



Nelson County Emergency Services Council
Nelson County, Virginia

Nelson County Emergency Services Council
Standard Operating Guideline

Subject:	Technical Rescue Operations
Reference Number:	OPS 02-013
Effective Date:	1-Jan-23
Last Revision Date:	
Signature of Approval	Danny Johnson, President

Purpose:

To establish guidelines for the response of Technical Rescue personnel and equipment to incidents which utilize ropes and/or rope systems to aid in rescue.

Definitions:

Cold Zone: The area furthest from the center of the incident. PPE is the most relaxed here as rescuer risk is minimal.

Warm Zone: The area between the cold and hot zone where hazards are present but minimal. PPE includes head, eye, ear and foot protection.

Hot Zone: The area immediately surrounding the operational center of an incident. Typically the area that is within 10 feet of the edge or hazard. The area poses the highest risk to victims and rescuers and requires the highest levels of training, safety, accountability, PPE and control of incidents.

High Angle Rescue: Incidents above or below grade where the use of rope and rigging hardware and software are necessary to rescue or recover a victim.

Low Angle Rescue: A rescue that occurs on a slope of 30 degrees or less.

Slack: Release tension on rope while maintaining positive control of the rope.

Stop: All Systems and movement should be stopped until concern is addressed.

Tension: Remove slack in the system until the rope is under manageable tension.

Requirements:

1. Certifications
 - a. VAVRS Basic & Light Duty Rescue
 - b. VAVRS Vertical Rescue
 - c. VAVRS Advanced Vertical Rescue; or
 - d. DFP Intro to Tech Rescue - Module II
 - e. DFP Rope Rescue Operations
 - f. DFP Rope Rescue Technician
2. Training Categories
 - a. Awareness Level
 - i. Requirements - VAVRS Basic & Light or DFP Intro to Tech Rescue - Module II
 - ii. Provide appropriate scene size-up and call for additional team resources
 - iii. Setup haul/lower systems
 - iv. Should complete an annual proficiency check sheet for this level at your department.
 - b. Operations Level
 - i. Requirements - VAVRS Basic & Light or DFP Intro to Tech Rescue - Module II and VAVRS Vertical Rescue or DFP Rope Rescue Operations
 - ii. Assignments on Scene - setup haul/lower systems, prepare equipment (as necessary), safety officer, rappelling, ascending, basket preparation, tending a basket, coordinate haul team personnel
 - iii. Should complete an annual proficiency check sheet for this level at your department.
 - c. Technician Level
 - i. Requirements - VAVRS Advanced Vertical Rescue or DFP Rope Rescue Technician
 - ii. Assignments on Scene - Assignments for Operations Level in addition to setup and operation of Arizona Vortex, advanced anchor systems, complex haul systems, high lines, mirrored systems, pass knot through haul system, use of Aztek (set of 4's)
 - iii. Should complete an annual proficiency check sheet for this level at your department.
3. Command Structure
 - a. Incident Command
 - i. All outside radio communications through IC only
 - ii. All resources are requested by the IC
 - b. Operations Sector
 - i. Additional resources are requested through IC
 - ii. Should be on their own channel
 - iii. Work off of mobile repeater using the bank of radios from Squad 1
 - iv. Team members communicate with only Operations Sector

- v. Additional helmets and Class II harnesses available on Squad 1

Standards:

- 1. Rope Standards
 - a. All rope techniques and equipment utilized in rescue operations should be in accordance with established standards by the National Fire Protection Association (NFPA). Techniques and equipment used should be limited to the curriculums taught in DFP and VAVRS rope rescue courses.
 - i. NFPA 1670 Standard on Operations and Training for Technical Search and Rescue Incidents
 - ii. NFPA 1006 Standard for Technical Rescuer Professional Qualifications
 - iii. NFPA 1983 Standard for Life Safety Rope and Equipment for Emergency Services

Procedure:

- 1. Tactical Considerations:
 - a. A risk/benefit analysis should be performed by the Incident Commander.
 - b. High Angle Rescue:
 - i. Any high angle rescue should require a Rope Technician as the Operations Officer
- 2. Phases of Operation
 - a. Phase I - Arrival
 - i. Assessment: Obtain accurate information and determine resources needed to address the situation. Determine the following immediately:
 - 1. Number of victims and their locations
 - 2. Time elapsed
 - 3. High versus Low Angle
 - 4. Identified hazards to rescuers
 - b. Phase II - Pre-Rescue Operations
 - i. Scene Control
 - 1. Determine and Communicate accessibility
 - 2. Secure Area
 - 3. Remove all non essential and untrained personnel from hot zone
 - 4. Minimize/eliminate non essential traffic into the scene
 - ii. Establish Hot Zone
 - 1. All personnel in the hot zone should wear a minimum of the following:
 - a. Helmet
 - b. Hard sole shoes
 - c. Safety Glasses
 - d. Rope gloves

- e. Any personnel operating within 10 feet of an edge (Hot Zone) shall have on a Class II or III (preferred) harness that is tethered
 2. Personnel within the hot zone should have a minimum of Operations Level training.
- c. Phase III - Operations
 - i. Operation phase may include:
 1. Accessing patient
 2. Performing rapid medical assessment
 3. Packaging and/or securing patient
 4. Extrication of patient
 - ii. Low Angle - Terrain less than 45 degrees, the patient will be assisted at all times.
 1. If a patient is ambulatory, they may be assisted by rescuers with the use of belay lines.
 2. If the victim is not ambulatory, the patient should be secured properly and placed into a stokes basket and connected to a skate block or haul line.
 3. A safety line is not required in low angle rescue.
 - iii. High Angle - Terrain 45 degrees or greater, a technician should assume Operations and conduct all extrications.
 1. A minimum 10:1 total system safety factor (SSF) should be maintained (although 15:1 SSF, preferred) utilizing hardware and two rope techniques of shared tension, mirrored, or a main and safety, when applicable. Assume 300lb./person load when calculating safety factor.
 2. If at any time a minimum 10:1 SSF is unattainable, the IC and/or Operations Sector should be notified, and the system should be evaluated before use.
 3. A separate anchor should be utilized for each line whenever possible.
 4. Attendants should be attached to the stokes basket when the patient has a pulse and is breathing. An attendant is not necessary for recovery scenarios.
- d. Phase IV - Termination of Incident
 - i. Ensure personnel accountability
 - ii. Deconstruct all systems and ensure all equipment is cleaned, and operable before returning to service
 - iii. Assure that all appropriate PPE remains on during this phase and that untrained personnel remain out of the Hot Zone.