Appendix I – Rappel Base Review

I. Quality Assurance Review Standards

The national rappel specialist (NRS) and the national helicopter operations specialist (NHOS) will coordinate national-level quality assurance reviews to ensure that rappel operations comply with national and interagency standards. This level of review should be conducted at all rappel bases at least once every two years; equipment, training, facilities, and records must be reviewed to ensure that standardization requirements are met.

II. Unit, Facilities, and Procedure Inspections

Regional HOS or rappel specialist should conduct rappel unit reviews at least once every two years to ensure that operations are safely performed and conform to established standards. Base managers shall document this review of each rappel unit, as scheduled.

III. Administrative Inspections

Administrative inspections will examine management practices regarding planning, organization, staffing, supervising, and reporting.

A. The inspection shall include, but not be limited to, the following:

1. Personnel staffing, management and organization
2. Operating plans, training schedules, and instructor assignments and qualifications
3. Management practices, quality and timing of reports, records maintenance, work schedules, safety and health
4. Inventory management, procurement and replacement schedules, use practices, and security

IV. Procedures Inspections

Procedures inspections must review operating practices related to mission effectiveness and safety. Reviews shall examine operational areas for compliance and standardization with established procedures.

A. Review shall include:

1. The structure and methodology of rappel training
2. Cargo letdown packaging, aircraft loading, and cargo restraint
3. Dispatching, personnel and load manifesting
4. Preflight, in-flight, and exit procedures for rappels
5. Spotting procedures
6. Other fire suppression and ground procedures

V. Facility Inspection

An annual inspection by the appropriate personnel of the facilities and associated equipment is recommended. This inspection is a review of the adequacy and safety compliance and use of the Rappel Operations Review Checklist.

The checklist starting on the next page is the standard template used by the Rappel Quality Assurance Team when conducting a rappel compliance review. The actual form used by the team may be updated or modified to address current programmatic, operational, or equipment changes and emphasis.

National Rappel Operations Review Checklist Cover Page

Base:

Inspection Date:

National Rappel Operations Review Checklist

I. Introduction

The national aviation office in conjunction with regional representation will conduct an evaluation of helicopter rappel programs as part of the 2010 Rappel Quality Assurance (QA) Plan as outlined in the Rappel Program Strategic Risk Assessment Action Plan Response. All rappel programs should have adequate time, as acknowledged by the evaluators, to respond to the evaluation deficiency and to identify corrective action planned or already taken.

II. Purpose

The purpose of the rappel QA review is to ensure that all rappel programs are meeting the intent of the national standardization effort, abiding by the National Rappel Operations Guide (NROG), and providing a quality assurance program. This information will also be utilized to provide a detailed report to the national aviation staff to ensure the quality assurance program is progressive, appropriate and consistent with the mission of aerial delivery of personnel via helicopter.

III. Applicability

The format contained in the National Rappel Operations Checklist was developed by the national rappel specialist (NRS) with oversight provided by the national helicopter operations specialist (NHOS). This document may be revised or updated as needed or applicable.

The following items will be needed for the QA review.

1	Base Operations Plan	6	Rappel Equipment Records
2	Forest/Unit Aviation Plan	7	Base Organizational Chart
3	National Rappel Operations Guide	8	Fire Qualifications (IQCS overview)
4	Rappel Equipment Database (RapRec)	9	Rappel Aircraft
5	Rappeller/Spotter Training Records	10	Location for Rappel Ride-Along

IV. Team composition

At a minimum, the Rappel QA Review Team will consist of the national rappel specialist (NRS), rappel check spotter, and regional helicopter operations specialist.

The Rappel QA may be conducted in conjunction with the National Helicopter Contract Compliance Team, including an aviation maintenance inspector (AMI), helicopter inspector pilot (HIP), national helicopter operations specialist (NHOS), regional helicopter operations specialist (RHOS), and safety and training specialist (S&TS).

All attempts should be made to fill the RHOS, AMI, HIP and check spotter from outside the geographical area.

V. Responsibility and Instruction for Completion

Aviation management at the national level is responsible for conducting the evaluation. Annual reviews are recommended until such time as evaluation time frames are established. The crew should be allowed a minimum of one week to prepare for the review.

A. Completion of individual items is self-explanatory. The following is recommended as an overall approach:

1. The rappel base manager should utilize the evaluation checklist to prepare for the visit by the team. It can also be used as a means of self-evaluation throughout the season.
2. In order to cover the functional area in a reasonable amount of time, it is recommended that each member of the evaluation team cover a separate section of the functional area, with others on the team concurrently completing their assigned area.
3. A closeout with local line officers, regional aviation members, and local fire management to review both deficiencies and positive aspects of the program is essential. A copy of the National Rappel Operations Review Checklist will be provided to the RAO, RHOS and local line officer.
4. A formal follow-up should be made to ensure corrective action has been taken to rectify deficiencies.
5. Items marked with an asterisk are identified as not having a current standard. These items should not be rated, but information should be documented as to possibility of identified standards.

VI. Routing and Filing:

Formal submission to the local line manager is essential, with follow-up reply from the local unit to ensure the corrective actions have been accomplished. Regional aviation management should keep past evaluations on file in order to ensure that items identified in previous visits have been addressed and are nonexistent in future evaluations.

Evaluation Team Members

NAME	AGENCY	POSITION	PHONE

Rappel Quality Assurance Review Checklist

RAPPEL BASE:_____

DATE OF REVIEW:_____

Code Key: E = Exceptional M = Meets Standard NI = Needs Improvement NR = Not Reviewed

#	PROGRAMMATIC EVALUATION CRITERIA	Last Review Code	Current Review Code
	Evaluator: National Rappel Specialist (with QA team member as applicable)		
	Evaluate with: Base Manager, training manager and one check spotter or spotter		
N-1	**Organizational Structure**		
	Base manager name: _____	**N/A**	
	Base managers' supervisor name: _____	**N/A**	
	Review and obtain copy of base organizational chart		
	Crew meets minimum crew size requirements per NROG. Current crew size:_____		
N-2	**Qualifications**		
	Obtain copy or review crew qualifications		
	Program seeks opportunities for employee career development e.g., IMT involvement, details		
	Obtain copy or review pilots interagency pilot card (ensure rappel sign-off)		

N-3	**Training**		
	Rappel and spotter currency standards are being met per NROG		
	Frequency of proficiencies? HERS maintaining HRAP currency?	document below	document below
	Program has access to typical-terrain proficiency rappel sites (local unit)		
	Crew performs typical-terrain proficiencies (post rappel academy). Last typical terrain:_____		
	Crew performs readiness drills, i.e. crash/rescue, medical, fire. Last readiness drill:_____		
N-4	**Mission Readiness**		
	Crew is committed to, and has a culture of physical fitness		
	Fire-ready list is available (up-list/rotation board)		
	Morning briefings are being conducted		
	Program has a system in place that addresses boosters (check-in, briefing, rotation order)		
N-5	**Risk Management**		
	Risk assessments tools are being utilized, i.e. Green-Amber-Red (GAR)		
	Spotters have documented Crew Resource Management Training (3.0 hour initial or 1.5 hour refresher)		

N-6	**Safety**		
	Program is adhering to work/rest guidelines		
	Do personnel have concerns or comments regarding the 2019 next-gen rappel equipment transition?	document below	document below
	SafeRap reporting system is accessible to all personnel		
	SafeRap reports are available to all personnel (hard-copy posted, and/or electronically available)		
	Rappel-related Safety Alerts, Tech Tips, and Information Bulletins are hard-copy posted or e-filed		
	Change blindness training is being conducted per NROG standards		
	Change blindness training controls in-place to ensure misrigged items are NOT used operationally		
	Has the crew had any rappel or pack-out related injuries? Were CA-1s completed?	document below	document below
N-7	**Reference Material**		
	NROG available at base, and on support truck (hard-copy or downloaded electronic copy)		
	Base Operations and Forest Aviation Plan(s) address rappel operations		

QA TEAM PROGRAMMATIC REVIEW NOTES

#	RAPPEL AIRCRAFT EVALUATION CRITERIA	Last Review Code	Current Review Code
	Evaluator: National Rappel Specialist (with airworthiness inspector as applicable)		
	Evaluate with: Pilot, mechanic, and one spotter		
N-8	**Rappel Aircraft Safety and Performance**		
	Spotter is aware of aircraft weight and balance parameters		
	Pilot has completed weight and balance calculations for various rappel configurations		
N-9	**Rappel Bracket**		
	ELAM installed, inspected, and documented by mechanic per applicable STC		
	ELAM inspected daily by qualified rappel spotter		
	Carabiners approved for human external load attached per NROG standard (Rock Exotica/rockD)		
	Carabiners approved for cargo operations attached per NROG standard (SMC manual-locking)		
N-10	**Spotter Tether Anchor System**		
	Ring/stud installed per ELAM STC		
	ARS (18") installed per NROG CH. 5. ARS has date stamp or tag (life cycle 10 years from DOM)		

N-11	**Cargo**		
	Cargo installed and secured with approved straps (10-year DOM)		
	Cargo netting, posts, and seats installed per NROG/STC		
	Figure 8s available, and meet wear and functionality inspection		
	Accordion line packs available and securely stowed		
N-12	**Rappeller Tether(s)**		
	Inspected and logged annually		
	Tagged with identifier, including date-of-manufacture (life cycle 10-years from DOM)		
N-13	**Surfaces**		
	Skid protectors installed per STC		
	Flight step outer edges are smooth, preventing damage to ropes and cargo letdown lines		
	Passenger cabin floor sill(s) are smooth, preventing damage to ropes and cargo letdown lines		
N-14	**Avionics**		
	Aircraft radios, ICS system, wireless drop cords (if applicable) are functioning properly		
	QA TEAM RAPPEL AIRCRAFT REVIEW NOTES		

#	RAPPEL EQUIPMENT EVALUATION CRITERIA	Last Review Code	Current Review Code
	Evaluators: Rappel Check Spotter (with QA team member assistance as needed)		
	Evaluate with: Equipment manager (or spotter) and two rappellers		
N-15	**Electronic Equipment Database (RapRec)**		
	System is accessible and updated (review with equipment manager)		
N-16	**Individual Records**		
	Spotter Training Record is kept, and is up to date (review w/ one spotter)		
	Rappeller Training Record is kept, and is up to date (review w/ two rappellers)		
N-17	**Rappel Harness System** (Life Cycle is 10-years from DOM for harness)		
	Tagged with identifier, including in-service date (manufacture tag may be used)		
	User understands inspection criteria (review with two rappellers)		
	Condition of rappel harness and carabiner (w/ lanyard pin) meet NROG standard		
	Raptor Knife attached to harness and inspected per standard (review w/ two rappellers)		
	Confirm the Rappel Equipment Inspection Form is being kept and is up to date (w/ two rappellers)		
N-18	**Rappeller Gear**		
	Approved BD bag is in serviceable condition, contains minimum contents, and does not exceed 30 pounds		
	Rappeller PPE is in serviceable condition (flight helmet, rappel gloves, eye protection, Nomex, boots)		
	Program has adequate stocking levels and issues serviceable line packs, gear bags, fireline items		

N-19	**Spotter Harness System** (Life Cycle is 10-years from DOM for harness and tether)		
	Tagged with identifier, including DOM (manufacture tag may be used)		
	Spotter tether tagged with identifier, FS manufacture location, serial number, and DOM		
	User understands inspection criteria (review with 1 spotter)		
	Condition of spotter harness, and extendable tether meet NROG standard		
	Confirm that Rappel Equipment Inspection Form is being kept and up to date (w/ one spotter)		
N-20	**Rappel Rope** (Life Cycle is 5-years from DOM)		
	Marked with "A" and "B" ends		
	Rope identified by length, serial #, DOM, (under termination protector), with ends marked A or B.		
	User understands inspection criteria (review with 2 rappellers)		
	Condition of rope meets NROG/manufacturer standards		
	Rope bags are identified by: 250' orange, 300' yellow		
	Ropes are stored in clean/dry area(s) with "OK" tags		
	Confirm that Rappel Equipment Inspection Form is being kept and up to date (w/ equipment mgr.)		

N-21	**Descender** (Life cycle is wear and functionality based)		
	Factory serial number on cover is visible		
	User understands inspection criteria (review with two rappellers)		
	Condition of descender meets NROG/manufacturer standards		
	Descenders are stored in clean/dry/protective area (equipment case/locker)		
	Confirm that Rappel Equipment Inspection Form is being kept and up to date (w/ equipment mgr.)		
N-22	**Cargo Deployment Equipment (Hardware)**		
	SMC Lite Stainless Steel Locking Carabiners meet wear and functionality criteria		
	CMC Rescue 8 (aluminum or steel) meet wear and functionality criteria		
N-23	**Cargo Deployment Equipment (Lines)**		
	Line tagged with identifier, including USFS location, serial number, and DOM		
	2019 lines clearly marked with black dye (25-foot section each end, 10-foot section in middle)	pre 2019 (contrasting)	
	Accordion Packs are identified by: 250' white w/ black seam tape, 300' white w/ yellow seam tape		
	Packing and logging of line(s) meets NROG standard		
	Confirm that Rappel Equipment Inspection Form is being kept and up to date (w/ equipment mgr.)		

	Cargo Deployment (Containers)		
N-24	Cargo containers meet NROG approval and packing standards (verify minimum contents)		
	Using Cargo Box Harness-#MTDC-1088, Cubitainer Harness-#MTDC 1087, Cargo Loop-#MTDC-1112		

QA TEAM <u>RAPPEL EQUIPMENT</u> REVIEW NOTES

#	RAPPEL OPERATIONS EVALUATION CRITERIA	Last Review Code	Current Review Code
	Evaluators: Rappel check spotter (with QA team member assistance as needed)		
	Evaluate with: Pilot, rappel spotter and a load of 2 or 4 rappellers w/cargo		
N-25	**Mission Planning**		
	Load calculations and manifests are complete, accurate, and posted		
	Morning briefing conducted with crew/vendor staff (roll-call, fire weather, ready-list, SafeRap, SAFECOM)		
	Pilot, mechanic, and driver available, on-site, and prepared to perform mission		
	Weight and balance calculations are completed by pilot (if non-standard load is part of review)		
	GAR completed (crew discusses and provides mitigation factors to items deemed high-risk		
N-26	**Preflight Briefing**		
	Location of operation identified		
	Spotter informs rappellers with mission information		
	Spotter and pilot discussion (rappellers to-be-deployed, emergency procedures, overall CRM)		
N-27	**Aircraft Configuration**		
	Aircraft configured per NROG (Chapter 5)		

N-28	**Rappel Rigging**		
	Spotter demonstrates rappel bracket daily check		
	Approved carabiners installed correctly		
	Ropes routed and connected correctly with approved carabiners		
	Spotter demonstrates rappeller tether daily check		
	Figure 8 available and connected to door bracket with approved carabiner		
	Cargo installed and secured with approved cargo restraint		
N-29	**Boarding Sequence**		
	Spotter performs rappeller check(s) and boarding sequence		
	First-in rappeller (per side) performs rappel equipment checks		
	Last-in rappeller performs spotter check		
	Spotter performs aircraft check, boards aircraft, inspects rappel rigging and rappellers		
N-30	**In-Flight Procedures**		
	Pilot/spotter perform high/low-level recon (identifies hazards as appropriate)		
	Spotter identifies emergency site		
	Spotter selects primary rappel site (discusses alternate site options)		
	High-hover power check completed		
	Positive rate-of-climb achieved		
	Doors opened as appropriate (master caution reset)		

N-31	**Rappel Sequence**		
	Effectively positions aircraft over rappel site		
	Initiates rappel sequence In maximum-continuous power parameters		
	Initiates and follows rappel sequence		
	Spotter/pilot communications are clear and concise (challenge and response protocols followed)		
	Spotter clears aircraft before directing movement		
	Rappellers follow established standards throughout process		
	Spotter gives appropriate hand signals		
	Adequate rotor clearance maintained throughout sequence		
N-32	**Cargo Deployment**		
	Effectively positions aircraft over cargo site		
	Initiates cargo sequence in maximum-continuous power parameters		
	Initiates and follows cargo sequence		
	Spotter/pilot communications are clear and concise (challenge and response protocols followed)		
	Spotter clears aircraft before directing movement		
	Adequate rotor clearance maintained throughout sequence		
	QA TEAM RAPPEL OPERATIONS REVIEW NOTES		

Functional Area- Summary

(Review with manager, crew, and vendor as appropriate. Closeout with local fire management. Submit formal evaluation as soon as possible.)

GENERAL READINESS OF THE BASE
ITEMS WHICH ARE DEFICIENT
CORRECTIVE ACTION TO BE TAKEN

Functional Area – Recommendations and Follow-Up Requirements

(Review With manager, crew, and vendor as appropriate. Closeout with local fire management. Submit formal evaluation as soon as possible.)

DUE DATE	EVALUATION SECTION	REQUIREMENT OR RECOMMENDATION	DATE COMPLETE