



Rapid Extraction Module Support (REMS) Update 2017

Executive Summary

The Incident Command System Position Manual, ICS 223-12 (REMS) was published in May 2015. After two fire seasons of experience and feedback from the firefighting community, a working group was stood up to provide recommendations to improve the effectiveness of the resource.

The working group reviewed the experiences of the prior two seasons and came up with the following recommendations:

- Recommendation #1– Change resource type from Overhead “O” to Equipment “E”.
- Recommendation #2– Increase number of personnel on REMS to 4 persons and add a Leader.
- Recommendation #3 – Adjust the Standard Equipment List to include lighter weight alternatives.
- Recommendation #4 – Add an education component to the RT-130 curriculum for all agencies.
- Recommendation #5– Change the minimum training requirement for at least two team members from Low Angle Rope Rescue Operations to High Angle Rope Rescue Operations.

With these recommendations several of the challenges of the current design will be addressed and the REMS will become a more effective resource for Incident Management.

Background

On July 25, 2008, on the Dutch Creek Incident in the Shasta-Trinity National Forest in Northern California, Firefighter Andy Palmer from the National Park Service tragically succumbed to his injuries from a tree felling accident while waiting for emergency extraction from the fireline. The details of the incident can be found in the Accident Investigation Factual Report produced by the U.S. Forest Service and National Park Service¹.

One of the lessons learned from this and other incidents was that Incident Management personnel needed to have a process in place to effectively manage a serious injury and subsequent medical evacuation. This resulted in what is now referred to as the Emergency Evacuation Plan or "Dutch Creek Protocol." Incident Management Teams now develop plans to provide rapid extraction for injured firefighters that include air and ground resources.

In 2012, the Rapid Evacuation Module (REM) was developed to mitigate several safety issues that arose as part of operating on the Klamath and Rouge-Siskiyou National Forests.

It was developed by the California Interagency Incident Management Team (CIIMT) #3 Medical Unit. The topography, weather, and smoke conditions experienced at the Fort Complex and other incidents made the reliance on hoist or short-haul helicopters as the only means of firefighter rescue impractical.

The REM provided an alternative to affecting a rescue when aircraft is not an option (night, smoke inversions, etc.).² Adding to the rescue difficulty was the fact that Handcrews and Engine companies do not have a standard equipment compliment or training to perform the technical ground-based rescue function in many scenarios. This new resource would also be required to hike up to 10 miles/day and be self-supporting.

Problem Statement

From the initial efforts, several problems were identified by CIIMT #3:

- There was no consistent definition of a REM.
- There was no clear process to order a REM thru ROSS (Position didn't exist in ROSS).
- There was no standard equipment list.
- There was no standard level of training to be a REM.²

¹ "Accident Investigation: Factual Report, Dutch Creek Incident", U.S. Forest Service and National Park Service, 2008.

² "R.E.M. Binder", California Interagency Incident Management Team 3 , Scott McKenney, 2014.

FIRESCOPE Involvement

FIRESCOPE has been in existence for over 40 years to bring all facets of the California Fire Service together and address issues that affect the entire firefighting community. In late 2014, the California Wildfire Coordinating Group (CWCG) asked FIRESCOPE to address the problem statements above and have a REMS position manual in place for the 2015 fire season.

The Incident Command System Position Manual, ICS 223-12, published in May 2015 was the result of that initial effort. It was understood that this would be a “living” document and would have to be re-visited after putting it into practice. After two fire seasons of experience and feedback from the firefighting community, a working group was stood up to provide recommendations to improve the effectiveness of the resource. The working group consisted of representatives from the following groups:

- FIRESCOPE Task Force (Working Group Chair)
- Interagency Hotshot Crew Superintendents
- United States Forest Service Representative
- FIRESCOPE EMS Specialists
- FIRESCOPE Safety Specialists
- FIRESCOPE Urban Search & Rescue Specialists

The working group met over several months to provide a recommendation to the FIRESCOPE Operations Team and Board of Directors in order to have the recommended changes in place prior to the 2017 fire season. During that period the group also met with Scott McKenney, the original author, to ensure the original intent of the resource was being met through the update effort.

Risk Management

Firefighting requires the use of the Risk Management Process. In its simplest form, we risk little when there is little to gain, we accept a moderate amount of risk when there are values at risk, and we accept the highest level of risk when there are lives at stake.

Most situations where a REMS was deployed were life threatening situations. As such, wilderness/wildland fire rescue procedures have adapted to become flexible in order to rescue an injured firefighter in a timely manner. This need was realized on incidents like the Rough Fire³, Freezeout Ridge⁴, and others where traditional rescue procedures and/or equipment was unavailable or ineffective.

This philosophy is further reinforced in the Dutch Creek Fire Accident Investigation Report⁵ in the Findings Section:

“Finding 05 - Inadequate leadership, communication, and risk management resulted in a lack of clarity in communicating the severity of the injury, resource availability, and a failure to evaluate

³ “Rough Fire Lessons Learned Review”, Joe Domitrovich, Ph.D., Tara Umphries, Ryan Myers, Curtis Heaton, 2015

⁴ “Freezeout Ridge Fire Facilitated Learning Analysis”, Genny Wilson, Brad Mayhew, Brandon Cichowski, Bea Day, Larry Money, Thelesa Montoya, Seth Weber, Dave Whitmer, 2014

⁵ “Accident Investigation: Factual Report, Dutch Creek Incident”, United States Forest service, United States Park Service, 2008

the most appropriate method of evacuation relative to risk exposure, resources required, and timeliness.”

These findings were also validated by the research and personal experiences of the working group and the members of the wildland firefighting community they represent.

Position Update 2016 -2017

These are the recommendations from the working group:

Recommendation #1– Change resource type from Overhead “O” to Equipment “E”.

Ordering as Overhead has proven difficult for agencies to support due to each Overhead resource needing its own complete Standard Equipment List (SEL). If the resource is typed as Equipment, one vehicle and equipment cache could be dispatched, crew swaps are possible, and the ability to keep the resource assigned to the incident for the duration of the incident is enhanced.

The equipment must be categorized in a way to meet the mission and still allow flexibility for agencies to meet the need in a cost effective manner.

As an Equipment order, this will reduce the number of instances of Unable to Fill (UTF) and maintain incident continuity and safety for the receiving unit.

Recommendation #2– Increase number of personnel on REMS to 4 persons and add a Leader.

The original concept of pairing two technical specialists with an engine or a handcrew appeared to be an effective solution in the original design, but actual experience has shown this concept to be problematic for a variety of reasons. Often, the incident is unable to spare an engine company or handcrew to assign to the resource. The engines assigned are frequently swapped in the middle of the assignment causing constant training of the assigned company. Subsequently, many incidents began pairing up two REMS teams to be able to have enough personnel to be effective.

Adding a leader to the module that is Single Resource Boss qualified would address many of the problems identified. Some of the problems encountered (a lack of leadership, communication, risk management, and navigation skills) can be solved with a dedicated module leader.

Suggested Module Configuration:

- Module Leader- the Module Leader will be responsible for possessing knowledge of the skills and capabilities of the Crew upon formation and assigning individual tasks based upon personal strengths.

The Module Leader will be the point of contact for all communication and assignments and will also be tasked with developing and implementing accountability, safety, security, and risk management measures for personnel and resources.

- Crewmembers- the Crewmembers will be tasked with determining the most appropriate technical skills to effect the rescue in a safe and timely fashion. They will also ensure proper patient packaging and provide personnel for the rescue.

Recommendation #3 – Adjust the Standard Equipment List to include lighter weight alternatives.

REMS need to remain light and agile. Allowing for equivalent equipment that may be lighter and multi-function will decrease the weight of the loads each crew member will be required to carry, decrease the response time to the emergency, and to the transport resource.

Some of the feedback received was to add vehicle extrication capabilities to the REMS. This recommendation was not supported by the Working Group. Vehicle extrication capable resources are regularly assigned to incidents or can be ordered to meet this need. If the REMS was to include this capability it would be more difficult for the resource to remain light and agile.

If an agency wishes to add this capability to its REMS resource and can continue to meet the primary mission, it should be allowed but not required.

The updated SEL provides for fireline rescue as well as roadside rescue. Two items (Chainsaw and High Lift Jack) were added under “Optional Equipment” due to incidents where the REMS vehicle was stuck or couldn’t respond to the area of an emergency due to a fallen tree across the road.

The updated SEL can be found in Attachment 1.

Recommendation #4 – Add an education component to the Position Specific and RT-130 curriculum for all agencies.

The feedback and After Action Reviews still expose a lack of education in the Incident Management community on REMS capabilities and use.

The working group also recommends adding an educational component to curriculum for all affected ICS positions.

A training course similar in nature to the Fireline Medic course should be developed for all REMS personnel so they arrive with a better understanding of their mission and how they fit in the Incident Command structure.

Recommendation #5– Change the minimum training requirement for at least two team members from Low Angle Rope Rescue Operations to High Angle Rope Rescue Operations.

The current minimum training requirement has proven to be insufficient in most incidents. The crews involved in actual rescues have experienced that the rescues are not occurring in terrain that meets the low angle definition⁶. All personnel should have Low Angle Rope Rescue

⁶ Copyright © 2004, National Fire Protection Association, All Rights Reserved This edition of NFPA 1670, Standard on Operations and Training for Technical Search and Rescue Incidents

3.3.57 High Angle. Refers to an environment in which the load is predominantly supported by the rope rescue system

Operations (LARRO) or an equivalent certification as a minimum qualification and at least two members should be qualified in High Angle Rope Rescue Operations or a have obtained certification from a High Angle Rope Rescue Course. There are a variety of Public and Private training providers across the nation that provide the necessary training to meet the mission. It will be up to the Home Agency or the Authority Having Jurisdiction (AHJ) to decide if the training program meets the intent of the standard for their personnel.

An example of language that addresses this skill set is from the California State Fire Training Rope Rescue Technician Course “Completion of the Task Book does not imply compliance with any NFPA standard but may be used for such at the discretion of the Authority Having Jurisdiction (AHJ). The references cited were taken from the NFPA 1006 *Standard for Technical Rescuer Qualifications* 2013 Edition or NFPA 1670 *Standard on Operations and Training for Technical Search and Rescue Incidents* 2009 Edition.⁷”

The working group looked at a variety of standards and training curriculum from Wilderness Search and Rescue, Cave Rescue, and Urban Search and Rescue programs across the nation. There are a variety of training programs that provide the necessary skill set desired to accomplish the mission. A great reference document that describes the confusion with Rope Rescue Standards was produced by Jim Kovach, founder of *All About Rope, Incorporated* in his presentation at the North American Technical Rescue Symposium in 2005⁸. Some notable quotes within the document are “NFPA 1006 is not a training document” and in relation to NFPA 1670 “The standard does not describe how a procedure is done, it describes what needs to be done.”

Conclusion

The REMS position is a welcome addition to an incident's Emergency Evacuation Plan. The Medical Plan (ICS 206) has a section that refers to filling a ground transport function for injured personnel on the incident. This resource fills a gap that exists between the capabilities of line assets and being able to move an injured person through areas that are too steep or too slippery to traverse by just carrying the individual. As with many other positions within the ICS, Agency certification will still be required to ensure that properly trained individuals arrive on the incident to fill the mission. FIREScope believes these improvements will make the REMS a more effective resource and understands that as a living document, future modifications will still be necessary.

Working Group Members

3.3.75 Low Angle. Refers to an environment in which the load is predominantly supported by itself and not the rope rescue system (e.g., flat land or mild sloping surface).

⁷ “Rope Rescue Technician Student Task Book”, California State Fire Training, January 2015 Edition.

⁸ “The NFPA Standards and the Confusion within the Fire Service”, Jim Kovach, 2005

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Brian Gaddis - FIRESCOPE US&R Specialists, Fire Captain, Kern County Fire Department

Clayton Thomas - FIRESCOPE EMS Specialists, Fire Captain, Penn Valley Fire Protection District

John Walsh - FIRESCOPE Safety Specialists, Cal Chiefs-President NorCal TO's, Battalion Chief, Alameda County Fire Department

Matt Peterson - USFS Representative, Battalion Chief, AFMO, Plumas National Forest

Oscar Vargas - Interagency Hot Shot Crew Superintendents, Little Tujunga IHC, Angeles National Forest

Biographies

Oscar Vargas

Oscar has a strong & diverse background in fire and fuels management. He has served on 3 districts of the Angeles National Forest and Headquarters in Fire operations, planning and management positions for over 20 years. In addition to his current role as a Hotshot Superintendent he has served as a Rappeller-Crewmember, Helishot/Helitack, and Engine Captain. He is certified in LARRO, Swiftwater/River Rescue Technician, and has extensive fire line rescue and EMS experience. He holds ICS qualifications in:

CRWB, ENGB, HEQB, STL/TFLD, DIVS, ICT3, OSC2 (T), FBAN (T), Geospatial Analyst, AREP, C Faller, RXB2, SOFR, EMTB

Matt Peterson

Matthew J. Petersen is currently the detailed Fire Planner for the Plumas National Forest. Matt is the permanent Suppression Battalion Chief for the Doyle Interagency Fire Station. Matt works with Type 1, 2, and 3 Incident Management Teams across the nation. He has worked for the BLM, FWS, and USFS and worked on Engine, Helitack, Helirappel, and Handcrews. Matt has also fought fire in each GACC in the United States. He holds ICS qualifications in:

CRWB, ENGB, STL/TFLD, DIVS, ICT3, OSC2

Brian Gaddis

Brian has ten years of Type 1 Incident Management Team experience and is currently a Logistics Section Chief trainee for CIIMT 3. He is a Certified California State Instructor in Rope Rescue Technician, River/Flood rescue, as well as many other Technical Rescue disciplines. He is certified as a FEMA Task Force Leader and serves as a REMS Team member. He holds ICS qualifications in:

ENGB, STEN (T), SPUL, FACL, LSC1 (T)

John Walsh

John has 34 years of varied experience in fire the fire service. He is currently a line Battalion Chief, IC for the East Bay IMT (Type 3), President of Cal Chiefs NorCal TO's, and has served as a Training Chief, EMS Chief, and FEMA USAR CATF-4 Task force leader. As a company officer he worked as a Captain Paramedic on a Type I Heavy Rescue. He holds ICS qualifications in:

ENGB, STEN, SOF3, SOF2(T), DIVS(T), FEMA USAR Safety Officer, FEMA USAR TFL

Clayton Thomas

Clayton is a Fire Captain/Paramedic with extensive Fire/Ambulance/Hospital experience. His current assignment is manager of EMS and ambulance services, investigations, and fire prevention. He is the Medical Unit Leader on the USFS Type 2 Northern California Team 1. He is a CSFM certified Fire Officer, Investigator 1, and Prevention Officer. He is a licensed Paramedic, ACLS and PALS Instructor, and has been extensively involved in the Fireline EMT/Paramedic training and qualification design team

Ken Cruz

Ken has a varied background in the fire/rescue field. Over the past 28 years he has held a variety of positions including Paramedic, Academy Instructor/Coordinator, Training Officer, Manager Air/Wildland section, Task Force Leader- FEMA/Cal OES US&R Task Force 5, CICC Operational Area Coordinator, OC – AHIMT Program Manager. He holds ICS qualifications in:

ENGB, HEQB, STEN, STEQ, TFLD, DIVS, OCS3, SOF3, ICT3, LOFR, AREP

Attachment 1

STANDARD EQUIPMENT LIST (SEL)

Equipment cache should be lightweight, minimal and multifunctional due to the potential of traveling long distances over steep terrain to complete the REMS mission.

Vehicle

- 4 person 4WD pickup truck or equivalent

BACKCOUNTRY RESCUE (Items listed below are designed to be carried-in)

- Multi-piece basket stretcher with hoist pre-rig
- Litter wheel
- Backboard
- Knee and lumbar padding
- Leg splint with fiber tape and trauma shears
- Sleeping bag (patient padding)
- Fire shelter (for patient)
- GPS
- Flagging
- Basic First Aid Kit
- 4- Class II or III harnesses (agency specific requirement)

Rope Rescue Equipment (NFPA 1983 Technical or General use):

- 2- 150' ropes [NFPA 1983 Technical, 9.5mm (3/8") to 12.5mm (1/2")]
- 12- Carabiners (NFPA 1983 Technical or General use)
- 4- Small or mini prusik minding pulley (NFPA 1983 Technical or General use)
- 2- Small or mini prusik minding double pulley (NFPA 1983 Technical or General use)
- 8- Prusik (4- short, 4 long)
- 2- Descent control device (NFPA 1983 Technical or General use) *MPD Acceptable
- 6 - 20' webbing
- 4- 12' webbing
- 4- 5' webbing
- 1- Gathering plate or ring (NFPA 1983 Technical or General use)
- Up to 4 gear packs for the above listed gear.

ROADSIDE RESCUE (Items listed below are designed to be assigned to the vehicle and optional for carrying in dependent on the mission)

- 1- Sked or Collapsible Litter
- 5 - Pickets
- 1- Sledge Hammer
- Bicycle pump or Fix-a-flat
- Tire plugs

Rope Rescue Equipment (NFPA 1983 Technical or General Use):

- 2- 200' ropes (NFPA 1983 Technical or General Use)
- 2- 300' ropes (NFPA 1983 Technical or General Use)
- 2- Descent control device (NFPA 1983 Technical Or General Use)*MPD Acceptable
- 10- Carabiners (NFPA 1983 Technical or General Use)
- 8- Prusik (4- short, 4 long)
- 6 - 20' webbing
- 4- 12' webbing
- 4- 5' webbing
- 1 – Edge protection kit
- 1- Hardware bag/pack

OPTIONAL EQUIPMENT LIST:

- Glow sticks
- Signal mirror
- Whistle
- Headlamps
- Highlift Jack
- Chainsaw