NORTH WHATCOM FIRE AND RESCUE

FIRE DISTRICT POLICY AND PROCEDURE

Number: 0700.0003.00	**Date: 10/20/2016**
Area: Equipment Management	**Page: 1 of 7**
Subject: Rope and Rope Equipment	**Approved:**

1.0 General

North Whatcom Fire and Rescue strives to provide the highest quality of tools and equipment for fire ground operations. This policy is to put into place the practice of care and maintenance of fire district life lines and ropes and other related rescue equipment.

2.0 Purpose

The purpose of this procedure is to insure that fire district ropes are cared for before, during and after use. It is also to provide the firefighter with answers to identify equipment, care procedures and maintenance logs for said equipment.

3.0 Scope

This procedure applies to all suppression personnel that use, clean and maintain life safety rope and equipment.

4.0 Policy

4.1 Definitions:

Program Officer: NWFR member assigned to manage department rope.
Lifeline Cleaner: Cleaner designated to be used to clean department rope.

4.2 Inventory Control

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4.2.1 All ropes and equipment shall be inspected and inventoried after each use.
4.2.2 Quarterly all ropes and bags will be inspected, inventoried and documented.
4.2.3 Missing items shall be reported, in writing, to the Program Officer.
4.2.4 Truck Companies, Quints, and other Special Operations Companies that are assigned life safety rope shall maintain the same inventory control procedures and rope logs.

4.3 Rescue Rope

4.3.1 Rescue rope is used for Life Safety Lines only.
4.3.2 Rescue rope can be used as an anchor attachment, rappel line, hauling or lowering line, safety belay line, litter tag line, or in mechanical advantage systems. It is not intended to be used as a towrope, utility line, or any other purposes.

4.3.3 All Truck and Engine Companies with assigned rescue rope shall maintain rope use logs.

4.4 Construction – Nylon, Static, Low-Stretch Kemmantle

4.4.1 Shall meet or exceed NFPA 1983 (2006 Edition) requirements. And or WAC 296-305-02019.

4.4.2 At the least the inner core shall be of block creel construction, virgin fiber, and continuous filament nylon. The outer sheath may be nylon or polyester or nylon/polyester blend or both with a 32 or 48-carrier sheath construction.

4.4.3 Shall be designed to have maximum working load of at least 600 pounds per foot (lbf) and shall be designated as a class two-person life safety rope.

4.4.4 Shall be static or low stretch.

4.5 Specifications

4.5.1 Strength: Rope shall have a minimum breaking strength of 9000 lbf.

4.5.2 Diameter: ½ inch or not to exceed 13 mm.

4.5.3 Lengths: Truck and Quint Companies will be 300’ lengths and TRT Companies will be 200’ and 300’ and as needed.

4.6 Maintenance

4.6.1 All Companies with assigned rescue ropes and rope related equipment shall be responsible for the care, and maintenance of such equipment.

4.6.2 The Program Officer (assigned position) will be responsible for replacing rescue ropes and equipment.

4.7 Care of Rope

4.7.1 Each rope use shall be documented in the rope use log.

4.7.2 Avoid stepping on rope as dirt and grit can become ground into the sheath causing damage to the core and/or mantle.

4.7.3 Always use edge protection when using rope and avoid snagging on sharp edges or projections.

4.7.4 Always keep stored in approved rope bags when not in use.

4.7.5 Avoid prolonged exposure to sunlight.

4.7.6 Only those knots and hitches approved by North Whatcom Fire and Rescue are to be used for rescue evolutions.

4.7.7 Avoid contact with battery acid, petroleum products, solvents, or exposure to vehicle exhausts.

4.7.8 Do not leave on concrete floors, or in damp areas.

4.7.9 Avoid passing nylon rope over nylon rope or webbing.

4.7.10 Do not mark with magic markers, paint, hose dyes, etc.; use only rope ID tags.

4.7.11 Cleaning

4.7.11.1 The Program Officer will be responsible for the oversight of cleaning all life safety rescue and training ropes.

4.7.11.2 Dirty rope will be sent to Station 63 for cleaning to allow drying in the hose tower.

4.7.11.3 Rinse off any excess dirt with a hose. Then soak the rope for about 30 minutes in a plastic tub of water with Lifeline cleaner added. Rinse the rope with clean water from a hose. Hang the rope in a cool, shady place to dry. Do not let the rope dry in the sun.

4.7.11.4 If necessary, ropes can be stuffed into their bags wet. The ropes may start the mildew process but this does not adversely affect the rope until it can be cleaned.

4.8 Rope Inspection

4.8.1 All rescue rope inspection and use procedures shall comply with NFPA 1983 Standard (2006) Edition.

4.8.2 Before starting the rope inspection verifier the rope log and rope tag match. Rope shall be inspected both visually and by tactile inspection by passing the entire length of the rope through the hands, while under slight tension. At the same time, the hands should detect any irregularities, such as lumps or soft spots, glazed surfaces, cuts, abrasions or uneven wear in the feel of the rope. All mars and marks shall be noted in the rope log assigned to that rope.

4.8.3 The decision to retire or to keep in service a life line is the decision of the Program Officer.

4.8.3.1 If any problems are encountered or concerns regarding the conditions of any rescue ropes, contact the Program Officer.

4.9 Rope Use Documentation

4.9.1 The condition of a rope is in effect dependent on its history: the age of the rope, the conditions to which it has been subjected, and the care it has received. NFPA 1983 requires a history be maintained on each rope.

4.9.2 Rope use should indicate each time the rope is used and the activity it is used in. There must be specific entries made whenever the rope is subjected to abuse that could affect its performance or safety.

4.9.3 Additional information on the rope history log should include pertinent information on the manufacturer, diameter, design, length, color, tensile strength, date of purchase, date placed in service.

4.9.4 IT IS ESSENTIAL THAT ENTRIES FOR EACH ROPE BE MADE EVERY TIME IT IS RETURNED TO STORAGE. THIS DISCIPLINE MUST BE FOLLOWED BY EVERY COMPANY ASSIGNED LIFE SAFETY ROPE. OTHERWISE, THE ROPE HISTORY IS INCOMPLETE.

4.9.5 Life Safety rescue ropes shall have an identification mark on each end of the rope. This identifying mark will correspond with its rope history log so that it is unmistakable and so it cannot be eradicated or lost. Rope ends will be sealed with a protective coating or heat shrink tubing.

4.9.6 Each rope identification mark will be coded to indicate the manufacturer, length of the rope, month and year placed in service, and the individual rope number. *Example:* **Eng 63-300-01** The letters and numbers in this code represent the following:

4.9.6.1 **ENG** The first letter of the Eng or Ladder.
4.9.6.2 **300** The length of the rope in feet and in multiples of ten (**300 feet**).
4.9.6.3 **01** Number of the rope
4.9.6.4 **03** Month of manufacture
4.9.6.5 **2016** Year of manufacture

4.10 Rope Replacement

4.9.1 Rope shall be downgraded or replaced under any of the following conditions. All damaged rope shall be sent to the Department Program Officer.

4.10.1.1 Suspected or known contact with chemicals or acids
4.10.1.2 When damage to the sheath or core is visible due to abrasion, kinking, heat or high stresses.
4.10.1.3 Any time the rope has received a shock load or impact load.
4.10.1.4 After ten years of service, regardless of the condition of the rope.

5.0 Auxiliary Equipment System Components

5.1 Rescue Harness

5.1.1 Only Class III rescue harnesses will be used by Technical Rescue Team members. Each harness shall meet or exceed all applicable NFPA 1983 (2006)

edition Standard and shall have a product label listing compliance specified in this standard.

5.1.2 Rescue harnesses should be inspected before, after each use, and quarterly. Inspect harnesses for cuts, severe abrasions, ripping and stitching that may be coming loose or is abraded. Equal and opposite pressure should be applied to harness pieces, which are stitched together (try to pull the pieces apart and examine the stitching). Any stitch showing signs of loosening shall warrant placing the harness out of service.

5.2 Carabiners

5.2.1 Only steel carabiners will be used and have major axis minimum breaking strength, with the gate closed, of at least 9,000 lbf. Carabiner gates shall be self-closing and of a locking design.

5.2.2 Do not subject the carabiner to loads on the gate or minor axis.

5.2.3 Do not subject the carabiner to loads over a sharp bend, such as a building edge.

5.2.4 Remove small nicks or burrs on the gate or hook with a fine file and polish with emery cloth.

5.2.5 Corroded or dirty gates can be cleaned with warm soap and water, dried thoroughly and wiped lightly with graphite.

5.3 Rescue Eight Plates and Rappel Racks

5.3.1 Load-bearing hardware auxiliary equipment shall be constructed of forged, machined, stamped, extruded, or cast metal.

5.3.2 Descent devices shall have a minimum tensile strength of at least 5,000 lbf. without permanent damage and of at least 8,000 lbf. without failure.

5.4 Ascending Devices and Pulleys

5.4.1 All auxiliary equipment shall have a minimum tensile strength of at least 5,000 lbf. without permanent damage, and of at least 8,000 lbf. without failure.

5.4.2 Handle ascenders, Gibbs ascenders and rescusenders shall be designed for half-inch rope.

5.4.3 Pulleys shall be sealed ball bearing with anodized aluminum side plates. The two and four inch sizes will be used with single or double sheaves.

5.5 Nylon Webbing

5.5.1 All webbing used as rescue components shall be tubular design with a tensile strength of at least 4,000 lbf. for one inch, and 6,000 lbf. for two inch webbing. Webbing serves many functions in the rescue system. It can be used for anchoring systems, patient packaging, hitches, quick-set harnesses, gear slings and even self-rescues.

5.5.2 Knots should not be left in webbing when stored, and the only knot to be used is the Water Knot.

5.5.3 Webbing is to be inspected before, after use, and every quarter. Inspect every running foot for cuts, nicks and abrasions. The webbing should be pulled taught while inspecting it. Tiny, minor abrasions are acceptable in webbing. Webbing that is unacceptable should be removed from service for life safety use.

5.6 Prussik Cord

5.6.1 Prussik cord is also referred to as accessory cord. It shall be constructed of nylon, low stretch, kernmantle, same as rope. The care, maintenance and cautions for prussik cord are the same as for rescue rope.

5.6.2 It has many applications in the rescue system, the same as webbing. The most prominent use is for attachments, self-rescue, and for use on rope as a prussik hitch. Prussik cord utilizes a double fisher-mans knot also referred to as a barrel knot to make a loop or sling and which is left tied during storage. Prussik cord is to be inspected before, after use, and each quarter. It shall be replaced as needed.

5.7 Edge Protection

5.7.1 Life safety ropes shall be padded when deployed over edges or rough surfaces.

6.0 References

- WAC 296-305-02019
- WAC 296-305-05113
- New England Ropes (CMC rescue and lifelines) Reference #1

Approved:	
	Chairman, Board of Fire Commissioners North Whatcom Fire & Rescue
Date:	

North Whatcom Fire and Rescue Rope Log

Date in Service_____ Length_____ Rope Color_____

Rope Number_____ Bag Number_____ Manufacture : New England Ropes

DATE	Incident #	How Used Rescue, Rappel, Main or Belay	Damage	Inspection Results	Name

Apparatus assigned_____