOG on Rapid Intervention Team operations to the OFR Health and Safety committee for review and suggested contribution. Then upon its approval, submit the SOG and its training curricula as a RIT program to Fire Chief Gentry with the recommendation of implementation. It is recommended that the following actions accompany the steps required for implementation of the RIT Program:

- Have all OFR members fully involved with the RIT program from the implementation process to daily training with all personnel. This includes chief officers and fire dispatch, as well as the dedicated RIT members.
- Review the program on a weekly basis for the first six months or until all personnel are comfortable and efficient with the daily training and activation of the RIT team on

emergency incidents. Then continue the review process on a monthly basis. This will permit all personnel to know the duties and responsibilities of the RIT, and what is required of them for effective RIT operations.

- Evaluate the program and procedures on a regular basis. This evaluation will be dedicated to the Health and Safety committee and conducted through the Training Division. The Health and Safety committee will ensure that all important safety issues are being addressed and the Training Division will ensure all training activities are meeting the needs and requirements of our personnel. This will enable all personnel to be efficient with the tools and equipment provided and the techniques needed for effective rapid intervention operations.
- Conduct training on a daily basis. Training will consist of basic firefighting skills, setting up the RIT, activating and deploying the RIT, firefighter survival techniques, and proficient use of the tools and equipment assigned to the RIT. These objectives will enhance the overall skills of OFR members, which can eliminate many of the firefighter distress emergencies that occur.

Benefits the author expects from the changes to our current procedures by adding the RIT SOG and program will promote effective operations and greatly increase the safety of OFR members in several ways:

- By having an active RIT SOG in place
- Having additional personnel, equipment, and resources on scene of an emergency incident
- Having personnel in a “ready state of rescue” for our members who may be injured, lost, or in distress

- Increase department training in self-survival awareness and techniques
- Increase personnel awareness by recognizing different hazards, dangers, and deteriorating conditions
- Train all personnel in having an action plan during the stages of pre-arrival, arrival and set-up, incident size-up, and incident communications.

The overall effectiveness of the department's RIT program is determined by its review and it is recommended for the program to be evaluated on a regular basis. There were not any indications revealed from the research of this project suggesting that OFR should not implement the RIT SOG and its program for its members. In addition, the training program for RIT should be continually reviewed and the results should recommend different areas for future training activities.

In conclusion of this applied research project, it is recommended for anyone that may wish to replicate some or all of the author's study of RIT within their own organization, include additional research of Mayday communications and personnel accountability procedures. The three of these topics compliment each other and definitely need to function together to permit effective emergency incident operations.

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Appendix A

CITY OF OCALA FIRE RESCUE

STANDARD OPERATION GUIDELINE

SUBJECT: PERSONNEL ACCOUNTABILITY SYSTEM (PAS)

EFFECTIVE: November 10, 2000 REVISED: APPROVED:

POLICY:

It is the policy of Ocala Fire Rescue that at all major operations or when in the judgement of the Incident Commander, the situation warrants the Personnel Accountability System will be utilized.

1. PERSONNEL ACCOUNTABILITY SYSTEM (PAS):

The Personnel Accountability System (PAS) includes name tags, identification/information tags (PIT), passports, status boards, and make-up kits.

The name tags and identification /information tags issued by the training division will become personal property of the employee and is to be attached to the bunker coat.

Each employee will be given three (3) name tags and two (2) identification/information cards (PITS).

If any of the tags are lost, stolen or damaged, get it replaced at once through the Training Division.

NAME TAGS:

The name tags are rigid, plastic, velcro-backed tags. Each is inscribed with the last name and first initial, OFR identification number, and OPS added if the employee is a member of the Special Operations Team.

The rank/position of the employee is distinguished by color:

Chief Officer.....White
Captain.....Red
Paramedic.....Blue
FEO.....Green
FF/EMT.....Yellow

Employees with current paramedic certification will have the color blue on the upper portion of their name tag. The name tags are attached to the passport of the company/unit of which the employee is assigned. Three (3) name tags are issued to each employee. One name tag will be used at a time and be known as the "active" name tag. The "active" name tag will be kept on the units' passport when on duty or bunker jacket when off duty. The other two name tags will be used as back-up/spare and are to be velcroed to the under side of the employees helmet. Three (3) additional blank name tags will be kept in each make-up kit of each unit.

PERSONAL IDENTIFICATION/INFORMATION TAGS (PITS):

The PIT provides employees name, OFR identification number, date and personal/medical information. It is attached by a clip to the bunker coat and placed on the apparatus ring when reporting for duty. The PIT will be used as a back-up PAS tag, and in case of an emergency be transported to the hospital with the employee. Two (2) PITS are issued to each employee.

PASSPORTS:

The passports are rigid, plastic, velcro-backed cards that identifies a company/team or unit. It is used to attach the name tags of employees. The colors distinguish the primary, back-up, reserve and blank passports of Fire and Rescue units. Four (4) passports are issued to each company/unit.

PRIMARY PASSPORT:
* Stored on dashboard of apparatus
* Documents movement of team/company
- Preprinted with company's identification unit
- Fire unit = yellow in color
- Rescue unit = blue in color.

BACK-UP PASSPORT:

* Stored in make-up kit on apparatus

* Replaces primary passport
- Preprinted with the unit/company's identification
- Used as back-up if primary passport is lost, stolen or damaged
- Fire unit = yellow/white in color
- Rescue unit = blue/white in color

BLANK/RESERVE PASSPORT:

* Stored in make-up kits
* Not preprinted
- Blank on top where commanders can use a grease pen to customize a passport for the creation of a new company (i.e: Marion County Fire Rescue, call back of off duty personnel)

STATUS BOARDS:

The Status Boards are rigid unisub boards made of fiberglass reinforced plastic with velcro strips. It is used by commanders/sector officers to hold the passports of companies/units within their direct control (sector). It is two sided for recording information or drawing plat plans. Each company is assigned two (2) status boards. One primary status board preprinted with the unit/company's identification, one back-up status board with unit #_____ preprinted to customize for the creation of a new sector or to be used if the primary status board is lost, stolen or damaged.

MAKE-UP KITS:

Make-up kits contain materials and supplies for (1) integrating any non-participating departments, team or individual into the personnel accountability system, and (2) replacing lost, stolen or damaged hardware.

Each company/unit is assigned one make-up kit, which contains an inventory of required materials, including:

- 3 blank name tags
- 3 passports (back-up, blank and reserve passports)
- 2 status boards (primary & back-up)

- 3 grease pens (china markers) with cloth.

It is the Responsibility of Employee" at the beginning of each shift or when the employee reports for duty, the name tag is to be removed from the bunker coat and attached to the passport on the apparatus or unit dash board. The name tags will be placed in highest ranking order (assigned and/or out of class personnel) from top to bottom. For fire rescue units with two paramedics, the Senior paramedic will be placed above. The PIT is also to be removed from the bunker coat and attached to the collector ring on the apparatus or unit.

The Company Officer or senior person will be responsible for ensuring that the name tag and PIT always reflects only the currently assigned personnel. This includes any or all temporary replacement personnel due to time swaps, temporary transfers, sick leave, etc. for any amount of time, no matter how brief a period of time they are off the unit.

The primary passport will be velcroed on the dash board of the apparatus for the collection of assigned personnel. The status board will be velcroed on the drivers side of the apparatus/unit for the accumulation of passports at the beginning of emergency incidents.

All PAS equipment is safety equipment and will be repaired or replaced as soon as possible.

2. ACTIVATING THE PERSONNEL ACCOUNTABILITY SYSTEM:

At any major operation or when the Incident Commander deems it in the best interest of personnel working in the hazard zone, the PAS will be activated.

The first arriving engine making a "Fast Attack" will leave their passports on the dash board. The second arriving engine's FEO will collect all units' passports and attach them to the first-in engine's status board after specific duties are accomplished.

As resources and personnel arrive, a personnel accountability officer will be designated and assume the control of the status board and passports. This officer will keep constant communication with the Incident Commander and all Sector Officers.

As the incident expands, and additional sectors are designated,

the Sector Officer will collect the passports on their Sector Status Board. Each Sector will have a status board assigned and known as the -------Sector Status Board, (i.e.: Staging Sector Status Board). Company/Sector Officers are accountable for members, "under their direct span of control."

Anytime a unit/company is moved from one location to another, the status boards will be updated, (i.e.) Engine One is operating with the interior sector, when they are re-assigned to the rehab sector, they will bring their passport to the rehab sector and attach it to the Rehab Sector Status Board. (If a rehab sector officer is not designated)

3. TACTICAL BENCHMARK:

A personnel accountability report will be required for the following situations:

* any report of a missing or trapped firefighter
* any sudden hazardous event at the incident (flashover, backdraft, collapse, etc.)
* a change from interior to exterior operations
* any report of "Fire Under Control"
* at the termination of any hazardous operation
* whenever Incident Commander deems it necessary

By the situations listed above but not limited to, the Incident Commander will initiate a PAR for all crews on the scene. The Incident Commander shall transmit "all personnel for a PAR" on all working frequencies. The dispatcher shall immediately transmit an interrupted tone on all involved working frequencies for 5 seconds, wait 5 seconds, tone 5 seconds, wait 5 seconds, then repeat tone for 5 seconds followed by a verbal notification of "all personnel for a PAR" at _____ scene (give location).

The Incident Commander shall begin a Systematic role call of all companies/sectors to ensure that personnel accountability is complete.

EXAMPLE: IC----"Ocala from Seminole Command, activate the PAR tones, all personnel for a PAR on Seminole scene"

DISPATCH----- Tone, wait 5 seconds, tone, wait (5) seconds, tone, "All personnel for a PAR on Seminole scene"

IC---- Begins a systematic roll call:
"Interior from Seminole Command for a PAR"

Interior Sector Officer - "Seminole Command from Interior Sector, all personnel present and accounted for in interior sector."

IC ----Acknowledge interior sector, all personnel present and accounted for.

IC - "roof sector from Seminole Command for a PAR"

Roof Sector Officer - "Seminole Command from roof sector, all personnel present and accounted for in roof sector"

IC - "Acknowledge roof sector, all personnel present and accounted for"

IC - "Interior ventilation from Seminole Command for a PAR"

Interior Ventilation Sector Officer - "Seminole Command from Interior ventilation, be advised, we are missing one firefighter, repeat we are missing firefighter Jones."

IC - "Interior ventilation from Seminole Command acknowledge, missing firefighter Jones."

IC - "Rehab Sector from Seminole Command for a PAR"

Rehab Sector Officer - "Seminole Command from rehab sector, be advised firefighter Jones is in the Rehab sector, all personnel present and accounted for in Rehab sector.

IC - "Acknowledge all personnel be advised Firefighter Jones is in the rehab sector. All personnel present and accounted for on Seminole scene.

4. RETURNING UNITS TO SERVICE:

When the units are returned to service, the Company Officer of each unit shall collect his/her passports and all materials used (i.e. additional name tags, passports, status boards, and make-up kits).

Company Officers and/or Senior Medic on Rescue Units, are responsible to ensure that all materials for their units are returned and accounted for, and the units are back in service.

5. SHIFT CHANGE:
At the end of the work shift or when the employee removes his/her gear from the unit of assignment, he/she will personally remove his/her assigned PIT and name tag from the unit and attach them to his/her bunker coat.

For the Personnel Accountability System to work properly, no-one will be allowed to work if they don't have their name tag, PIT, and bunker gear.

If this occurs, their pay may be withheld until such a time they produce all listed items, and further disciplinary action may be taken.

Appendix B

To: Shift Commanders & OFR Members

From: Battalion Chief Jim Clarkson

Date: February 28, 2005

RE: Rapid Intervention Team SOG Questionnaire

Would you please assist me with the following? You have been selected due to your positions, experience, and education. As you may be aware, I am in the process of developing a rapid intervention team SOG for our agency and any information from you would greatly be appreciated. In addition, this information would also be incorporated into my research project for the NFA on developing a RIT for OFR.

The following is a list of questions I have used for interviews to gather pertinent information relating to rapid intervention. I have done extensive research on the matter and need your suggestions and comments to compliment our SOG around your input.

The feedback received will be used for a rapid intervention team SOG proposal to Chief Gentry for our Department. This SOG will be used to assist in getting manpower and additional resources to an emergency incident quickly, to increase the chances of survival for our people in trouble if they become lost, trapped, or disoriented within a fire building.

I would ask that you complete the attached survey and return it to me at your earliest convenience, no later than March 10, 2005.

This questionnaire is voluntary and strictly confidential for the sole purpose of this project and our SOG.

If you should have any problems, concerns, or questions, please give me a call.

Thank you for your timely assistance.

# RAPID INTERVENTION TEAM SOG FOR OFR

Questionnaire concerning this fire department's rapid intervention team SOG

**Please answer the following questions appropriately.**

1. Is it acceptable for me to interview you for my applied research project?
2. Do you consider our current Personnel Accountability System adequate or should changes be integrated?
3. Do you think a SOG on RIT will improve OFR firefighter safety at emergency incidents?
4. What is needed for effective RIT operations for OFR members?
5. When do you recommend the RIT should be activated?
6. When do you recommend the RIT be should be deployed?
7. Where do you recommend the RIT should stage and should there be a separate staging area for RIT tools and equipment?
8. What type of training needs to be done within OFR for effective RIT operations?
9. What type of marking system do you recommend should be for the RIT?
10. Do you recommend a RIT checklist to be provided with the RIT SOG?
11. Do you recommend a separate SOG for Mayday communications or should it be incorporated into the RIT SOG?
12. Are there any additional comments you feel are needed to be incorporated in the OFR RIT?

Appendix C

February 26, 2005

Dear Fire Chief:

I would like to take this opportunity to introduce myself. My name is Jim Clarkson of Ocala Fire Rescue. I am currently enrolled in the National Fire Academy Executive Fire Officer Program. As a participant in this program, I am conducting research for a project on rapid intervention team programs. I am also in the process of developing a rapid intervention team SOG for our agency and any information from you would greatly be appreciated.

I would ask that you or a designee complete the attached questionnaire and return it to me at your earliest convenience, no later than March 10, 2005. When the questionnaire is completed, print the results and fax it to (352) 401-3964 or return it back via e-mail. A cover sheet is provided for your convenience.

Thank you for your timely assistance. If you would like the results of this project, copy of the final paper, or have any questions, please let me know. In addition to e-mail, I can be reached at the phone number listed below.

Sincerely,

Jim Clarkson, Battalion Chief
Ocala Fire Rescue
(352) 629-8513

# RAPID INTERVENTION TEAM QUESTIONNAIRE

Interview questions concerning rapid intervention teams

**Please answer the following questions appropriately.**

1. Is it acceptable for me to interview you for my applied research project?
2. Does your department currently have a RIT/RIC?
3. What is the current status of your RIT policy?
4. What unit or company does your department utilize as a RIT?
5. What tools and equipment does your department provide for its RIT?
6. Does your department use any type of marking system for the RIT and its equipment?
7. Does your department use a RIT checklist?
8. When does the RIT become established and operable in your department?
9. Does your department have a separate guideline for Mayday communications?

FAX COVER SHEET

**OCALA FIRE RESCUE**
Training Division
410 NE 3rd Street
Ocala, FL 34470

Attention:
Jim Clarkson
NFA-Applied Research Project
Questionnaire

Date: _____

Pages Including Cover Sheet: _____

To: Jim Clarkson_____ From:
_____

Company: Ocala Fire Rescue Company:
_____

Phone Number: (352) 629-8513 Phone Number:
_____

Fax Number: (352) 401-3964 Fax Number:
_____

Message:
_____
_____
_____
_____

**Confidentiality Notice:** This message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message.

Appendix D

CITY OF OCALA FIRE RESCUE

STANDARD OPERATION GUIDELINE

SUBJECT: Rapid Intervention Team (RIT)

EFFECTIVE: REVISED: APPROVED:

I. PURPOSE:
The purpose of this SOG is to increase safety for OFR firefighters at emergency incidents by designating one or more teams as Rapid Intervention Teams (RIT's). This SOG is provided for the safe and effective operations of the RIT, which is to provide immediate rescue or assistance to any OFR member in distress.

II. POLICY:
It is the policy of Ocala Fire Rescue that at all major operations or when in the judgement of the Incident Commander and the situation warrants the Rapid Intervention Team (RIT) will be utilized. A series of staging levels are designed into this SOG to better manage the RIT operations.

III. RIT Establishment:
1. The RIT shall be established and assume a ready state with appropriate PPE, SCBA, radios, RIT Tool Kit and equipment.
2. The RIT shall not perform any other physical functions other than rescue.
3. Upon arrival, the designated RIT will perform a thorough scene size-up and walk around of the structure as a team.
4. The RIT will lay down the "RIT-tarp" at the RIT staging site with the RIT tool bag, RIT check-off sheet, and specialized equipment.
5. The RIT shall be prepared for deployment at all times until the IC declares the incident "under control" and there is no longer an IDLH atmosphere.
6. The RIT will continually monitor the assigned tactical radio channel for all radio traffic during the incident.
7. The RIT will continually monitor the incident and be responsible for the activation of Pass devices, Mayday calls, low air alarms, or any other safety issue.
8. The RIT will perform a complete walk-around of the structure every 15-20 minutes as a team at Level 3 Staging (two or more RIT Teams assigned).

IV. RIT Operations

1. RIT Staging Level 1

The RIT Level 1 will be utilized for small fires, usually under control within 15-20 minutes requiring the use of one or two jump lines. A dedicated unit or minimum of two-personnel team will be assigned as the RIT. The RIT will stage near the command post, in front of the building maintaining a view of at least two sides, or wherever the IC advises. Equipment for RIT Staging Level 1 are as follows:

RIT Tool Kit

- Forcible entry tools (flat and pick head axe)
- Sledge hammer
- Halligan bar
- Pike pole
- Thermal Imaging Camera
- Flashlights
- Bag of rope 200-ft

2. RIT Staging Level 2

The RIT Level 2 will be utilized for a larger fire or greater incident. A dedicated Engine unit or three-personnel team will be assigned as the RIT. This type of incident requires the RIT to stage in a more proactive status with a separate charged hoseline and more specialized equipment such as the following:

- Additional SCBA and spare bottles
- Additional portable radios
- Attic ladder
- Additional forcible entry tools
- ALS equipment
- Additional search rope 200-ft with tag lines and strobes
- Chainsaw and K-12 saw
- Fire blanket
- Bolt cutters
- Additional flashlights
- Additional equipment to be considered if conditions warrant:
  - Holmatro tools
  - Reciprocating saw and circular saw
  - Airbags
  - Air cart
  - Any other specialized equipment if needed

3. RIT Staging Level 3
   The RIT Level 3 consists of two additional dedicated RIT teams (2 two-personnel teams) in addition to the initial RIT team for any of the following reasons:
   - Mayday has been declared
   - A firefighter or company is reported lost, trapped, missing, or injured and the RIT has been deployed
   - A PASS device has been activated that cannot be located and the RIT has been deployed

V. RIT Activation

1. If the initial RIT deploys into the structure, two additional RIT teams would immediately be dispatched, if not already on scene before the Mayday occurs.
2. When the two additional RITs arrive, one team (RIT 2) will be prepared to assist the initial team (RIT 1) with the firefighter rescue and also be ready to initiate enlarge openings and/or removal systems from multi-story structures.
3. RIT 3 will stage in the designated RIT Staging area with the specialized Level 2 equipment and standby in a state ready to deploy.
4. If needed, additional RIT teams can be dispatched to assist with the downed firefighter rescue or RIT operations.

VI. RIT Deployment

1. Upon report of a lost, trapped, missing, or injured firefighter(s), an “emergency alert tone” shall be initiated in addition to the PAR. The IC will deploy the RIT to the last known location of the firefighter(s) in distress. Two additional RIT teams will immediately replace the initial RIT when deployed.
2. The RIT will operate on their own designated radio channel, separate from any other frequencies being used at the emergency incident.
3. The RIT will locate and remove to safety the firefighter(s) in distress. If there is entrapment, the IC shall immediately be notified for the deployment of additional RITs.

VII. RIT Disassembly

The RIT should remain in place until disassembled by the IC. It is recommended that the RIT remain active until all live safety hazards have been eliminated or the incident is completely terminated.

VIII. RIT Check-off Sheet

- ☐ Report to IC in full PPE with PAR tags
- ☐ Set-up designated “RIT Staging Area” with RIT Tarp & equip:
  RIT Tool Kit
  - Forcible entry tools (flat and pick head axe)
  - Sledge hammer
  - Halligan bar
  - Pike pole
  - Thermal Imaging Camera
  - Flashlights
  - Bag of rope 200-ft
- ☐ Provide a charged RIT hoseline if RIT Level is 2,3, or requested by IC
- ☐ Perform size-up and complete walk-around of structure
  - perform walk-around every 15-20 minutes as a team
- ☐ Monitor the assigned tactical radio for all radio traffic
- ☐ Monitor the incident for safety issues, operations, any hazards, and the following:
  - Building occupancy
  - Building construction type
  - Placement of windows, doors, fire escapes, etc.
  - Potential danger of high-security doors, barred windows, building modifications or construction, etc.
- ☐ If RIT is deployed or advanced to Level 2 or 3, the following equipment is needed to be added to staging area:
  - Additional SCBA and spare bottles
  - Additional portable radios
  - Attic ladder
  - Additional forcible entry tools
  - ALS equipment
  - Additional search rope 200-ft with tag lines and strobes
  - Chainsaw and K-12 saw
  - Fire blanket
  - Bolt cutters
  - Additional equipment to be considered if conditions warrant:
    - Holmatro tools
    - Reciprocating saw and circular saw
    - Airbags
    - Air cart
    - Any other specialized equipment if needed

Appendix E

CITY OF OCALA FIRE RESCUE

STANDARD OPERATION GUIDELINE

SUBJECT: May-Day Communications

EFFECTIVE: REVISED: APPROVED:

I. PURPOSE:
The purpose of this SOG is to increase safety for OFR firefighters at emergency incidents by identifying the roles and responsibilities of all personnel involved at an incident where a “May-Day” has been transmitted.

II. POLICY:
It is the policy of Ocala Fire Rescue to provide safety and rescue to its members operating at emergency incidents. Utilizing May-Day communications in addition to personnel accountability and rapid intervention team (RIT) activation will assist in accomplishing the rescue of firefighters if needed.

III. “May-Day” Radio Transmission
1. Any member on the emergency incident to report a lost, missing, or trapped firefighter(s) will use the radio transmission “May-Day”. This term will also apply to firefighters who:
   A. Report their status as being in distress and need rescue.
   B. Cannot account for an assigned firefighter following personnel accountability report (PAR) or is unable to locate the suspected lost member.
2. Any report of a “May-Day” radio transmission will receive priority radio traffic followed by the “Alert Tone”.

IV. IC Operations
1. The IC needs to maintain personnel accountability for all personnel on all emergency incidents. In the event a firefighter is reported lost, in distress, or cannot be located through a PAR, the IC must announce a May-Day transmission over the radio if not conveyed by anyone else on scene.

2. The IC must always assume that a missing firefighter is lost or trapped in the fire building until that member is accounted for.
3. The IC will immediately respond to a May-Day transmission by implementing a rescue plan for those firefighters. The following list of actions are recommended:
   A. May-Day Radio Traffic: Immediately upon the report of a May-Day, the alert tones will be dispatched over the assigned working incident frequency to alert all personnel that radio traffic must terminate (example: alert tones-“all personnel working on Watula fireground, we have a reported ‘May-Day’.”)
   B. PAR: A PAR must immediately be conducted from all companies/sectors operating on the emergency incident. Upon completion of the PAR, the IC should consider transferring the firefighting operation to a different tactical channel to keep the dedicated May-Day incident on the original channel.
   C. RIT Activation: Upon report of a firefighter in distress or missing, the IC will deploy the RIT to the last known area of the missing firefighters for immediate search and rescue.
   D. Rescue Sector/Officer: The IC has the option to assign a chief officer to the Rescue/RIT operations or the transfer the emergency incident and oversee the rescue efforts. Additional personnel/units for RIT Level 3 and additional resources should be requested as the incident escalates and the command structure expands.
   E. Continue Firefighting Positions: Avoid abandoning the firefighting positions during the rescue effort. The IC and crews should take aggressive measures to protect trapped or missing firefighters from the effects of the fire. Efforts should be concentrated on reinforcing existing positions and keeping the fire out of the rescue area while providing appropriate ventilation and lighting.

V. PIO Responsibilities

The IC needs to have the PIO or designee on assigned to control the media early and throughout the incident. Information on the identities and conditions of the firefighters in distress must be restricted until after next of kin is notified if warranted.

VI. Dispatch Responsibilities
1. When a firefighter is declared lost, missing, trapped or in distress, Dispatch will immediately dispatch the alert tone, repeat the “May-Day” message on all radio channels, and advise all personnel to terminate radio transmissions for May-Day emergency use only (including Fire Admin Channels).
2. All non-emergency activity in OFR Dispatch will be suspended and all OFR radio channels will me monitored very closely for any transmissions from the firefighter(s) in distress.
3. If the firefighter(s) in distress or who is missing transmits traffic on a channel other than the working channel, the dispatcher will maintain communications on that channel and relay it to the IC. It is essential that once communication has been established, it cannot be lost.

VII. Firefighter in Distress Responsibilities
1. Firefighters who find themselves in distress (lost, trapped, disoriented or injured) must immediately use the May-Day transmission to announce their situation while they continue to attempt to find their way to safety.
2. The May-Day transmission will be on the working tactical channel without delay and be stated three times as followed: “May-day, May-day, May-day”).
3. The firefighters in distress should give the IC information as to who they are, what location they are at or near (as accurately as possible), and what unit or sector they are assigned to (example: “May-Day, May-Day, May-Day, firefighter Smith from Rescue 3 is trapped under debris on the second floor in the rear bedroom and needs help”).
4. Activate the emergency distress signal on your portable radio and stay on that working radio channel.
5. Activate the PASS devise on your airpack intermittently while maintaining communications with the IC (if possible for 10-20 seconds to allow for radio communications). If there is no communications with IC, keep the alarm active continuos.
6. Do not panic. Stay calm and conserve air.
7. Attempt to locate exterior doors or windows. Search for any opening to the exterior.
8. If possible, follow a hoseline or lifeline to safety.
9. If a company is lost, stay together and do not separate.

10. If you are trapped, shine your flashlight upward to attract attention and position your PASS device for maximum effectiveness.

VIII. May-Day Termination

At the conclusion of the May-Day emergency situation, the IC shall have Dispatch activate the alert tones on all radio channels and transmit to all personnel that May-Day transmissions have been terminated. Dispatch will then repeat the alert tones and communications to all units to return back to FD East and resume radio traffic on that channel.